



GeoPro Consulting Limited

Geotechnical-Hydrogeology-Environmental-Materials-Inspection

Phase Two Environmental Site Assessment

Proposed Residential Development

East Side of County Road 27 and north of Salem Road

City of Barrie, ON

Prepared For:

Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI



GeoPro Project No.: 17-2099E02

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Professional, Proficient, Proactive

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Table of Contents

1.0	EXECUTIVE SUMMARY	1
2.0	INTRODUCTION	3
2.1	Site Description	3
2.2	Property Ownership	3
2.3	Current and Proposed Future Uses.....	4
2.4	Applicable Site Condition Standard	4
3.0	BACKGROUND	5
3.1	Physical Setting	5
3.2	Previous Environmental Report(s)	6
3.2.1	Investigations by GeoPro	6
4.0	SCOPE OF THE ASSESMENT.....	7
4.1	Overview of Site Assessment	7
4.2	Media Investigated	7
4.3	Phase One Conceptual Site Model	8
4.4	Deviations from Sampling and Analysis Plan	9
4.5	Impediments.....	9
5.0	INVESTIGATION METHOD.....	10
5.1	General.....	10
5.2	Borehole Drilling, Test Pitting and Monitoring Well Installation.....	10
5.3	Soil Sampling.....	10
5.4	Soil: Field Screening Measurements.....	11
5.5	Groundwater: Monitoring Well Installation	11
5.6	Groundwater: Monitoring and Sampling	11

5.7	Groundwater: Field Measurement of Water Quality Parameters	12
5.8	Surface Water and Sediment: Sampling	12
5.9	Analytical Testing	12
5.10	Residue Management Procedures.....	12
5.11	Elevation Survey	13
5.12	Quality Assurance (QA) and Quality Control (QC) Measures.....	13
6.0	REVIEW AND EVALUATION.....	14
6.1	Soil Stratigraphy.....	14
6.2	Soil Texture.....	14
6.3	Groundwater Flow	14
6.4	Soil: Field Screening.....	14
6.5	Soil Quality	15
6.6	Groundwater Quality	17
6.7	Quality Assurance and Quality Control (QA/QC) Results	18
6.7.1	Field Quality Assurance/Quality Control Samples.....	18
6.7.2	Sample Handling in Accordance with the Analytical Protocol	19
6.7.3	Certification of Results	19
6.7.4	Laboratory QA/QC Results	19
7.0	CONCLUSIONS AND RECOMMENDATIONS	20
7.1	Conclusions.....	20
8.0	SIGNATURE.....	21
9.0	REFERENCES	22

TABLES

No.

Monitoring Well Construction Details and Groundwater Levels

Table I

Soil Sample Analytical Protocol

Table II

Water Sample Analytical Protocol

Table II

DRAWINGS

No.

Site Location Plan

Drawing No. 1

Phase One CSM

Drawing No. 2

Test Pit/Borehole/Monitoring Well Location Plan

Drawing No. 3

Summary of Soil Quality

Drawing No. 4A to 4H

Summary of Groundwater Quality

Drawing No. 5

APPENDICES

No.

Previous Reports

Appendix A

Borehole Logs

Appendix B

Laboratory Certificates of Analysis & Chain of Custody - Soil

Appendix C

Laboratory Certificates of Analysis & Chain of Custody - Water

Appendix D

LIMITATIONS OF THE REPORT

1.0 EXECUTIVE SUMMARY

GeoPro Consulting Limited ("GeoPro") was retained by Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI (the "Client") to conduct a Phase Two Environmental Site Assessment ("ESA") for the property located on the east side of County Road 27 and north of Salem Road, in the City of Barrie, Ontario (the "Site" or "Phase Two Property").

The Site consists of one (1) irregularly shaped parcel of lands. The Site is currently vacant, and we understand that the Client intends to carry out a residential development at the Site. A Phase One ESA was completed at the Site on April 23, 2018 by GeoPro. Based on the results of the Phase One ESA, eight (8) Areas of Potential Environmental Concern ("APECs") were found and a Phase Two ESA was recommended.

The purpose of the Phase Two ESA was to characterize the subsurface soil and groundwater conditions at the Phase Two Property and assess areas of the Phase Two Property where contaminants may be present in soil and/or groundwater. The Phase Two ESA was conducted in general accordance with Ontario Regulation 153/04 (O. Reg. 153/04) as amended by O. Reg. 511/09.

It should be noted that a record of site condition ("RSC") is not requested at this time. If filing a RSC with the Ministry of the Environment, Conservation and Parks ("MECP") is needed in the future, further consultation and/or work will be required.

The Phase Two ESA was completed based on the findings of the Phase One ESA. The soil and groundwater samples tested in the assessments were analyzed for one or more parameters including petroleum hydrocarbons ("PHCs"), volatile organic compounds ("VOCs"), polycyclic aromatic hydrocarbons ("PAHs"), Polychlorinated Biphenyl ("PCB"), Organochlorine Pesticides ("Oc-Pesticides"), Benzene, Toluene, Ethylbenzene and Xylene ("BTEX"), metals and inorganics.

The soil and groundwater quality were assessed by comparing the analytical results to the Ministry of the Environment, Conservation and Parks ("MECP") Table 1 Standards: Full Depth Background Site Condition Standards for Residential/Parkland/Industrial/Institutional/Commercial/Community Property Use ("Table 1 Standards").

Based on the findings of the Phase Two ESA, the following conclusions were made:

- The soil stratigraphy at the Site generally consists of reworked soils below topsoil, underlain by native till deposits, cohesionless soils textured from silt to gravelly sand, and cohesive clayey silt. No bedrock was encountered at the maximum drilled depth of approximately 12.6 mBGS.
- A tributary of Bear Creek flows from southeast to northwest in the west portion of the Site.
- The depth to groundwater measured during the Phase Two ESA ranged from 0.21 to 4.24 mBGS, corresponding to elevations ranged from 303.49 to 305.93 mASL. The local shallow groundwater flow direction was interpreted to be northwesterly towards Bear Creek at the east portion of the Site, and northeasterly towards Bear Creek at the west portion of the Site.
- Based on the analytical results of soil samples during the Phase Two ESA and the geotechnical investigation, there were no exceedances of the applicable Table 1 Standards for PHCs, VOCs,

PCBs, BTEXs or Oc-Pesticides in all of the samples analyzed. However, exceedance of the applicable standard was found for some PAHs, Molybdenum and SAR in some soil samples collected at the Site.

- Based on the analytical results of groundwater samples, there were no exceedances of the applicable Table 1 Standards for PHCs, VOCs, PAHs, PCBs, M&I or BTEXs in all of the samples analyzed.

Based on the findings of the Phase II ESA, GeoPro provides the following recommendations.

- The quality of soil has been impacted at and in the vicinity of the above-referenced sampling locations.
- Consequently, we recommend further investigation be carried out to delineate the lateral and vertical extent contamination. This may be an iterative process as it has been our experience that delineation is rarely achieved in one iteration. Once delineation has been achieved, a remedial program will be designed to address subsurface contamination at the Site in accordance with regulatory standards and protocol.
- As groundwater level in monitoring wells BH101, BH102 and BH105 were close to or deeper than the screen depths, not enough groundwater samples were collected for chemical analysis to evaluate the groundwater quality of APEC 2A, 2B and 5A; monitoring wells BH101, BH102 and BH105 should be deepened for additional groundwater sampling and testing.

NOTE: This executive summary provides a brief overview of the study findings. It is not intended to substitute for the complete report, nor does it detail specific issues discussed within the report. This summary is not to be adopted in lieu of reading the complete report.

2.0 INTRODUCTION

GeoPro Consulting Limited (“GeoPro”) was retained by Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI (the “Client”) to conduct a Phase Two Environmental Site Assessment (“ESA”) for the property located on the east side of County Road 27 and north of Salem Road, in the City of Barrie, Ontario (the “Site” or “Phase Two Property”). The approximate location of the Site is shown on Drawing No. 1.

The Site is currently vacant, and we understand that the Client intends to carry out a residential development at the Site. A Phase One ESA was completed at the Site on April 23, 2018 by GeoPro. Based on the results of the Phase One ESA, eight (8) Areas of Potential Environmental Concern (“APECs”) were found and a Phase Two ESA was recommended.

The purpose of the Phase Two ESA was to characterize the subsurface soil and groundwater conditions at the Phase Two Property and assess areas of the Phase Two Property where contaminants may be present in soil and/or groundwater. The Phase Two ESA was conducted in general accordance with Ontario Regulation 153/04 (O. Reg. 153/04) as amended by O. Reg. 511/09.

It should be noted that a record of site condition (“RSC”) is not requested at this time. If filing a RSC with the Ministry of the Environment, Conservation and Parks (“MECP”) is needed in the future, further consultation and/or work will be required.

2.1 Site Description

The Site consisted of one (1) irregularly shaped parcel of lands, with a total area of 27.0 hectares (about 270,000 m²).

Reportedly, the Phase One Property remains undeveloped, and the north portion of the Site has been a farmland since 1989.

The Universal Transverse Mercator (“UTM”) coordinates for the approximate centroid of the Site are 17 T 601253.6 m East, 4907931.03 m North, as obtained from Google Earth based on the 1983 North American Datum.

Municipal Address	Not available
Legal Description	- Part Lot 1 Concession 11, Township of Innisfil. - Part of the South Half of Lot 1, Concession 3, Township of Innisfil, City of Barrie, County of Simcoe (as per Concept Plan A-6 provided by the Client) - Part of the South Half of Lot 1, Concession 11, (Geographic Township of Innisfil), County of Simcoe: Parts 1, 2 and 3 Plan 51R-35542 (as per interview questionnaire)
Parcel Identification Numbers (“PIN”)	Not available

2.2 Property Ownership

The contact information for the Client and the Owner is provided in the table below.

	Client	Property Owner
Name	Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI	Di Poce Management Inc.
Contact	Nelson Lee	N/A
Address	N/A	N/A
Telephone	905-738-6100 ext. 284	N/A
Email	nlee@schaeffers.com	N/A

2.3 Current and Proposed Future Uses

Site remains undeveloped and is currently vacant. The proposed future use of the Site is residential.

2.4 Applicable Site Condition Standard

The analytical results of the soil and groundwater samples were evaluated using the standards contained in the Ministry of the Environment, Conservation and Parks ("MECP") document "Soil, Groundwater and Sediments for Use Under Part XV.1 of the *Environment Protection Act*" (the "Standards") as amended by Ontario Regulation 511/09 effective on July 1, 2011.

The Standards applied in this Phase Two ESA were selected and based on the following information:

- The Site is located within 30 m of a water body.
- The Site is considered to be environmentally sensitive as per O. Reg. 153/04, as the Site is located within natural significance area.
- The Site is not considered to be a shallow soil property, based on the findings of GeoPro's Phase Two ESA field investigation.
- Based on the MECP Water Well Records database, there are eight (8) water supply wells were located at or near the Site.
- The Site is intended for residential use.
- Based on field observation and the result of grain size analysis presented in Appendix C, the native soil materials are generally coarse textured.

Based on the above information and considering a more conservative assessment, the MECP Table 1: Full Depth Background Site Condition Standards for Residential / Parkland / Institutional / Industrial / Commercial / Community Use under Part XV.1 of Ontario's Environmental Protection Act ("EPA") have been selected for evaluating the environmental conditions at the Site.

3.0 BACKGROUND

3.1 Physical Setting

Physiography

Based on the data obtained from Ontario Geological Survey (“OGS”) database, the physiography of the Site is summarized in the following table:

Record Source	Physiography Region	Physiography Areas
Online Physiography Map of Southern Ontario	Peterborough Drumlin Field	Till Plains (Drumlinized)

Quaternary Geology

Based on the data obtained from the OGS database, the quaternary geology of the Site is summarized in the following table:

Record Source	Deposit Types
Online Quaternary Geology Map of Ontario	Newmarket Till deposits consisting of sandy silt to silt matrix, moderate to high in matrix carbonate content, clast content moderate to high.

Bedrock Geology

Based on the data obtained from the OGS database, the bedrock geology of the Site is summarized in the following table:

Record Source	Geological Period	Bedrock Type	Bedrock Depth (mBGS)
Bedrock Geology Map of Ontario	Middle Ordovician	Limestone, dolostone, shale, arkose, sandstone	Approximately 152

mBGS - meters below ground surface

Hydrology

Based on the data obtained from the database maintained by the local conservation authority, the hydrology in regard with the local watershed and open water body on the Site is summarized in the following table:

Watershed	Subwatershed	On-Site Open Water	Nearest Off-Site Open Water			
			Name	Distance from the Site	Flow Direction	Discharge Location
Nottawasaga Valley Watershed	Middle Nottawasaga River Reach	A tributary of Bear Creek flows from southeast to northwest in	A tributary of Bear Creek	100 m north	north-westerly	Nottawasaga River (11 km northwest of the Site)

Watershed	Subwatershed	On-Site Open Water	Nearest Off-Site Open Water			
			Name	Distance from the Site	Flow Direction	Discharge Location
		the west portion of the Site				

3.2 Previous Environmental Report(s)

3.2.1 Investigations by GeoPro

A Phase One ESA was completed concurrently with a geotechnical investigation carried out by GeoPro at the Site.

Phase One ESA

The results of the Phase One ESA were summarized in the report entitled “Phase One Environmental Site Assessment, Proposed Residential Development, East side of County Road 27 and north of Salem Road, City of Barrie, ON” dated December 18, 2018, prepared by GeoPro.

Based on the results of the Phase One ESA, APECs were found to be present in eight (8) areas on the Phase One Property. The contaminants of potential concern include PHCs, PCBs, VOCs, PAHs, organochlorine-pesticides metals and inorganics in soil and/or groundwater.

Geotechnical Investigation

The results of the geotechnical investigation were summarized in the report entitled “Geotechnical Investigation, Proposed Residential Developments, County Road 27, Barrie, Ontario” dated June 1, 2018, prepared by GeoPro.

The intrusive investigation consisted of advancement of twenty-six (26) boreholes (BH1 to BH26) drilled to depths ranging from 3.7 to 15.3 m below the existing ground surface (“mBGS”), and installation of nine (9) monitoring wells in the selected advanced boreholes. Fill materials consisting of organic sandy silt to organic silt, sandy silt, sand and silt, silty sand and gravelly sand were encountered in Boreholes BH4 and BH16 below the topsoil or granular base/subbase, and extended to the depths ranging from about 0.6 to 2.1 mBGS. No bedrock was encountered at the maximum drilled depth of approximately 15.3 mBGS. The measured groundwater levels ranged from 0.23 to 14.83 mBGS. It should be noted that boreholes BH4 and BH16 are drilled outside the Phase One Property. Therefore, no fill material was encountered in the boreholes drilled at the Phase One Property.

During the geotechnical investigation, a total of ten (10) soil samples were submitted to Caduceon Environmental Laboratories in Richmond Hill, Ontario (“Caduceon”) for chemical analyses for the parameters of metals and inorganics, under Ontario Regulation 153/04 (“O. Reg. 153/04”) as amended. The soil analytical results were compared with the MECP “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act”, April 2011, Table 1: Full Depth Background Site

Condition Standards for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Uses ("MECP Table 1 Standards"); Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition ("MECP Table 2 Standards"), and Table 3: Full Depth Generic Site Condition Standards in a non-potable Ground Water Condition ("MECP Table 3 Standards"). Based on the comparison, exceedances of MECP Table 1 standard were noted for Sodium Adsorption Ratio (SAR) or Metals (Molybdenum) in the tested soil samples in the Boreholes BH7 and BH17.

4.0 SCOPE OF THE ASSESMENT

4.1 Overview of Site Assessment

The objective of the Phase Two ESA was to assess the quality of the soil and groundwater at the Site.

The scope of work included the following:

- Review readily available previous reports;
- Design and implement a Sampling and Analytical Plan;
- Locate the underground and overhead utilities;
- Advance boreholes and install monitoring wells;
- Carry out elevation survey of the boreholes/monitoring wells;
- Conduct soil sampling, field screening (visual and by instrument) to optimize sample selection for quantitative chemical analyses at a CALA accredited laboratory;
- Conduct groundwater monitoring and sampling at least one week after well installation;
- Submit groundwater samples for quantitative chemical analyses at a CALA accredited laboratory.
- Review and assess the analytical results of the samples analyzed;
- Prepare a draft Phase Two ESA report presenting the findings of the Phase Two ESA for client review; and
- Prepare a final Phase Two ESA report after addressing the comments provided by the client.

4.2 Media Investigated

Soil samples were collected from seven (7) boreholes BH101 to BH107 and five (5) test pits TP1 to TP4 and TP6, which were advanced during the Phase Two ESA.

Groundwater samples were collected from six (6) monitoring wells BH101 to BH103, BH105 to BH107 installed during the Phase Two ESA.

The soil and groundwater samples were delivered to a CALA accredited laboratory for quantitative analysis under a formal chain of custody.

No sediment or surface water were collected for chemical analysis in this assessment.

4.3 Phase One Conceptual Site Model

A Phase One ESA was conducted by GeoPro at the Site in general accordance with O. Reg. 153/04 as amended, from which a Phase One Conceptual Site Model was established. Potentially Contaminating Activities ("PCAs") were indicated at the Site and the properties within a 250 m radius around the Site boundary. Eight (8) Areas of Potential Environmental Concern ("APECs") were found at the Site (Drawing No. 2).

The PCAs, APECs and Contaminants of Potential Concern ("COPCs") found at the Site are summarized in the following table.

APEC	Location of APEC	PCA Number	Location of PCA	COPCs	Media Potentially Impacted
APEC 1	North portion of the Site	#40	<u>On-Site:</u> Application of pesticide	Metals, OC-pesticides	Soil
APEC 2A	Northeast portion of Site where the fill pile presents	#30	<u>On-Site:</u> Northeast portion of Site where the fill pile presents	PCB, PHCs, VOCs, PAHs, metals, inorganics	Soil
APEC 2B	Northeast boundary of Site	#30	<u>Off-Site:</u> Lot 2 Con 11	PCB, PHCs, VOCs, PAHs, metals, inorganics	Soil and groundwater
APEC 3	Southeast boundary of the Site	#58	<u>Off-Site:</u> South half of Lot 1 Con 11	PCB, PHCs, VOCs, PAHs, metals, inorganics	Soil and groundwater
APEC 4A	Southwest corner of the Site	#28	<u>Off-Site</u> 7975 County Rd 27	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 4B	Center portion of south boundary of the Site	#28	<u>Off-Site</u> 500 Salem Rd	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 5A	Southeast corner of south portion of the Site	#12, #58, Other	<u>Off-Site</u> 4165 Salem Rd	PCB, PHCs, VOCs, PAHs, metals, inorganics	Soil and groundwater
APEC 5B	Center portion of south boundary of the Site	Other	<u>Off-Site</u> 441 Salem Rd	PCB, PHCs, VOCs, PAHs, metals	Soil and groundwater

Note: PCAs described specifically for the Phase One Property with reference to the applicable item number in the Table of Potentially Contaminating Activities provided in Schedule D of *O.Reg.153/04* as amended, where applicable.

#12 – Concrete, cement and lime manufacturing

#28 – Gasoline and Associated Products Storage in Fixed Tanks

#30 – Importation of Fill Material of Unknown Quality

#40 – Pesticides manufacturing, processing, bulk storage and land-scale applications

#58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners

PHCs – Petroleum Hydrocarbons

PCBs – Polychlorinated Biphenyl

PAHs – Polycyclic Aromatic Hydrocarbons

VOCs – Volatile Organic Compounds

OC-Pesticides - Organochlorine Pesticides

4.4 Deviations from Sampling and Analysis Plan

The soil and groundwater sampling program were carried out in accordance with the Sampling and Analysis Plan prepared for the Phase Two ESA.

4.5 Impediments

As groundwater level in monitoring wells BH101, BH102 and BH105 were close to or deeper than the screen depths, not enough groundwater samples were collected for chemical analysis. Therefore, the groundwater quality of APEC 2A, 2B and 5A are unable to be evaluated in this Phase Two ESA.

5.0 INVESTIGATION METHOD

5.1 General

All methods used to complete this Phase Two ESA were in accordance with O. Reg. 153/04 as amended, GeoPro standard operating procedures, and generally accepted industry practices.

5.2 Borehole Drilling, Test Pitting and Monitoring Well Installation

Prior to the intrusive investigation, the underground utilities were located and marked out in the field by the representatives of the major utility companies contacted through Ontario-One-Call and a private locator as well.

The drilling activities for the Phase Two ESA were carried out on July 30 and 31, August 6 and 25, 2019. A total of seven (7) boreholes (Boreholes BH101 to BH107) were advanced to depths ranging from approximately 2.0 to 12.6 meters below ground surface ("mBGS"). A monitoring well (19, 38 or 51 mm in diameter) was installed in each of the boreholes BH101 to BH103 and BH105 to BH107.

In addition, a total of five (5) test pits (TP1 to TP4, TP6) were advanced to depths ranging from approximately 0.25 to 0.8 mBGS.

The approximate borehole, test pit and monitoring well locations are shown on Drawing No. 3.

All field work was supervised and overseen by on-site GeoPro technical staff who determined the locations of all boreholes, logged each borehole (detailed lithology and observational comments), and secured samples of all media collected during the sampling program visually and instrumentally.

5.3 Soil Sampling

Soil samples were collected at regular intervals with a 50 mm O.D. split-barrel sampler driven with a hammer weighing 624 N and dropping 760 mm in accordance with the Standard Penetration Test ("SPT") method. Soil samples were selected for quantitative analyses based on visual observation and field screening by instrument (PID and FID).

To prevent cross-contamination between sampling events and boreholes, appropriate decontamination protocols of soil sampling equipment and tools were carried out. A set of solid stem augers and tools were pre-cleaned by the drilling contractor prior to arrival on site. The split spoon samplers were decontaminated prior to and between each soil sampling event by scrubbing with a wire brush and washing in a solution of Alconox solution and rinsing with distilled water. The wash water was drummed for future management based on its quality relative to accepted standards. Dedicated disposable latex/nitrile gloves were used for each sampling event to prevent cross-contamination.

Each soil sample was split into two (2) portions. One portion was placed into sealable plastic bags and allowed to reach ambient temperature for at least one-half hour taking care to break up the sample inside the bag from outside the bag. The headspace in the bag was sampled using a PID taking by opening a small

portion of the top of the bag and placing the PID tip into the headspace taking care not to physically contact the sample. The other portion of the soil sample was logged and placed in laboratory-provided sample containers with or without the appropriate laboratory-provided preservatives in accordance with accepted analytical protocols taking care to eliminate any headspace when sampling for VOCs. All soil samples were placed on ice in coolers for submission to the CALA accredited laboratory under a formal chain of custody (Appendix C).

All soil samples were logged in the field according to soil type, moisture content, colour, consistency, and presence of visual and/or olfactory indicators of potential impact, and then taken to the GeoPro laboratory for detailed examination by the project engineer. Select soil samples were analysed for grain size distribution and/or moisture content. Details of the visual observations, including inferred stratigraphy and soil classification are presented on the Borehole Logs included in Appendix B.

5.4 Soil: Field Screening Measurements

As a preliminary screening, the soil headspace vapour concentrations were measured using an RKI Eagle II equipped with a flame ionization detector (“FID”) for combustible gas concentrations, and a photoionization detector (“PID”) for volatile organic compound (“VOCs”) concentrations. The RKI Eagle II was calibrated to hexane span gas for the FID, and to isobutylene span gas for the PID.

There are no regulatory criteria for soil vapours; however, measurements of soil vapours concentrations are often used as a field screening tool to indicate petroleum hydrocarbon and/or VOC impacted soils and to optimize selection of samples for quantitative analysis at the contract CALA accredited laboratory.

5.5 Groundwater: Monitoring Well Installation

Monitoring wells (19, 38 or 51 mm in diameter) were installed in each of Boreholes BH101 to BH103 and BH105 to BH107, with screens varying in length from 1.2 to 3.0 m length extending to ground surface with riser pipes. A clean silica sand pack was placed around each well in the borehole annulus to approximately 0.6 m above the top of the well screen. A bentonite layer was then placed above the sand pack. All monitoring wells were capped with a flush-mount protective casing.

After the monitoring well installation, the monitoring wells were developed by purging the water from the wells using dedicated Waterra Pumps (Waterra tubing with foot valves) to remove residual sediments and/or drill cuttings introduced during the borehole drilling and monitoring well installation process. The purge water was drummed for future management based on its quality relative to accepted standards.

The details of the monitoring well construction are shown in the Borehole Logs in Appendix B, and in the attached Table I.

5.6 Groundwater: Monitoring and Sampling

Groundwater level monitoring in the monitoring wells installed during the Phase Two ESA was conducted on August 28, September 11 and 20, 2019. The groundwater monitoring was carried out using an interface probe for measuring static groundwater levels and observation of non-aqueous phase liquids, if present.

No free phase product was observed in the monitoring wells installed at the Site during the monitoring event. The interface probe was cleaned with Alconox solution and rinsed with distilled water prior to use between monitoring wells to prevent cross-contamination. The wash water was drummed for future management based on its quality relative to accepted standards.

The groundwater samples were collected directly into the laboratory-supplied containers, except that the samples for analysis of metals were filtered using a 0.45-micron filter into the sample container prepared by the laboratory with the appropriate preservative. The samples collected for analysis of VOCs were gently placed into the appropriate vials under laminar flow taking care to eliminate all headspace within the vial. All groundwater samples were placed on ice in coolers and delivered to the CALA accredited laboratory under a formal chain of custody (Appendix D).

5.7 Groundwater: Field Measurement of Water Quality Parameters

Observations of the colour, clarity, the presence/absence of free product, sheen, and odour of the purged water were documented as appropriate. Groundwater quality parameters (pH and EC) were measured during the well water purging.

5.8 Surface Water and Sediment: Sampling

Surface water and sediment were not assessed as part of this Phase Two ESA because there were no surface water bodies present at the Site. As a result, no surface water or sediment samples were collected for quantitative analysis.

5.9 Analytical Testing

The collected soil samples were submitted to ALS Environmental ("ALS") in Waterloo, Ontario. ALS is a member of Canadian Association for Laboratory Accreditation ("CALA"), and meets the requirements of Section 47 of O. Reg. 153/04 certifying that the analytical laboratory be accredited in accordance with the International Standard ISO/IEC 17025 and with the standards developed by the Standards Council of Canada.

The analytical protocols were selected to address the potential impact due to the COPCs in the area of potential environmental concern ("APEC") as documented in the GeoPro's Phase One ESA report dated December 18, 2018.

The soil analytical protocols are presented in Table II, and the groundwater sample analytical protocols are presented on Table III.

5.10 Residue Management Procedures

All residues produced during the investigation (soil cuttings from borehole drilling, groundwater from well development purging, wash water from equipment decontamination) were placed in sealed drums and secured at the Site pending receipt of laboratory analytical results for their management.

5.11 Elevation Survey

The elevations of the boreholes/monitoring wells were surveyed by GeoPro staff on August 28, 2019 using a GPS survey equipment. The survey data are presented on the attached Borehole Logs in Appendix B, and on Table I as well.

5.12 Quality Assurance (QA) and Quality Control (QC) Measures

The Phase Two ESA was carried out generally in accordance with the Sampling and Analysis Plan prepared according to the previous findings of Phase One ESA.

All the soil and groundwater samples were collected, handled and analyzed in general accordance with O. Reg. 153/04, as amended. The field observations were made and documented in accordance with the generally accepted sampling and handling procedures used by the environmental consulting industry. All sample containers, preservatives and labels were supplied by the laboratory. The samples were stored on ice in coolers for delivery to a CALA laboratory by GeoPro under a formal chain of custody. As previously stated, the samples were submitted to a CALA laboratory for quantitative analysis in accordance with accepted analytical methods and QA/QC procedures.

6.0 REVIEW AND EVALUATION

6.1 Soil Stratigraphy

Detailed descriptions of the subsurface conditions are presented on the Borehole Logs provided in Appendix B.

The soil stratigraphy at the Site generally consists of reworked soils below topsoil, underlain by native till deposits, cohesionless soils textured from silt to gravelly sand, and cohesive clayey silt. No bedrock was encountered at the maximum drilled depth of approximately 12.6 mBGS.

6.2 Soil Texture

Seventeen (17) soil samples collected from boreholes BH2 to BH4, BH6 to BH9, BH11 to BH13, BH15, BH17, BH20, BH23, BH25, and BH26 were analyzed for grain size distribution by GeoPro during the Geotechnical Investigation, and the results are presented in Appendix A.

More than half of the soil samples were tested to contain more than 50% by mass of particles that are 75 micrometres or larger in mean diameter. For conservative considerations, the soils at the Site are classified as coarse textured soils in accordance with O. Reg. 153/04, as amended (Section 42(2)).

6.3 Groundwater Flow

Based on the groundwater level monitoring results summarized in Table I, groundwater levels measured in the monitoring wells installed during the Phase Two ESA ranged from 0.21 to 4.24 mBGS during the monitoring period, corresponding to elevations of 303.49 to 305.93 meters above sea level ("mASL").

For reference, groundwater levels in monitoring wells BH1, BH7, BH14, BH15, BH17, BH18, BH21, BH23 and BH25 were measured in May 11, 2018 by GeoPro during the geotechnical investigation; there groundwater levels were measured to range from 0.23 to 14.83 mBGS during the monitoring period.

The local shallow groundwater flow direction was interpreted to be northwesterly towards Bear Creek at the east portion of the Site, and northeasterly towards Bear Creek at the west portion of the Site.

It should be noted that groundwater levels can be expected to vary over time and are subject to seasonal fluctuations. In addition, the local flow direction, which is driven by the local hydraulic gradient, may diverge from the regional flow direction, as well as the distribution of underground utilities.

6.4 Soil: Field Screening

No petroleum hydrocarbon-like odour or staining or foreign materials were noted in the retrieved soil samples or during the advancement of the boreholes.

Soil vapour headspace measurements were conducted on all soil samples for combustible gas concentrations (FID readings) and for volatile organic compounds (PID readings). All the FID and PID

readings registered at 0. Therefore, no evidence of contamination was noted in the field screened soil samples for PHCs and VOCs.

6.5 Soil Quality

The analytical results of soil samples tested were compared with the MECP Table 1 Standards: Full Depth Background Site Condition Standards for Residential / Parkland / Industrial / Institutional / Commercial / Community Property Use ("Table 1 Standards"), and are discussed below.

The analytical results of the soil samples are presented in the Laboratory Certificate of Analysis in Appendix C. A summary of soil quality at the Site is presented on Drawings No. 5A to 5H.

Polycyclic Aromatic Hydrocarbons (PAHs)

A total of five (5) soil samples (from BH102 to BH104 and BH106) were analyzed for PAHs. The concentrations of PAHs in soil samples BH6 SS3 were found to exceed the Table 1 Standards. The PAHs values in other analyzed soil samples were below the applied standard. A summary of the exceedances is presented in the following table:

Sample Location	Sample ID	Sample Depth (mBGS)	Parameter	Unit	Table 1 Standards	Concentration
BH106	BH106 SS3	1.2 ~1.8	1+2-Methylnaphthalenes	µg/g	0.59	2.91
			1-Methylnaphthalene	µg/g	0.59	1.03
			2-Methylnaphthalene	µg/g	0.59	1.89
			Naphthalene	µg/g	0.09	1.76

Petroleum Hydrocarbons (PHCs F1 to F4)

A total of six (6) soil samples (from BH102 to BH104, BH106 and BH107) were analyzed for PHCs F1 to F4. The results of all the analyzed samples were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for PHCs F1 to F4 in all the soil samples submitted for quantitative analysis during the Phase Two ESA.

Volatile Organic Compounds (VOCs)

A total of four (4) soil samples (from BH014, BH106 and BH107) were analyzed for VOCs. The results of all the analyzed samples were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for VOCs in all soil samples submitted for quantitative analysis during the Phase Two ESA.

Benzene, Toluene, Ethylbenzene and Xylene (BTEX)

A total of two (2) soil samples (from BH102 and BH103) were analyzed for BTEX. The results of all the analyzed samples were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for BTEX in all soil samples submitted for quantitative analysis during the Phase Two ESA.

Polychlorinated Biphenyls (PCBs)

One (1) soil sample (from BH104) were analyzed for PCBs. The results of all the analyzed samples were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for PCBs in all soil samples submitted for quantitative analysis during the Phase Two ESA.

Metals

A total of six (6) soil samples (from BH101 to BH104, and BH106) were analyzed for metals. The results of all the analyzed samples were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for metals in all soil samples submitted for quantitative analysis during the Phase Two ESA.

For reference, A total of ten (10) soil samples (from BH4, BH5, BH7, BH10, BH13, BH15, BH17, BH22, BH24 and BH26) were analyzed for metals by GeoPro during the Geotechnical Investigation. The concentrations of Molybdenum in soil sample BH7 SS1+SS2+SS3 were found to exceed the Table 1 Standards. The metal values in other analyzed soil samples were below the applied standard. A summary of the exceedances is presented in the following table:

Sample Location	Sample ID	Sample Depth (mBGS)	Parameter	Unit	Table 1 Standards	Concentration
BH7	BH7 SS1+SS2+SS3	0.0 - 2.8	Molybdenum	ug/g	2	3

Inorganics

A total of three (3) soil sample (from BH104 and BH106) were analyzed for Inorganics. The concentrations of Sodium Absorption Ratio ("SAR") in soil samples BH106 SS1 and BH106 SS3 were found to exceed the Table 1 Standards. The Inorganics values in other analyzed soil samples were below the applied standard. A summary of the exceedances is presented in the following table:

Sample Location	Sample ID	Sample Depth (mBGS)	Parameter	Unit	Table 1 Standards	Concentration
BH106	BH106 SS1	0.0 ~ 0.6	SAR	SAR	2.4	2.8
BH106	BH106 SS3	1.2 ~ 1.8	SAR	SAR	2.4	2.54

For reference, A total of ten (10) soil samples (from BH4, BH5, BH7, BH10, BH13, BH15, BH17, BH22, BH24 and BH26) were analyzed for inorganics by GeoPro during the Geotechnical Investigation. The concentrations of SAR in soil samples BH17 SS2+SS3 were found to exceed the Table 1 Standards. The inorganic values in other analyzed soil samples were below the applied standard. A summary of the exceedances is presented in the following table:

Sample Location	Sample ID	Sample Depth (mBGS)	Parameter	Unit	Table 1 Standards	Concentration
BH17	BH17 SS2+SS3	0.8 - 2.1	SAR	ug/g	2.4	3.19

Oc-Pesticides

A total of five (5) soil samples (from TP1 to TP4, and TP6) were analyzed for Oc-Pesticides. The results of all the analyzed samples were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for Oc-Pesticides in all soil samples submitted for quantitative analysis during the Phase Two ESA.

pH

The pH value tested in the soil samples during this Phase Two ESA was within the acceptable range of 5 to 9.

6.6 Groundwater Quality

The analytical results of groundwater samples tested were compared with the MECP Table 1 Standards for Residential/Parkland/Institutional/Industrial/Commercial/Community property use and are discussed below.

The analytical results of the groundwater samples are presented in the Laboratory Certificate of Analysis in Appendix D. A summary of groundwater quality at the Site is presented on Drawing No. 6.

Petroleum Hydrocarbons (PHCs F1 to F4)

A total of three (3) groundwater samples (from BH103, BH106 and BH107) were analyzed for PHCs F1 to F4. The results of all the analyzed samples were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for PHCs F1 to F4 in all the groundwater samples submitted for quantitative analysis during the Phase Two ESA.

Volatile Organic Compounds (VOCs)

One (1) groundwater sample (from BH103) was analyzed for VOCs. The results of the analyzed sample were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for VOCs in all the groundwater samples submitted for quantitative analysis during the Phase Two ESA.

Benzene, Toluene, Ethylbenzene and Xylene (BTEX)

Two (2) groundwater samples (from BH106 and BH107) was analyzed for BTEX. The results of the analyzed sample were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for BTEX in all the groundwater samples submitted for quantitative analysis during the Phase Two ESA.

Polycyclic Aromatic Hydrocarbons (PAHs)

Three (3) groundwater samples (from BH103, BH106 and BH107) was analyzed for PAHs. The results of the analyzed samples were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for PAHs in all the groundwater samples submitted for quantitative analysis during the Phase Two ESA.

Metals

Two (2) groundwater samples (from BH103 and BH106) were analyzed for metals. The results of the analyzed samples were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for Metals in all the groundwater samples submitted for quantitative analysis during the Phase Two ESA.

Inorganics

One (1) groundwater sample (from BH103) were analyzed for Inorganics. The results of all the analyzed samples were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for Inorganics in all the groundwater samples submitted for quantitative analysis during the Phase Two ESA.

Polychlorinated Biphenyls (PCBs)

One (1) groundwater sample (from BH103) was analyzed for PCBs. The results of the analyzed sample were below their respective Table 1 Standards.

Therefore, no exceedances of the applicable standards were found for PCBs in all the groundwater samples submitted for quantitative analysis.

6.7 Quality Assurance and Quality Control (QA/QC) Results

The Phase Two ESA was carried out generally in accordance with the Sampling and Analysis Plan and with the GeoPro standard operating procedures.

All the soil and water samples were collected, handled and analyzed in general accordance with O. Reg. 153/04 (as amended).

6.7.1 Field Quality Assurance/Quality Control Samples

No field quality assurance/quality control samples were submitted for this Phase Two ESA.

6.7.2 *Sample Handling in Accordance with the Analytical Protocol*

The samples analyzed as part of the Phase Two ESA were handled in accordance with the analytical protocol with respect to holding time, preservation method, storage requirement and sample container type.

- The soil and water samples were submitted with chains of custody to the laboratory;
- The soil and water samples were analyzed by ALS Environmental (“ALS”) laboratory, which is accredited by the Canadian Association for Laboratory Accreditation Inc; and
- The analytical results were reported in the laboratory Certificates of Analysis in accordance with O. Reg. 153/04, as amended (Appendix C and D).

6.7.3 *Certification of Results*

Based on a review of the QA/QC sample results, chain of custody, and the laboratory Certificates of Analysis, GeoPro confirms that:

- All Certificates of Analysis or Analytical Reports received pursuant to Section 47(2) of O. Reg. 153/04 (amended), comply with Section 47(3) of O. Reg. 153/04, as amended;
- A Certificate of Analysis or Analytical Report has been received for each sample submitted for quantitative analysis; and
- All Certificates of Analysis are included in Appendix C and D.

6.7.4 *Laboratory QA/QC Results*

ALS has established and implemented its own internal QA/QC analytical protocol, consisting of analyzing duplicate, blank, control, certified reference material and matrix spike samples.

Based on a review of the data in the laboratory Certificates of Analysis, it is indicated that all samples/sample extracts were analyzed within the applicable holding times using approved analytical method.

- All samples/sample extracts were analyzed within the applicable holding times using approved analytical method.
- The reported detection limits were acceptable for all tested parameters.
- The recovery percentage for the surrogate samples were within the acceptable range.
- The results for the laboratory duplicate samples were similar to the results for the original samples, and relative percent differences for the detectable tested parameters were within the acceptable range.

In conclusion, the field and laboratory data were obtained meeting the general requirements for the investigation, and the overall quality of the data did not affect decision making in this Phase Two ESA.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

GeoPro conducted a Phase Two ESA at the Site based on the information obtained from the Phase One ESA and the information obtained from recent soil and groundwater sampling and testing. The soil and groundwater samples were analyzed for one or more parameters including PHCs F1 to F4, VOCs, PAHs, PCBs, BTEXs, Oc-Pesticides, metals and inorganics. The soil and groundwater analytical results were compared with the MECP Table 1 Standards: Full Depth Background Site Condition Standards for Residential/Parkland/Industrial/Institutional/Commercial/Community Property Use ("Table 1 Standards"). Based on the findings of the Phase Two ESA, the following conclusions were made:

- The soil stratigraphy at the Site generally consists of reworked soils below topsoil, underlain by native till deposits, cohesionless soils textured from silt to gravelly sand, and cohesive clayey silt. No bedrock was encountered at the maximum drilled depth of approximately 12.6 mBGS.
- A tributary of Bear Creek flows from southeast to northwest in the west portion of the Site.
- The depth to groundwater measured during the Phase Two ESA ranged from 0.21 to 4.24 mBGS, corresponding to elevations ranged from 303.49 to 305.93 mASL. The local shallow groundwater flow direction was interpreted to be northwesterly towards Bear Creek at the east portion of the Site, and northeasterly towards Bear Creek at the west portion of the Site.
- Based on the analytical results of soil samples during the Phase Two ESA and the geotechnical investigation, there were no exceedances of the applicable Table 1 Standards for PHCs, VOCs, PCBs, BTEXs or Oc-Pesticides in all of the samples analyzed. However, exceedance of the applicable standard was found for some PAHs, Molybdenum and SAR in some soil samples collected at the Site.
- Based on the analytical results of groundwater samples, there were no exceedances of the applicable Table 1 Standards for PHCs, VOCs, PAHs, PCBs, M&I or BTEXs in all of the samples analyzed.

Based on the findings of the Phase II ESA, GeoPro provides the following recommendations.

- The quality of soil has been impacted at and in the vicinity of the above-referenced sampling locations.
- Consequently, we recommend further investigation be carried out to delineate the lateral and vertical extent contamination. This may be an iterative process as it has been our experience that delineation is rarely achieved in one iteration. Once delineation has been achieved, a remedial program will be designed to address subsurface contamination at the Site in accordance with regulatory standards and protocol.
- As groundwater level in monitoring wells BH101, BH102 and BH105 were close to or deeper than the screen depths, not enough groundwater samples were collected for chemical analysis to evaluate the groundwater quality of APEC 2A, 2B and 5A; monitoring wells BH101, BH102 and BH105 should be deepened for additional groundwater sampling and testing.

8.0 SIGNATURE

This report was conducted and supervised by David Liu, who is a Qualified Person with the MECP as defined under Ontario Regulation 153/04.

Kaiying Qiu is an assistant project manager with GeoPro. Ms. Qiu earned a Bachelor and Master of Science Degrees in Environmental and Earth Science from the University of Waterloo. She has been conducting Phase One and Two ESAs for GeoPro's clients since 2016.

David Liu is a principal engineer and geo-environmental specialist with GeoPro. Mr. Liu is a registered Professional Engineer with The Professional Engineers of Ontario and he has 29 years of experience in geo-environmental engineering.

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

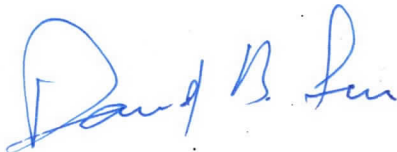
Sincerely,

GeoPro Consulting Limited

Geotechnical - Hydrogeology - Environmental - Materials Testing - Inspection



Kaiying Qiu, M.Sc.



David B. Liu, P.Eng., QP
Principal



9.0 REFERENCES

Ontario Regulation 153/04, as amended by O. Reg. 511/09

MECP, *"Guidance on Sampling and Analytical Methods for Use at Contaminated Site in Ontario"*, May 1996, Revised December 1996, as amended by O. Reg. 511/09

MECP, *"Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act"* (EPA), April 15, 2011

Chapman, L.J., and Putnam, D.F., 1984: The Physiography of Southern Ontario; Ontario Geological Survey. Special Volume, Accompanied by Map P.2715 (coloured), scale 1:600 000.

Map of Paleozoic Geology of Southern Ontario (Map 2254), Ontario Division of Mines, Ministry of Natural Resources, 1972



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TABLES

Table I: Monitoring Well Construction Details and Groundwater Levels										
					Date of Monitoring: August 28, 2019		Date of Monitoring: September 11, 2019		Date of Monitoring: September 20, 2019	
Monitoring Well	Ground Elevation (m)	Borehole Depth (mBGS)	Well Diameter (mm)	Screen Interval (mBGS)	Water Level (mBGS)	Groundwater Elevation (m)	Water Level (mBGS)	Groundwater Elevation (m)	Water Level (mBGS)	Groundwater Elevation (m)
BH101	302.02	8.50	51	4.5~7.5	Dry	-	Dry	-	Dry	-
BH102	306.86	12.60	51	0.75~3.75	3.37	303.49	-	-	-	-
BH103	308.07	7.90	51	2.3~5.3	4.00	304.07	4.11	303.96	4.24	303.83
BH105	305.31	2.80	19	0~1.2	1.12	304.19	1.12	304.19	1.04	304.27
BH106	306.43	3.20	38	1.1~2.6	1.25	305.18	1.07	305.36	1.04	305.39
BH107	306.14	3.40	38	1.1~2.6	0.23	305.91	0.21	305.93	0.31	305.83

Note:
1. mBGS = meter below ground surface.

Table II: Soil Sample Analytical Protocol					
Sample Location	Sample ID	Date of Sampling	Sample Depth (mBGS)	Chemical Analysis	Rationale
TP1	TP1	Sept. 30, 2019	0.0 ~ 0.8	Oc-Pesticides	To assess soil quality in APEC 1
TP2	TP2	Sept. 30, 2019	0.0 ~ 0.25	Oc-Pesticides	
TP3	TP3	Sept. 30, 2019	0.0 ~ 0.29	Oc-Pesticides	
TP4	TP4	Sept. 30, 2019	0.0 ~ 0.26	Oc-Pesticides	
TP6	TP6	Sept. 30, 2019	0.0 ~ 0.28	Oc-Pesticides	
BH101	SS8	Jul. 30, 2019	7.6 ~ 7.8	Metals	To assess soil quality in APEC 2A and 2B
BH102	SS4	Jul. 30, 2019	2.3 ~ 2.7	Metals, PHC, BTEX, PAH	
BH102	SS4	Jul. 30, 2019	2.3 ~ 2.7	Metals, PHC, BTEX, PAH	To assess soil quality in APEC 3
BH103	SS6	Jul. 30, 2019	4.6 ~ 5.0	Metals, PHC, BTEX, PAH	
BH104	SS1B+SS2	Jul. 31, 2019	0.3 ~ 1.4	M&I, PHC, VOC, PAH, PCB	
BH107	SS2+SS3	Aug. 25, 2019	0.9 ~ 2.1	PHC, VOC	To assess soil quality in APEC 4A
BH106	SS1	Aug. 6, 2019	0.0 ~ 0.6	VOC, PHC, PAH, M&I	To assess soil quality in APEC 4B/5B
	SS3		1.2 ~ 1.8		

Note:

1. mBGS = meter below ground surface
2. PHCs = petroleum hydrocarbons (F1 to F4)
3. PAHs = Polycyclic Aromatic Hydrocarbons
4. VOCs = Volatile Organic Compounds
5. PCB = Polychlorinated Biphenyl
6. BTEX = Benzene, Toluene, Ethylbenzene and Xylene
7. M&I = Metals & Inorganics

Table III: Groundwater Sample Analytical Protocol					
Monitoring Well Location	Sample ID	Date of Sampling	Well Screen Depth (mBGS)	Chemical Analysis	Rationale
MW103	BH103	Sept. 20, 2019	2.3 ~ 5.3	M&I, PHC, VOC, PAH, PCB	To assess groundwater quality in APEC 3
MW107	BH107	Sept. 20, 2019	1.1 ~ 2.6	PHC, PAH, BTEX	To assess groundwater quality in APEC 4A
MW106	BH106	Sept. 20, 2019	1.1 ~ 2.6	PHC, PAH, Metals, BTEX	To assess groundwater quality in APEC 4B/5B

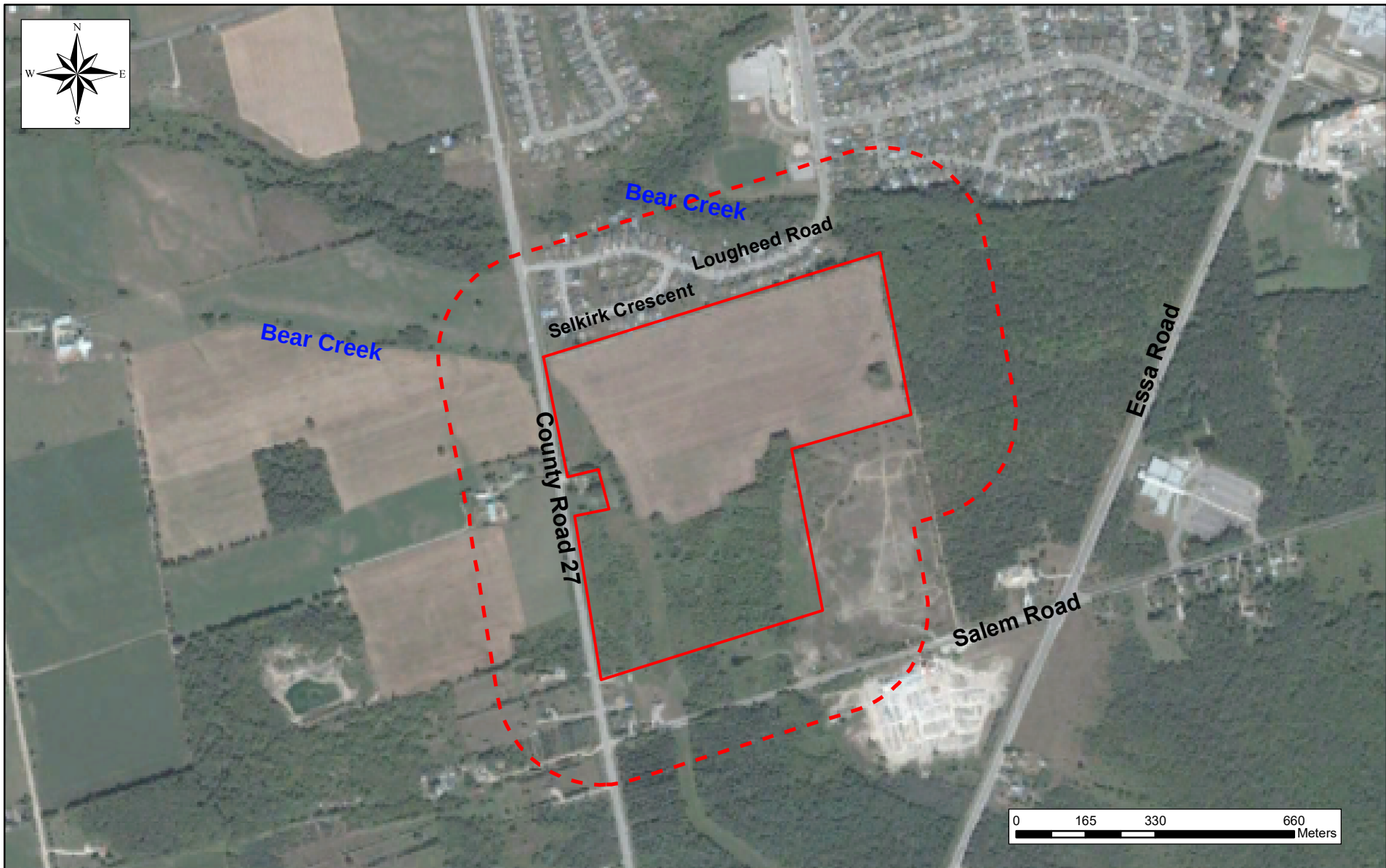
- Note:
- 1. mBGS = meters below ground surface
 - 2. PHCs = petroleum hydrocarbons (F1 to F4)
 - 3. PAHs = Polycyclic Aromatic Hydrocarbons
 - 4. VOCs = Volatile Organic Compounds
 - 5. PCB = Polychlorinated Biphenyl
 - 6. BTEX = Benzene, Toluene, Ethylbenzene and Xylene
 - 7. M&I = Metals & Inorganics



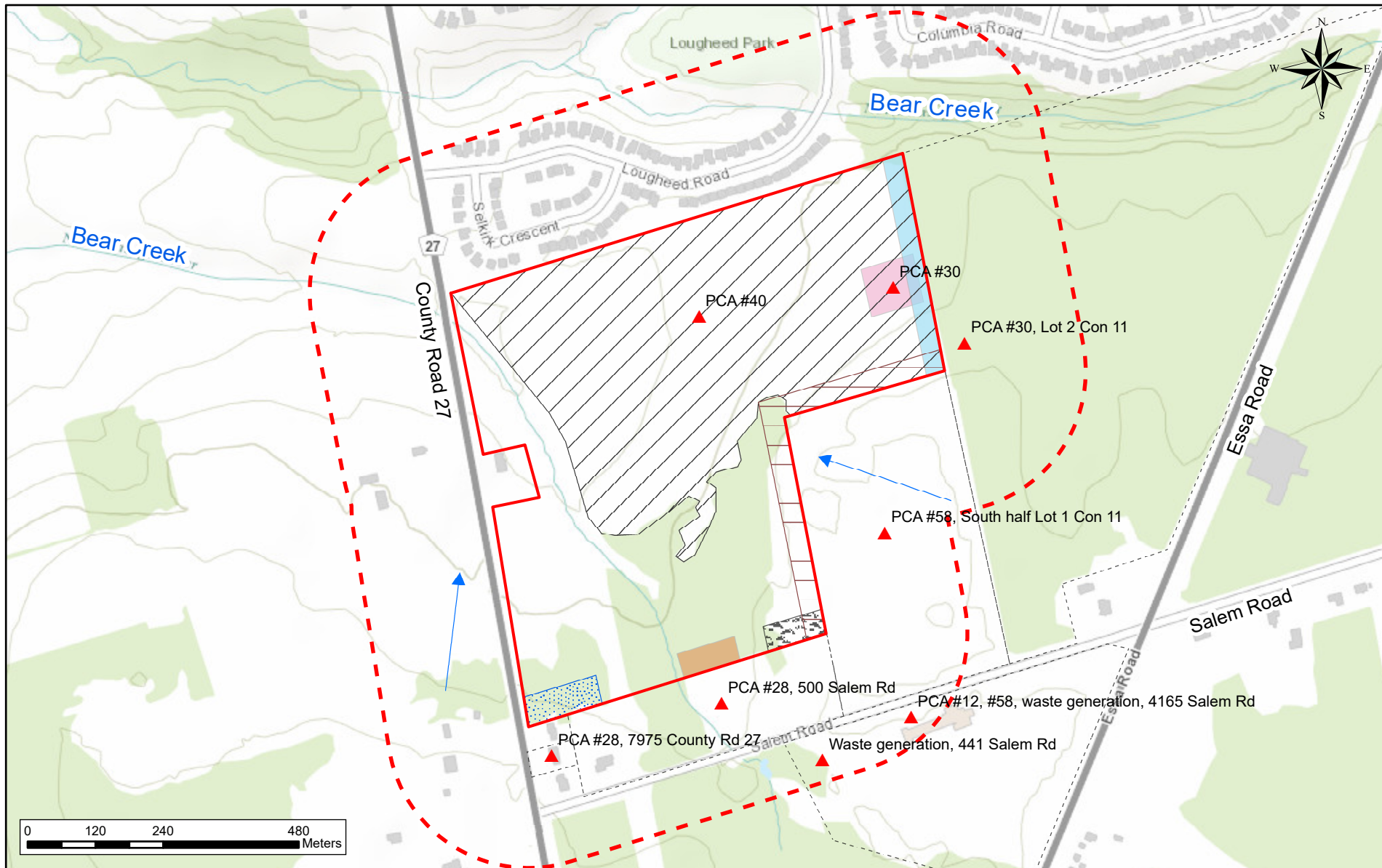
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DRAWINGS



Legend Phase Two Property Phase Two Study Area Essa Road Bear Creek Name of existing roadway Name of the watercourse			Map Source: County of Simcoe Interactive Map			
Prepared by: DS	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Drawing No.: 1	Original Size: Letter
Date: April 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: Aerial Photograph - 2016	Project: Phase One Environmental Site Assessment Proposed Residential Development East side of County Road 27 and north of Salem Road, City of Barrie, Ontario		 GeoPro Consulting Limited	



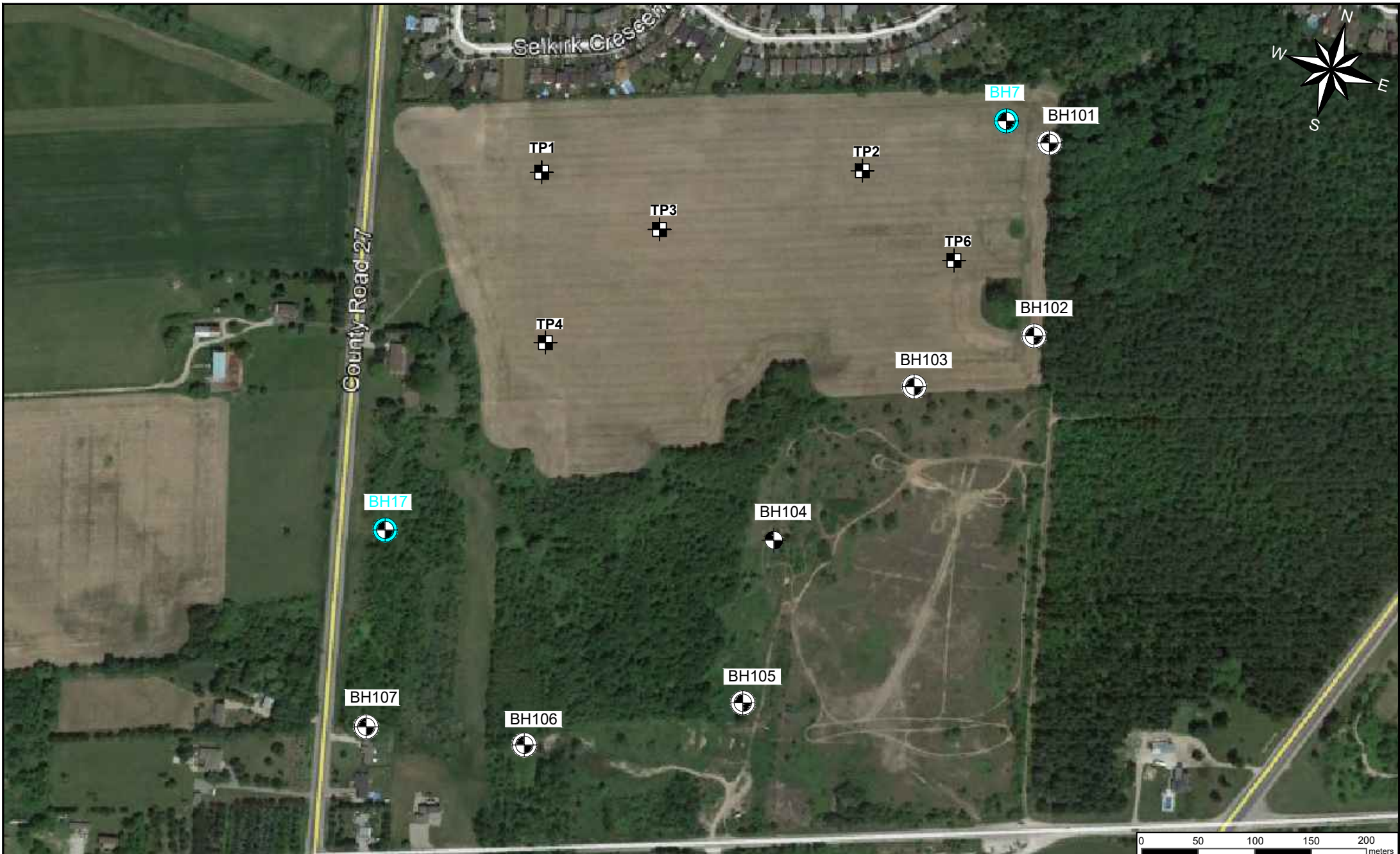
Legend

 Phase Two Study Area	▲ PCA Location	 APEC 2A	 APEC 4A
 Phase Two Property	#30 PCA Number	 APEC 2B	 APEC 4B/5B
→ Inferred Groundwater Flow Direction	 APEC 1	 APEC 3	 APEC 5A

Notes:
 1. Map Source: ArcGIS Basemap
 2. Definitions:
 "COPCs" - Contaminants of Potential Concern
 "APEC" - Area of Potential Environmental Concern
 "PHCs" - Petroleum Hydrocarbons
 "VOCs" - Volatile Organic Compounds
 "PCBs" - Polychlorinated Biphenyls
 "PAHs" - Polycyclic Aromatic Hydrocarbon
 "OC-Pesticides" - Organochlorine Pesticides

3. Potentially Contaminating Activity ("PCA") numbers are in accordance with Table 2, Schedule D of O. Reg 153/04.
 #12 - Concrete, Cement and Lime Manufacturing
 #28 - Fertilizer manufacturing, processing and bulk storage
 #28 - Gasoline and associated products storage in fixed tanks
 #30 - Importation of fill material of unknown quality
 #40 - Pesticides (including herbicide, fungicides and anti-fouling agents) manufacturing, processing, bulk storage and large-scale applications
 #58 - Waste disposal and waste management, including thermal treatment, landfilling and transfer of waste, other than use of biosolids as soil conditioners

Prepared by: DS	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Drawing No.: 2	Original Size: Letter
Date: December 2018	Client: Di Poce Management Inc.	Title: PCA and APEC Location	Project: Phase One Environmental Site Assessment Salem Secondary Plan, County Rd 27, Barrie, ON			



Legend:  GPS Borehole/Monitoring Well Location  Testpit Location  Geotechnical Borehole/Monitoring Well Location	Client: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI		Project No.: 17-2099E02	Drawing No.: 3
	Drawn: BY	Approved: KY	Title: Testpit/Borehole/Monitoring Well Location Plan	
	Date: October 2019	Scale: As Shown	Project: Phase Two Environmental Site Assessment Proposed Residential Development East Side of County Road 27 and North of Salem Road City of Barrie, Ontario	
	Original Size: 11" X 17"	Rev: KY	 GeoPro Consulting Limited	



Parameter	BH106 SS3 (1.2 – 1.8)	
	Concentration	
	Result (ug/g)	Table 1 Guide Limit (ug/g)
1+2-Methylnaphthalenes	2.91	0.59
1-Methylnaphthalene	1.03	0.59
2-Methylnaphthalene	1.89	0.59
Naphthalene	1.76	0.09

Legend:  GPS Borehole/Monitoring Well Location  Testpit Location PAH (3.1 ~ 3.5) Sample depth(mBGS) Analytical Result indicating no exceedance in soil  Geotechnical Borehole/Monitoring Well Location PAH (0.1 ~ 2.0) Sample depth(mBGS) Analytical Result indicating exceedance in soil	Client: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI		Project No.: 17-2099E02	Drawing No.: 4A
	Drawn: BY	Approved: KY	Title: Summary of Soil Quality (PAHs)	
	Date: October 2019	Scale: As Shown	Project: Phase Two Environmental Site Assessment Proposed Residential Development East Side of County Road 27 and North of Salem Road City of Barrie, Ontario	
	Original Size: 11" X 17"	Rev: KY	 GeoPro Consulting Limited	



No Exceedances
for PHC

Legend:  GPS Borehole/Monitoring Well Location  Testpit Location  Geotechnical Borehole/Monitoring Well Location PHC (3.1 ~ 3.5) Sample depth (mBGS) Analytical Result indicating no exceedance in soil	Client: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI		Project No.: 17-2099E02	Drawing No.: 4B
	Drawn: BY	Approved: KY	Title: Summary of Soil Quality (PHCs)	
	Date: October 2019	Scale: As Shown	Project: Phase Two Environmental Site Assessment Proposed Residential Development East Side of County Road 27 and North of Salem Road City of Barrie, Ontario	
	Original Size: 11" X 17"	Rev: KY	 GeoPro Consulting Limited	



No Exceedances
for VOC

Legend:  GPS Borehole/Monitoring Well Location  Testpit Location  Geotechnical Borehole/Monitoring Well Location VOC (3.1 ~ 3.5) Sample depth(mBGS) Analytical Result indicating no exceedance in soil	Client: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI		Project No.: 17-2099E02	Drawing No.: 4C
	Drawn: BY	Approved: KY	Title: Summary of Soil Quality (VOCs)	
	Date: October 2019	Scale: As Shown	Project: Phase Two Environmental Site Assessment Proposed Residential Development East Side of County Road 27 and North of Salem Road City of Barrie, Ontario	
	Original Size: 11" X 17"	Rev: KY	 GeoPro Consulting Limited	



No Exceedances
for BTEX

Legend:  GPS Borehole/Monitoring Well Location  Testpit Location  Geotechnical Borehole/Monitoring Well Location BTEX (3.1 ~ 3.5) Sample depth(mBGS) Analytical Result indicating no exceedance in soil	Client: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI		Project No.: 17-2099E02	Drawing No.: 4D
	Drawn: BY	Approved: KY	Title: Summary of Soil Quality (BTEXs)	
	Date: October 2019	Scale: As Shown	Project: Phase Two Environmental Site Assessment Proposed Residential Development East Side of County Road 27 and North of Salem Road City of Barrie, Ontario	
	Original Size: 11" X 17"	Rev: KY	 GeoPro Consulting Limited	



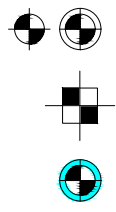
No Exceedances
for PCB

Legend:  GPS Borehole/Monitoring Well Location  Testpit Location  Geotechnical Borehole/Monitoring Well Location PCB (3.1 ~ 3.5) Sample depth (mBGS) Analytical Result indicating no exceedance in soil	Client: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI		Project No.: 17-2099E02	Drawing No.: 4E
	Drawn: BY	Approved: KY	Title: Summary of Soil Quality (PCBs)	
	Date: October 2019	Scale: As Shown	Project: Phase Two Environmental Site Assessment Proposed Residential Development East Side of County Road 27 and North of Salem Road City of Barrie, Ontario	
	Original Size: 11" X 17"	Rev: KY	 GeoPro Consulting Limited	



BH7 SS1+SS2+SS3 (0.0 – 2.8)		
Parameter	Concentration	
	Result (ug/g)	Table 1 Guide Limit (ug/g)
Molybdenum	3	2

Legend:



GPS Borehole/Monitoring Well Location

Testpit Location

Geotechnical Borehole/Monitoring Well Location

Metals (3.1 ~ 3.5)
Sample depth(mBGS)
Analytical Result
indicating no
exceedance in soil

Metals (3.1 ~ 3.5)
Sample depth(mBGS)
Analytical Result
indicating
exceedance in soil

Client: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI		Project No.: 17-2099E02	Drawing No.: 4F
Drawn: BY	Approved: KY	Title: Summary of Soil Quality (Metals)	
Date: October 2019	Scale: As Shown	Project: Phase Two Environmental Site Assessment Proposed Residential Development East Side of County Road 27 and North of Salem Road City of Barrie, Ontario	
Original Size: 11" X 17"	Rev: KY	 GeoPro Consulting Limited	



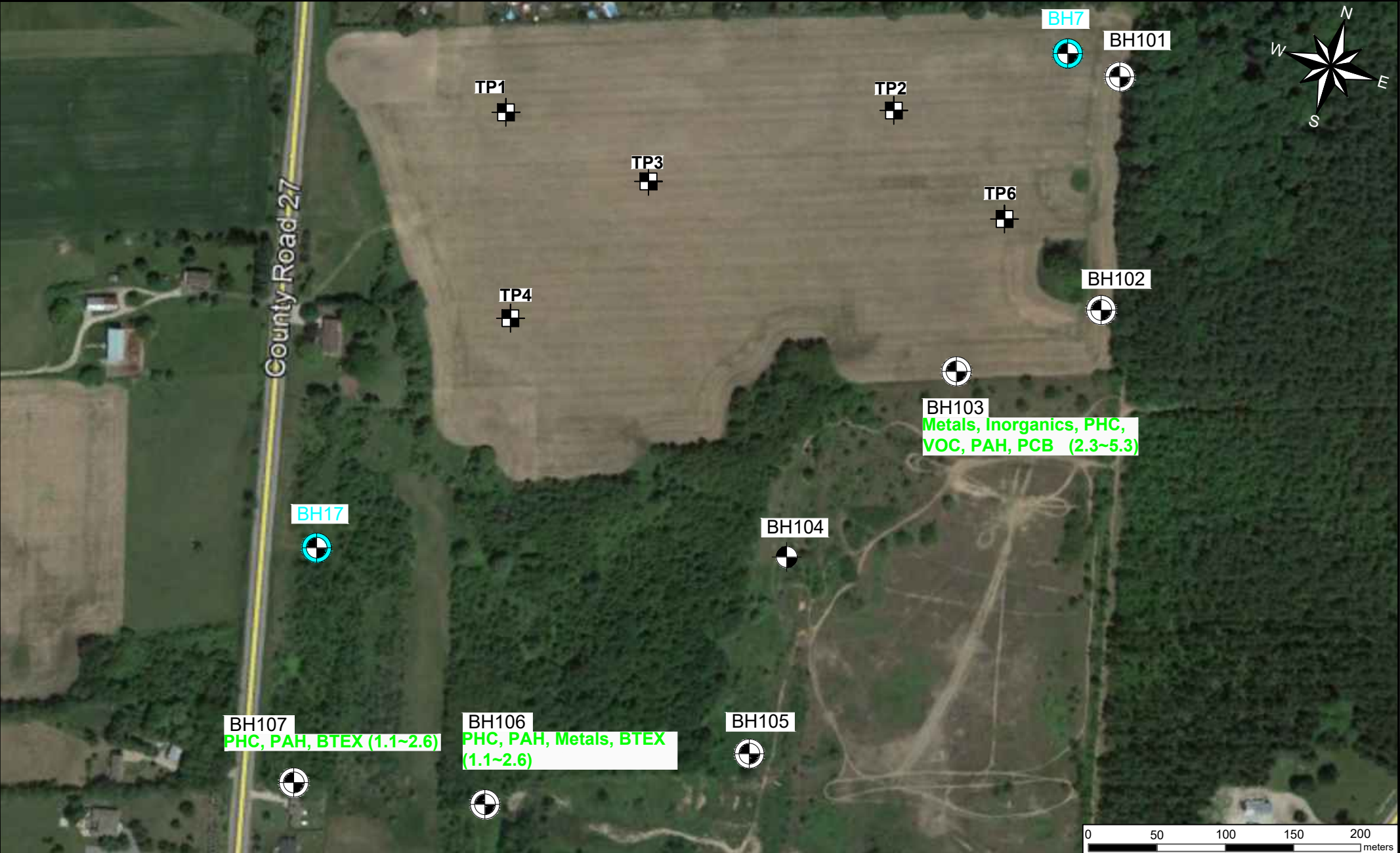
BH17 SS2+ SS3 (0.8 – 2.1)		
Parameter	Concentration	
	Result (SAR)	Table 1 Guide Limit (SAR)
SAR	3.19	2.4
BH106 SS1 (0.0 – 0.6)		
Parameter	Concentration	
	Result (SAR)	Table 1 Guide Limit (SAR)
SAR	2.8	2.4
BH106 SS3 (1.2 – 1.8)		
Parameter	Concentration	
	Result (SAR)	Table 1 Guide Limit (SAR)
SAR	2.54	2.4

Legend:  GPS Borehole/Monitoring Well Location  Testpit Location  Geotechnical Borehole/Monitoring Well Location	Client: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI		Project No.: 17-2099E02	Drawing No.: 4G
	Drawn: BY	Approved: KY	Title: Summary of Soil Quality (Inorganics)	
	Date: October 2019	Scale: As Shown	Project: Phase Two Environmental Site Assessment Proposed Residential Development East Side of County Road 27 and North of Salem Road City of Barrie, Ontario	
	Original Size: 11" X 17"	Rev: KY	 GeoPro Consulting Limited	



No Exceedances
for Oc-Pesticides

Legend:  GPS Borehole/Monitoring Well Location  Testpit Location  Geotechnical Borehole/Monitoring Well Location Oc-Pesticides (3.1 ~ 3.5) Sample depth(mBGS) Analytical Result indicating no exceedance in soil	Client: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI		Project No.: 17-2099E02	Drawing No.: 4H
	Drawn: BY	Approved: KY	Title: Summary of Soil Quality (Oc-Pesticides)	
	Date: October 2019	Scale: As Shown	Project: Phase Two Environmental Site Assessment Proposed Residential Development East Side of County Road 27 and North of Salem Road City of Barrie, Ontario	
	Original Size: 11" X 17"	Rev: KY	 GeoPro Consulting Limited	



No Exceedances
for Groundwater

Legend:  GPS Borehole/Monitoring Well Location  Testpit Location  Geotechnical Borehole/Monitoring Well Location PHC (3.1 ~ 3.5) Sample depth(mBGS) Analytical Result indicating no exceedance in soil	Client: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI		Project No.: 17-2099E02	Drawing No.: 5
	Drawn: BY	Approved: KY	Title: Summary of Groundwater Quality	
	Date: October 2019	Scale: As Shown	Project: Phase Two Environmental Site Assessment Proposed Residential Development East Side of County Road 27 and North of Salem Road City of Barrie, Ontario	
	Original Size: 11" X 17"	Rev: KY	 GeoPro Consulting Limited	



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APPENDIX A



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Geotechnical-Hydrogeology-Environmental-Materials-Inspection

Phase One Environmental Site Assessment

Proposed Residential Development

East side of County Road 27 and north of Salem Road, City of Barrie, ON

Prepared For:

Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI



GeoPro Project No.: 17-2099E

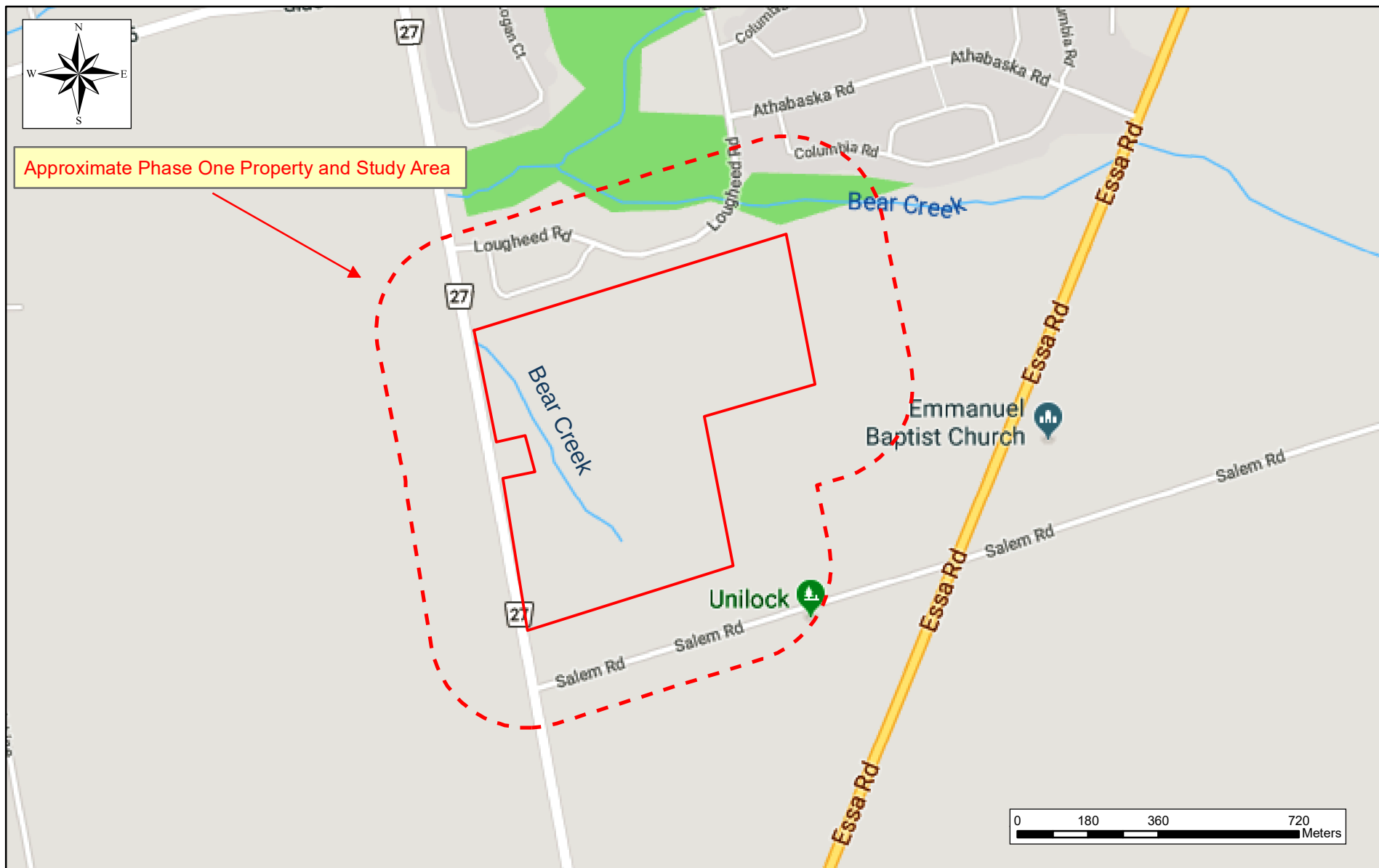
Report Date: December 18, 2018 Revised

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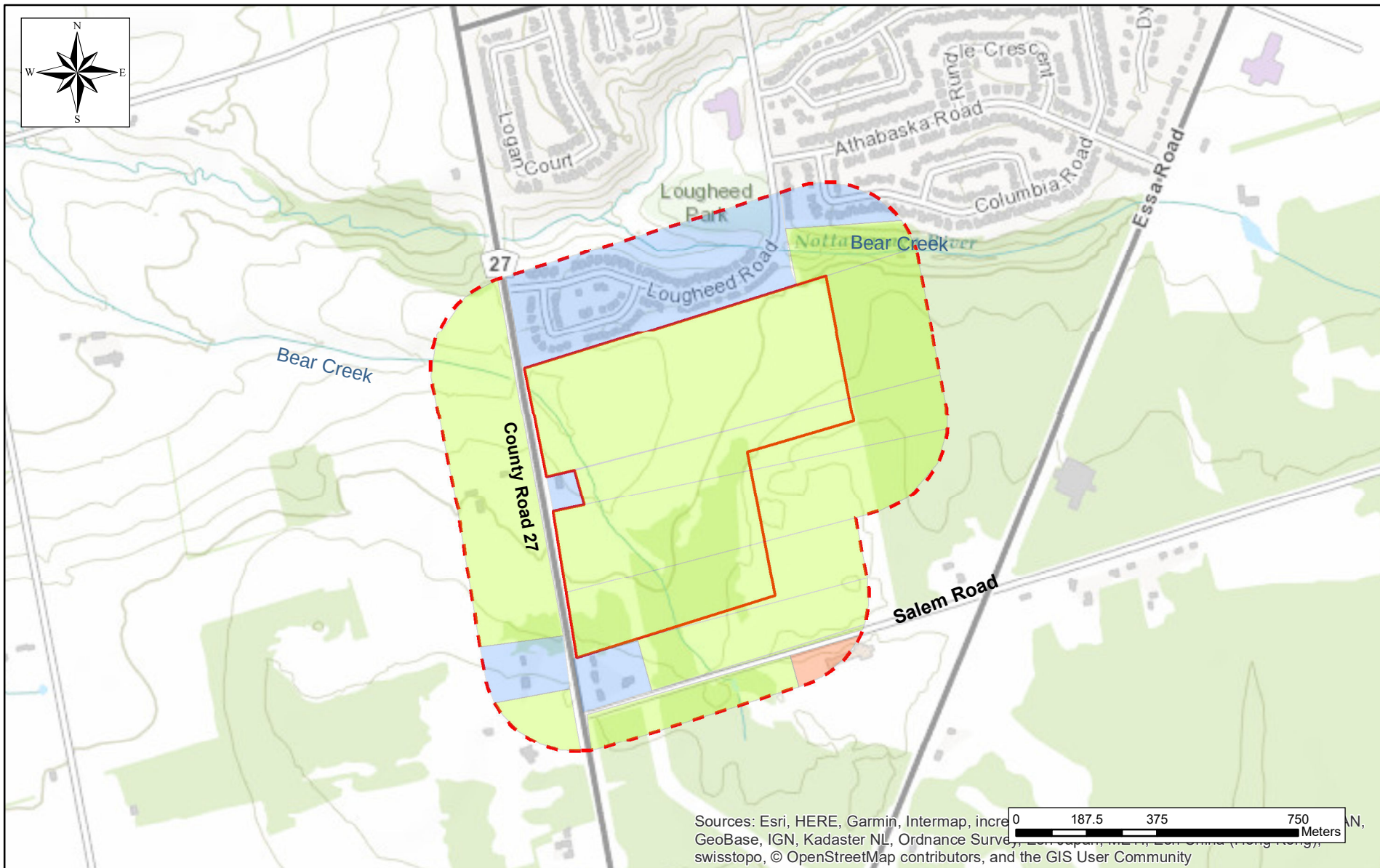


Legend

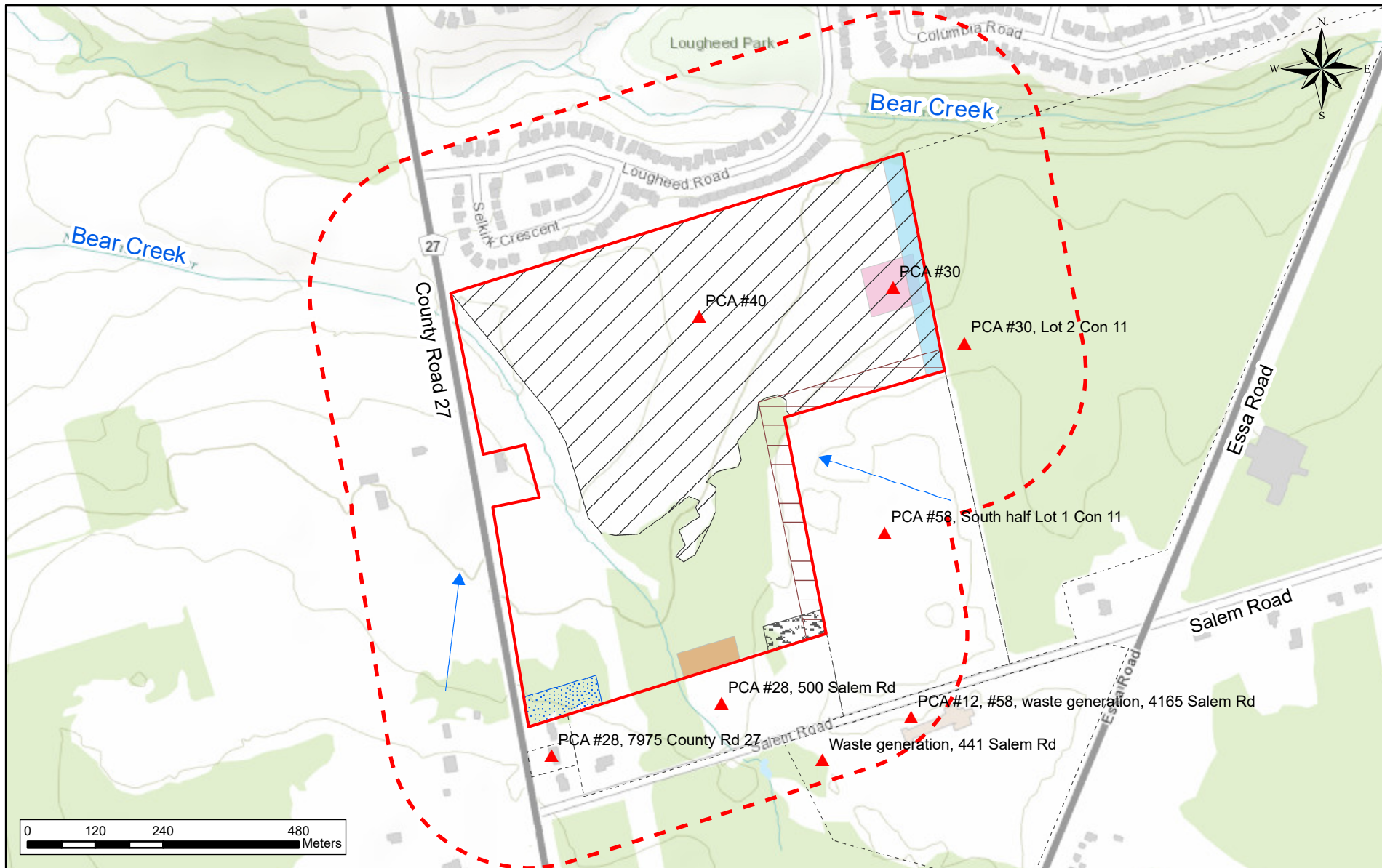
- Phase One Property
- Phase One Study Area

Map Source:
Google Maps

Prepared By: HA	Rev: KY	Approved: ky	Scale: As Shown	Project No.: 17-2099E	Drawing No.: 1	Original Size: Letter
Date: April 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: Site Location Plan	Project: Phase One Environmental Site Assessment Proposed Residential Development East side of County Rd 27 and North of Salem Road Barrie, ON		 GeoPro Consulting Limited	



Legend Phase One Property Phase One Study Area Residential Use Commercial Use Agricultural/Other Use			Map Source: ArcGIS Basemap			
Prepared by: HA	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Drawing No.: 2	Original Size: Letter
Date: April 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: Phase One Property and Surrounding Land Use	Project: Phase One Environmental Site Proposed Residential Development East Side of County Rd 27 and North of Salem Road, City of Barrie, ON			



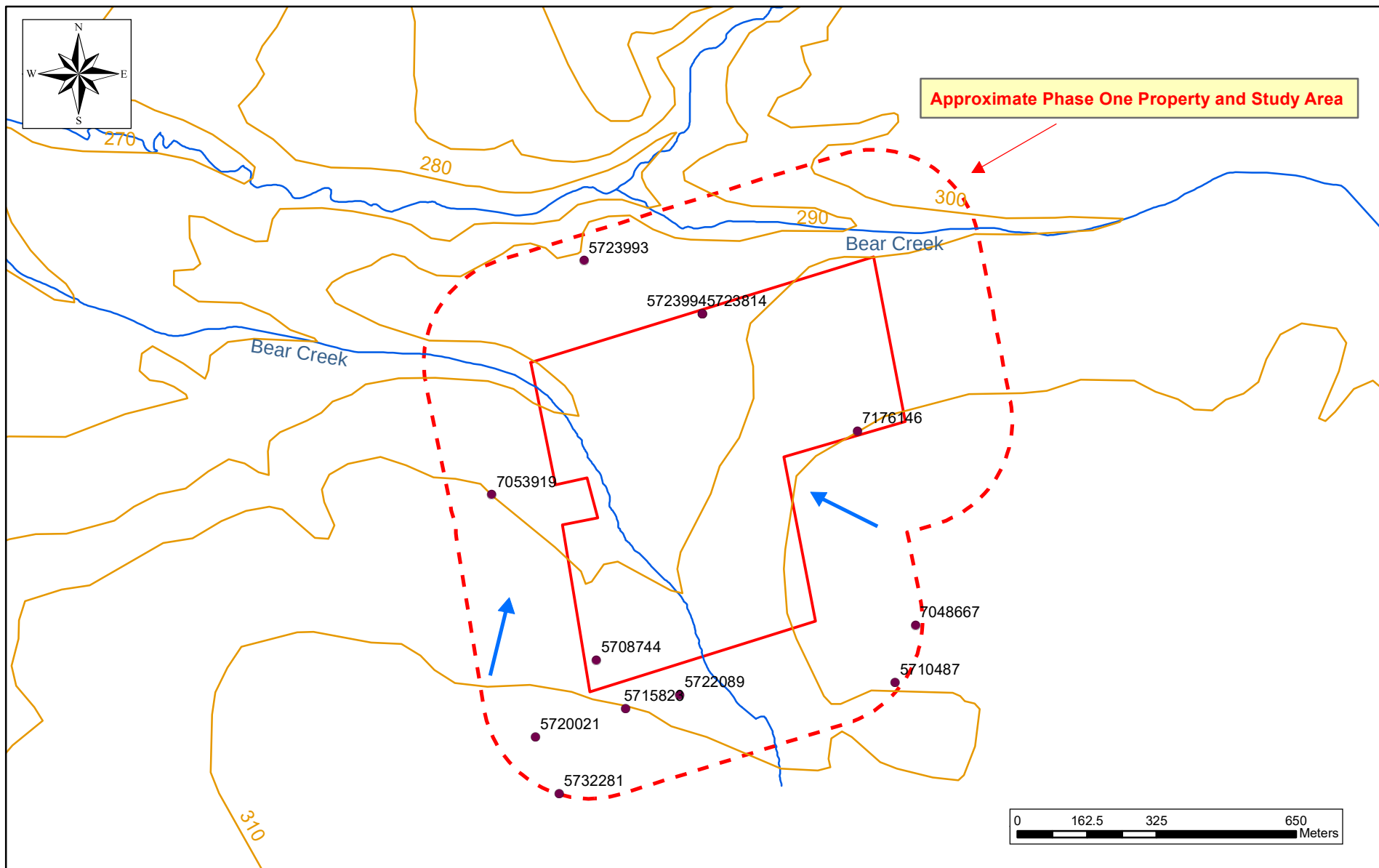
Legend

 Phase One Study Area	▲ PCA Location	 APEC 2A	 APEC 4A
 Phase One Property	#30 PCA Number	 APEC 2B	 APEC 4B/5B
→ Inferred Groundwater Flow Direction	 APEC 1	 APEC 3	 APEC 5A

Notes:

- Map Source: ArcGIS Basemap
- Definitions:
 - "COPCs" - Contaminants of Potential Concern
 - "APEC" - Area of Potential Environmental Concern
 - "PHCs" - Petroleum Hydrocarbons
 - "VOCs" - Volatile Organic Compounds
 - "PCBs" - Polychlorinated Biphenyls
 - "PAHs" - Polycyclic Aromatic Hydrocarbon
 - "OC-Pesticides" - Organochlorine Pesticides
- Potentially Contaminating Activity ("PCA") numbers are in accordance with Table 2, Schedule D of O. Reg 153/04.
 - #12 - Concrete, Cement and Lime Manufacturing
 - #28 - Fertilizer manufacturing, processing and bulk storage
 - #28 - Gasoline and associated products storage in fixed tanks
 - #30 - Importation of fill material of unknown quality
 - #40 - Pesticides (including herbicide, fungicides and anti-fouling agents) manufacturing, processing, bulk storage and large-scale applications
 - #58 - Waste disposal and waste management, including thermal treatment, landfilling and transfer of waste, other than use of biosolids as soil conditioners

Prepared by: DS	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Drawing No.: 3	Original Size: Letter
Date: December 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: PCA and APEC Location	Project: Phase One Environmental Site Proposed Residential Development East Side of County Rd 27 and North of Salem Road, City of Barrie, ON		 GeoPro Consulting Limited	



Legend Phase One Property Phase One Study Area MECP Well Record Location Inferred Groundwater Flow Direction			Map Source: Atlas of Canada - Toporama			
Prepared by: DS	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Figure No.: 6	Original Size: Letter
Date: April 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: Topographical Map	Project: Phase One Environmental Site Assessment Proposed Residential Development East side of County Road 27 and north of Salem Road, City of Barrie, Ontario			

Figure No. 7- Natural Heritage Map



Legend

-  Assessment Parcel
-  Woodland
-  Conservation Reserve
-  Provincial Park
-  Natural Heritage System
-  Ecoregion
- Wetland**
 -  Provincially Significant Wetland Evaluated
 -  Non - Provincially Significant Wetland Evaluated
 -  Unevaluated Wetland
- Area of Natural Heritage & Scientific Interest (ANSI)**
 -  Provincially Significant Life Science ANSI
 -  Provincially Significant Earth Science ANSI
- Greenbelt Plan**
 -  Boundary
 -  River Valley Connections
- Land Use Designations**
 -  Protected Countryside
 -  Towns and Villages
 -  Hamlets
 -  Urban River Valley
 -  Specialty Crop Area
- Niagara Escarpment Plan (NEP)**
 -  Boundary
 -  Parks and Open Space System
- Land Use Designations**
 -  Escarpment Natural Area
 -  Escarpment Protection Area
 -  Escarpment Rural Area
 -  Mineral Resource Extraction Area
 -  Escarpment Recreation Area
 -  Urban Area
 -  Minor Urban Centre
- Oak Ridges Moraine Conservation Plan (ORM)**
 -  Boundary
 -  Natural Core Area
 -  Natural Linkage Area
 -  Countryside Area
 -  Rural Settlement
 -  Palgrave Estates Residential Community
 -  Settlement Area

1.8 0 0.92 1.8 Kilometers

Scale: 1 : 36,111

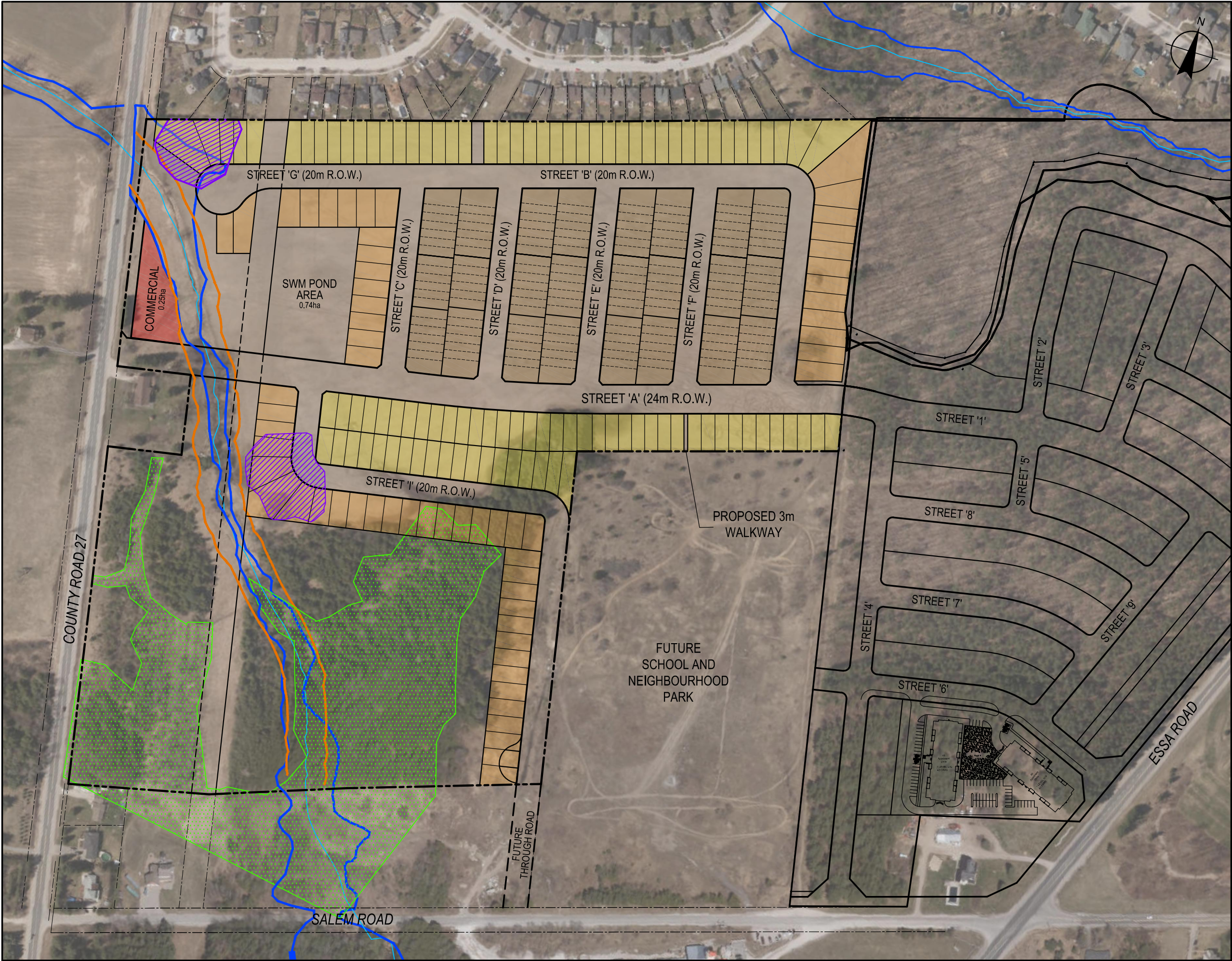


This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry (OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

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CONCEPT PLAN 'A-6'

DIPOCE SUBDIVISION

Part of the South Half of Lot 1, Concession 3
Geographic Township of Innisfil
Formerly in the Town of Innisfil Presently in the City of Barrie
County of Simcoe

LEGEND

- Corridor
- Floodline
- Wetland
- Archaeology Sites

10.8m (35ft) Singles	101 Lots	3.91ha
13.8m (45ft) Singles	80 Lots	3.84ha
6.8m (22ft) Townhouses	166 Units	3.85ha
Commercial		0.25ha
TOTAL	347 Units	11.85ha

Density: 22.9 units/ha (based on 15.12ha)

DATE August 30, 2017

SOURCES J.D. Barnes - Plan of Survey - 02/12/07

SCALE 0 20 40 60 80 100 Metres

N:\Barrie\0853\FIDrawings\Concept Plans\ConceptPlan_A-6_2017-09-15



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Geotechnical Investigation

Proposed Residential Developments

County Road 27, Barrie, Ontario

Prepared For:

Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI



GeoPro Project No.: 17-2099GE

Report Date: June 1, 2018

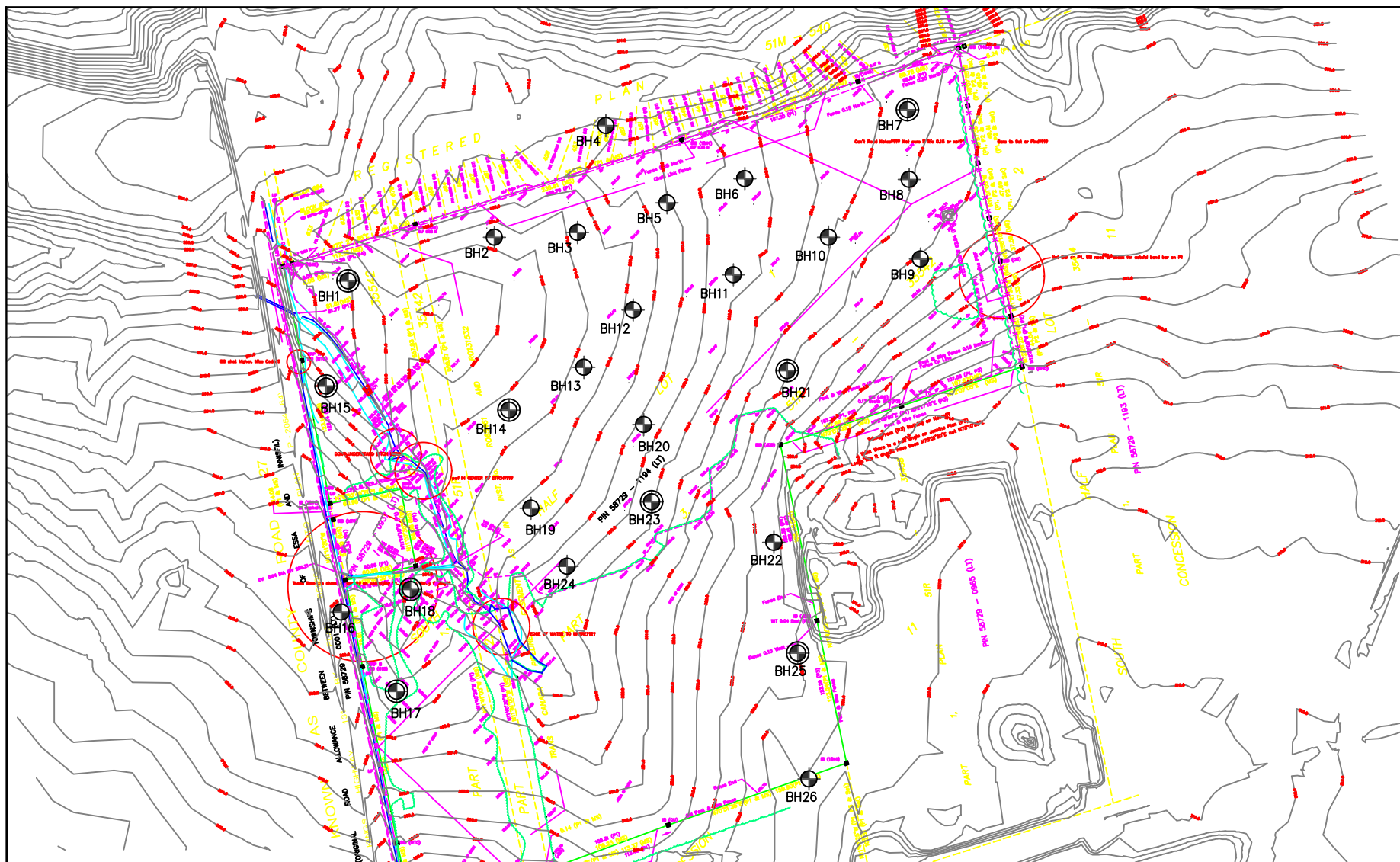
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Units 25 to 27, 40 Vogell Road, Richmond Hill, Ontario L4B 3N6



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Legend:  Borehole Location  Monitoring Well	Client: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI		Project No.: 17-2099GE	Drawing No.: 1
	Drawn: WF	Approved: DL	Title: Borehole Location Plan	
	Date: May, 2018	Scale: N.T.S	Project: Geotechnical Investigation Proposed Residential Developments County Road 27, Barrie, Ontario	
	Original Size: Letter	Rev: DX	 GeoPro Consulting Limited	



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ENCLOSURES



Enclosure 1A: Notes on Sample Descriptions

1. Each soil stratum is described according to the *Modified Unified Soil Classification System*. The compactness condition of cohesionless soils (SPT) and the consistency of cohesive soils (undrained shear strength) are defined according to Canadian Foundation Engineering Manual, 4th Edition. Different soil classification systems may be used by others. Please note that a description of the soil strata is based on visual and tactile examination of the samples augmented with field and laboratory test results, such as a grain size analysis and/or Atterberg Limits testing. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.
2. Fill: Where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc., none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional preliminary geotechnical site investigation.
3. Till: The term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.



Enclosure 1B: Explanation of Terms Used in the Record of Boreholes

Sample Type

AS	Auger sample
BS	Block sample
CS	Chunk sample
DO	Drive open
DS	Dimension type sample
FS	Foil sample
NR	No recovery
RC	Rock core
SC	Soil core
SS	Spoon sample
SH	Shelby tube Sample
ST	Slotted tube
TO	Thin-walled, open
TP	Thin-walled, piston
WS	Wash sample

Penetration Resistance

Standard Penetration Resistance (SPT), N:

The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in) required to drive a 50 mm (2 in) drive open sampler for a distance of 300 mm (12 in).

PM – Samples advanced by manual pressure

WR – Samples advanced by weight of sampler and rod

WH – Samples advanced by static weight of hammer

Dynamic Cone Penetration Resistance, N_d :

The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in) to drive uncased a 50 mm (2 in) diameter, 60° cone attached to “A” size drill rods for a distance of 300 mm (12 in).

Piezo-Cone Penetration Test (CPT):

An electronic cone penetrometer with a 60 degree conical tip and a projected end area of 10 cm² pushed through ground at a penetration rate of 2 cm/s. Measurement of tip resistance (Q_t), porewater pressure (PWP) and friction along a sleeve are recorded electronically at 25 mm penetration intervals.

Textural Classification of Soils (ASTM D2487)

Classification	Particle Size
Boulders	> 300 mm
Cobbles	75 mm - 300 mm
Gravel	4.75 mm - 75 mm
Sand	0.075 mm – 4.75 mm
Silt	0.002 mm-0.075 mm
Clay	<0.002 mm(*)

(*) Canadian Foundation Engineering Manual (4th Edition)

Coarse Grain Soil Description (50% greater than 0.075 mm)

Terminology	Proportion
Trace	0-10%
Some	10-20%
Adjective (e.g. silty or sandy)	20-35%
And (e.g. sand and gravel)	> 35%

Soil Description

a) Cohesive Soils(*)

Consistency	Undrained Shear Strength (kPa)	SPT “N” Value
Very soft	<12	0-2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very stiff	100-200	15-30
Hard	>200	>30

(*) Hierarchy of Shear Strength prediction

1. Lab triaxial test
2. Field vane shear test
3. Lab. vane shear test
4. SPT “N” value
5. Pocket penetrometer

b) Cohesionless Soils

Compactness Condition (Formerly Relative Density)	SPT “N” Value
Very loose	<4
Loose	4-10
Compact	10-30
Dense	30-50
Very dense	>50

Soil Tests

w	Water content
w _p	Plastic limit
w _l	Liquid limit
C	Consolidation (oedometer) test
CID	Consolidated isotropically drained triaxial test
CIU	consolidated isotropically undrained triaxial test with porewater pressure measurement
D _R	Relative density (specific gravity, G _s)
DS	Direct shear test
ENV	Environmental/ chemical analysis
M	Sieve analysis for particle size
MH	Combined sieve and hydrometer (H) analysis
MPC	Modified proctor compaction test
SPC	Standard proctor compaction test
OC	Organic content test
U	Unconsolidated Undrained Triaxial Test
V	Field vane (LV-laboratory vane test)
γ	Unit weight

PROJECT: Geotechnical Investigation for Proposed Residential Developments						DRILLING DATA										
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI						METHOD: Continuous Flight Auger - Auto Hammer						DIAMETER: 155 mm				
PROJECT LOCATION: County Road 27, Barrie, Ontario						FIELD ENGINEER: HR						DATE: 2018-04-30				
DATUM: Geodetic						SAMPLE REVIEW: DX						REF. NO.: 17-2099GE				
BH LOCATION: See Borehole Location Plan						CHECKED: DL						ENCL. NO.: 2				
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				Natural Moisture Content				UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SHEAR STRENGTH (kPa)				Plastic Limit w _p	Natural Moisture Content w	Liquid Limit w _L			
							○ SPT 20	≧ Cone 40	blows/0.3m 60	blows/0.3m 80						
						● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⓧ Penetrometer + Lab Vane				WATER CONTENT (%)				GR SA SI CL		
289.7	0.0	TOPSOIL: (300 mm)														
289.4	0.3	REWORKED SILTY SAND TO SAND AND SILT: trace organics, trace rootlets, dark brown to brown, moist, loose	1	SS	4											
289.0	0.6	SILTY SAND TO SAND AND SILT: trace clay, trace gravel, organic stain, brown, wet, loose to compact	2	SS	8											
288.1	1.5	SAND AND SILT: trace clay, trace gravel, brown, moist to wet, compact	3A	SS	18											
287.6	2.1	SAND: some silt, trace gravel, containing cobbles and boulders, brown, moist, dense	3B	SS												
287.1	2.5	FINE SAND TO SILTY FINE SAND: brown, moist to wet, dense to very dense	4A	SS	36											
286.4	2.5	--- auger grinding	4B	SS												
285.6	4.0	SILTY SAND: trace to some gravel, trace clay, containing cobbles and boulders, brown, wet, very dense														
283.4	6.2	END OF BOREHOLE	7	SS	50 / 140 mm											
Notes: 1) Water was encountered at a depth of 4.6 m below ground surface (mBGS) during drilling. 2) Borehole caved at a depth of 3.0 mBGS upon completion of drilling. 3) 51 mm dia. monitoring well was installed in borehole upon completion of drilling. Water Level Reading Date May 11, 2018 W. L. Depth (mBGS) 3.23																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments

DRILLING DATA

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

METHOD: Continuous Flight Auger - Auto Hammer

DIAMETER: 155 mm

PROJECT LOCATION: County Road 27, Barrie, Ontario

FIELD ENGINEER: RR

DATE: 2018-04-24

DATUM: Geodetic

SAMPLE REVIEW: DX

REF. NO.: 17-2099GE

BH LOCATION: See Borehole Location Plan

CHECKED: DL

ENCL. NO.: 3

SOIL PROFILE			SAMPLES		GROUND WATER	DYNAMIC PENETRATION TEST				Plastic Limit			UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE		ELEVATION	○ SPT	≥ Cone	blows/0.3m	W _p	W	W _L		
292.7							20	40	60	80				GR SA SI CL
0.0	TOPSOIL: (310 mm)													
292.4			1	SS	8	292	○				○			
0.3	REWORKED SAND AND SILT: trace clay, trace gravel, trace organics, trace rootlets, dark brown, moist, loose to compact		2	SS	17		○				○			
291.5						291		○						
1.2	NO SAMPLE RECOVERY: likely sand and silt to silty sand		3	NR	30									
290.7														
2.1	SAND AND SILT TO SILTY SAND: trace clay, trace gravel, layers/zones of sandy silt, containing cobbles and boulders, brown, moist, dense to very dense --- auger grinding		4	SS	49	290			○		○			
			5	SS	39			○			○			5 69 23 3
						289								
			6	SS	62	288			○		○			
287.2						287								
5.6	SAND: trace to some silt, trace gravel, brown, moist, very dense													
286.5			7	SS	50 /									
6.3	END OF BOREHOLE Note: 1) Borehole was open and dry upon completion of drilling.				150 mm									

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments					DRILLING DATA																		
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI					METHOD: Continuous Flight Auger - Auto Hammer					DIAMETER: 155 mm													
PROJECT LOCATION: County Road 27, Barrie, Ontario					FIELD ENGINEER: RR					DATE: 2018-04-26													
DATUM: Geodetic					SAMPLE REVIEW: DX					REF. NO.: 17-2099GE													
BH LOCATION: See Borehole Location Plan					CHECKED: DL					ENCL. NO.: 4													
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				Plastic Limit				Natural Moisture Content		Liquid Limit		UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)			
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SPT				Cone				blows/0.3m								
							20				40				60					80			
							20				40				60					80			
							20				40				60					80			
SHEAR STRENGTH (kPa)						W _p				W				W _L									
● Unconfined ✕ Field Vane & Sensitivity						WATER CONTENT (%)																	
▲ Quick Triaxial ▣ Penetrometer + Lab Vane						20				40				60				80					
20						10				20				30				40					
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PROJECT: Geotechnical Investigation for Proposed Residential Developments					DRILLING DATA															
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI					METHOD: Continuous Flight Auger - Auto Hammer					DIAMETER: 155 mm										
PROJECT LOCATION: County Road 27, Barrie, Ontario					FIELD ENGINEER: HR					DATE: 2018-04-30										
DATUM: Geodetic					SAMPLE REVIEW: DX					REF. NO.: 17-2099GE										
BH LOCATION: See Borehole Location Plan					CHECKED: DL					ENCL. NO.: 5										
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				Plastic Limit			Natural Moisture Content		Liquid Limit		REMARKS AND GRAIN SIZE DISTRIBUTION (%)		
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SHEAR STRENGTH (kPa)				W _p			W		W _L				
							SPT				Cone			blows/0.3m						
							20 40 60 80													
							● Unconfined ▲ Quick Triaxial				X Field Vane & Sensitivity			Penetrometer + Lab Vane						
295.0	TOPSOIL: (230 mm)																			
294.7	FILL: sand and silt to silty sand, trace clay, trace gravel, containing red brick fragments, brown, moist, compact SILTY SAND TO SAND: trace to some gravel, containing cobbles and boulders, brown, moist, compact to very dense --- auger grinding --- auger grinding --- auger grinding		1	SS	16															
294.4																				
0.6																				
1																				
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GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, X 3: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments						DRILLING DATA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI						METHOD: Continuous Flight Auger - Auto Hammer						DIAMETER: 155 mm																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SPT				Cone						Plastic Limit w _p	Natural Moisture Content w	Liquid Limit w _L																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments

DRILLING DATA

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

METHOD: Continuous Flight Auger - Auto Hammer

DIAMETER: 155 mm

PROJECT LOCATION: County Road 27, Barrie, Ontario

FIELD ENGINEER: RR

DATE: 2018-04-26

DATUM: Geodetic

SAMPLE REVIEW: DX

REF. NO.: 17-2099GE

BH LOCATION: See Borehole Location Plan

CHECKED: DL

ENCL. NO.: 7

SOIL PROFILE			SAMPLES		GROUND WATER	DYNAMIC PENETRATION TEST				Plastic Limit Natural Moisture Content Liquid Limit			UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE		20	40	60	80	W _p	W	W _L		
298.6														
298.3	TOPSOIL: (245 mm)													
0.2	REWORKED SAND AND SILT: trace clay, trace gravel, trace organics, trace rootlets, dark brown to brown, moist to wet, very loose to compact		1	SS	2									
297.7			2A	SS										
0.8	SAND AND SILT TO SILTY SAND: trace to some clay, trace gravel, organic stain, containing cobbles and boulders, brown, moist, compact		2B	SS	11									
			3	SS	11									
296.5														
2.1	SILTY SAND: trace gravel, layers/zones of sand and silt, containing cobbles and boulders, brown, moist, very dense		4	SS	67									
	--- auger grinding		5	SS	82									
294.5														
4.0	CLAYEY SILT: some sand to sandy, trace gravel, zones/layers of silty sand, containing cobbles and boulders, brown, moist, hard		6	SS	49									
	--- auger grinding													
293.0														
5.6	SAND TO SILTY SAND: trace to some gravel, containing cobbles and boulders, brown, moist, very dense		7	SS	50 / 130 mm									
	--- auger grinding													
290.9														
7.7	END OF BOREHOLE Note: 1) Borehole was open and dry upon completion of drilling.		8	SS	50 / 80 mm									

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, × 3: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments						DRILLING DATA												
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI						METHOD: Continuous Flight Auger - Auto Hammer						DIAMETER: 205 mm						
PROJECT LOCATION: County Road 27, Barrie, Ontario						FIELD ENGINEER: RR						DATE: 2018-04-25						
DATUM: Geodetic						SAMPLE REVIEW: DX						REF. NO.: 17-2099GE						
BH LOCATION: See Borehole Location Plan						CHECKED: DL						ENCL. NO.: 8						
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST								REMARKS AND GRAIN SIZE DISTRIBUTION (%)			
ELEV. DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SPT				Cone					Plastic Limit w _p	Natural Moisture Content w	Liquid Limit w _L
							blows/0.3m				blows/0.3m							
						SHEAR STRENGTH (kPa)								WATER CONTENT (%)				
						● Unconfined X Field Vane & Sensitivity												
						▲ Quick Triaxial ▣ Penetrometer + Lab Vane												

01 - GEOPRO SOIL LOG - GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC-DX-GP1 - 2018-05-29 17:03

Continued Next Page

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments						DRILLING DATA													
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI						METHOD: Continuous Flight Auger - Auto Hammer						DIAMETER: 205 mm							
PROJECT LOCATION: County Road 27, Barrie, Ontario						FIELD ENGINEER: RR						DATE: 2018-04-25							
DATUM: Geodetic						SAMPLE REVIEW: DX						REF. NO.: 17-2099GE							
BH LOCATION: See Borehole Location Plan						CHECKED: DL						ENCL. NO.: 8							
SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION TEST				Natural Moisture Content				REMARKS AND GRAIN SIZE DISTRIBUTION (%)					
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m	GROUND WATER	ELEVATION	SPT 20	Cone 40	blows/0.3m 60	80	Plastic Limit W _p	Natural Moisture Content W	Liquid Limit W _L	UNIT WT (kN/m ³)	GR	SA	SI	CL
	FINE SAND: trace to some silt, trace gravel, brown, moist, very dense(Continued)						291												
11			10	SS	50 / 80 mm														
289.9							290												
11.5	SAND AND SILT TO SILTY SAND: trace gravel, containing cobbles and boulders, brown, moist, very dense		11	SS	50 / 80 mm														
12							289												
13	--- auger grinding																		
14			12	SS	50 / 50 mm														
15							288												
286.1							287												
15.3	END OF BOREHOLE Note: 1) 51 mm dia. monitoring well was installed in borehole upon completion of drilling. Water Level Reading Date May 11, 2018 W. L. Depth (mBGS) 14.83		13	SS	60 / 80 mm														
							286.6/May 11												

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, x 3: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments						DRILLING DATA														
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI						METHOD: Continuous Flight Auger - Auto Hammer						DIAMETER: 155 mm								
PROJECT LOCATION: County Road 27, Barrie, Ontario						FIELD ENGINEER: RR						DATE: 2018-04-23								
DATUM: Geodetic						SAMPLE REVIEW: DX						REF. NO.: 17-2099GE								
BH LOCATION: See Borehole Location Plan						CHECKED: DL						ENCL. NO.: 9								
SOIL PROFILE			SAMPLES			GROUND WATER	ELEVATION	DYNAMIC PENETRATION TEST				Natural Moisture Content				UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)			
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m			SPT				Plastic Limit w _p	Natural Moisture Content w	Liquid Limit w _L	WATER CONTENT (%)		GR	SA	SI	CL
								20	40	60	80									
								SHEAR STRENGTH (kPa)												
● Unconfined X Field Vane & Sensitivity				▲ Quick Triaxial ⓧ Penetrometer + Lab Vane																
301.8	0.0	TOPSOIL: (330 mm)																		
301.5	0.3	REWORKED SILTY SAND: trace gravel, trace organics, trace rootlets, pockets of organic silt, brown, moist to wet, compact SILTY SAND: trace gravel, organic stain, dark brown to brown, wet, loose to compact	1	SS	11															
301.2	0.6		2	SS	6															
			3	SS	4															

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, X 3: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments

DRILLING DATA

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

METHOD: Continuous Flight Auger - Auto Hammer

DIAMETER: 155 mm

PROJECT LOCATION: County Road 27, Barrie, Ontario

FIELD ENGINEER: RR

DATE: 2018-04-23

DATUM: Geodetic

SAMPLE REVIEW: DX

REF. NO.: 17-2099GE

BH LOCATION: See Borehole Location Plan

CHECKED: DL

ENCL. NO.: 10

SOIL PROFILE			SAMPLES		GROUND WATER	DYNAMIC PENETRATION TEST				Plastic Limit			UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE		SPT	Cone	blows/0.3m		W _p	Natural Moisture Content	Liquid Limit		
302.9						20	40	60	80					
0.0	TOPSOIL: (330 mm)													
302.6			1	SS	4									
0.3	REWORKED SILTY FINE SAND: trace organics, trace rootlets, dark brown to brown, moist, loose													
302.3			2	SS	5									
0.6	SILTY SAND TO SANDY SILT: trace organics, organic stain, brown, moist to wet, loose													
301.7	---zones of clayey silt													
1.2	SILTY SAND: trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, compact to very dense		3	SS	20									
			4	SS	48									
299.7			5A	SS	50 /									
3.2	SAND AND GRAVEL: trace silt, containing cobbles and boulders, brown, moist, very dense		5B	SS	100 mm									
298.9														
4.0	SAND AND SILT TO SILTY SAND: trace to some gravel, containing cobbles and boulders, brown, moist, very dense													
			6	SS	50 / 80 mm									
296.7			7	SS	50 / 100 mm									
6.2	END OF BOREHOLE Note: 1) Borehole caved at a depth of 5.0 m below ground surface (mBGS) upon completion of drilling.													

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments

DRILLING DATA

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

METHOD: Continuous Flight Auger - Auto Hammer

DIAMETER: 155 mm

PROJECT LOCATION: County Road 27, Barrie, Ontario

FIELD ENGINEER: RR

DATE: 2018-04-23

DATUM: Geodetic

SAMPLE REVIEW: DX

REF. NO.: 17-2099GE

BH LOCATION: See Borehole Location Plan

CHECKED: DL

ENCL. NO.: 11

SOIL PROFILE			SAMPLES		GROUND WATER	DYNAMIC PENETRATION TEST				Plastic Limit			Natural Moisture Content	Liquid Limit	UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
ELEV. DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE		20	40	60	80	W _p	W	W _L				
300.8																
0.0	TOPSOIL: (310 mm)															
300.5																
0.3	REWORKED SAND AND SILT TO SILTY SAND: trace organics, trace rootlets, dark brown to brown, moist to wet, very loose		1	SS	3											
300.2																
0.6	SAND AND SILT TO SILTY SAND: trace clay, trace gravel, organic stain, dark brown to brown, moist to wet, very loose to compact		2	SS	2											
299.3			3A	SS	11											
1.5	SAND AND SILT TO SILTY SAND: trace clay, trace gravel, pockets of sand, containing cobbles and boulders, brown, moist, compact		3B	SS												
298.8																
2.1	SAND: some silt, trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense		4	SS	53											
297.9																
2.9	SILTY SAND: trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense		5	SS	80 / 280 mm											
3																
4																
5																
6			6	SS	50 / 100 mm											
295.5																
5.4	SILTY FINE SAND: trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense															
294.5			7	SS	50 / 100 mm											
6.4	END OF BOREHOLE															
	Notes: 1) Borehole was dry upon completion of drilling. 2) Borehole caved at a depth of 5.9 m below ground surface (mBGS) upon completion of drilling.															

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments						DRILLING DATA											
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI						METHOD: Continuous Flight Auger - Auto Hammer						DIAMETER: 155 mm					
PROJECT LOCATION: County Road 27, Barrie, Ontario						FIELD ENGINEER: RR						DATE: 2018-04-23					
DATUM: Geodetic						SAMPLE REVIEW: DX						REF. NO.: 17-2099GE					
BH LOCATION: See Borehole Location Plan						CHECKED: DL						ENCL. NO.: 12					
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				Natural Moisture Content				UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SHEAR STRENGTH (kPa)				WATER CONTENT (%)						
							SPT Cone blows/0.3m				Plastic Limit Natural Moisture Content Liquid Limit						
						20 40 60 80				w _p w w _L							
						● Unconfined X Field Vane & Sensitivity											
						▲ Quick Triaxial Penetrometer + Lab Vane											
298.9	TOPSOIL: (310 mm) REWORKED SAND AND SILT: trace clay, trace organics, trace rootlets, brown, moist, very loose SAND AND SILT: trace to some clay, trace gravel, containing cobbles and boulders, brown, moist, loose SAND: trace to some silt, trace gravel, layers of sandy silt, brown, moist, loose SAND AND SILT TO SILTY SAND: trace clay, trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense		1	SS	2		298									4 65 24 7	
298.6																	
0.3																	
298.3																	
0.6																	
297.8																	
297.7																	
1.2																	
294.2	--- auger grinding SAND: trace to some silt, trace gravel, brown, moist, very dense		6A	SS	50 / 80 mm		294										
4.7																	
292.5	END OF BOREHOLE Note: 1) Borehole caved at a depth of 5.2 m below ground surface (mBGS) upon completion of drilling.		7	SS	50 / 130 mm		293										
6.4																	

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments						DRILLING DATA													
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI						METHOD: Continuous Flight Auger - Auto Hammer						DIAMETER: 155 mm							
PROJECT LOCATION: County Road 27, Barrie, Ontario						FIELD ENGINEER: RR						DATE: 2018-04-23							
DATUM: Geodetic						SAMPLE REVIEW: DX						REF. NO.: 17-2099GE							
BH LOCATION: See Borehole Location Plan						CHECKED: DL						ENCL. NO.: 13							
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				Natural Moisture Content				UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)			
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SHEAR STRENGTH (kPa)				WATER CONTENT (%)								
							SPT Cone blows/0.3m				Plastic Limit Natural Moisture Content Liquid Limit								
						○ SPT ≥ Cone 20 40 60 80				W _p W W _L									
						● Unconfined X Field Vane & Sensitivity													
						▲ Quick Triaxial ▣ Penetrometer + Lab Vane													
295.3	0.0	TOPSOIL: (290 mm)																	
295.0	0.3	REWORKED SANDY SILT TO SAND AND SILT: trace clay, trace gravel, trace organics, trace rootlets, dark brown to brown, moist, loose	1	SS	4														
294.7	0.6		2A	SS	4														
294.2	0.9	SAND AND SILT: trace clay, trace gravel, organic stain, brown, moist to wet, loose	2B	SS															
294.1	1.2		3	SS	47														
		SAND AND SILT: trace clay, trace gravel, containing cobbles and boulders, brown, moist, loose																	
		SAND: some gravel, some silt, containing cobbles and boulders, brown, moist, dense																	
293.2	2.1		4	SS	72														
		SILTY SAND: trace gravel, layers/zones of sand and silt, brown, moist, very dense																	
292.4	2.9	SILTY FINE SAND: seams/pockets of silt, brown, moist, very dense	5	SS	60														
291.3	4.0	SAND AND SILT TO SILTY SAND: trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense																	
			6	SS	77 / 260 mm														
		--- auger grinding																	
											</								

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments							DRILLING DATA										
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI							METHOD: Continuous Flight Auger - Auto Hammer							DIAMETER: 155 mm			
PROJECT LOCATION: County Road 27, Barrie, Ontario							FIELD ENGINEER: RR							DATE: 2018-04-24			
DATUM: Geodetic							SAMPLE REVIEW: DX							REF. NO.: 17-2099GE			
BH LOCATION: See Borehole Location Plan							CHECKED: DL							ENCL. NO.: 14			
SOIL PROFILE			SAMPLES			GROUND WATER	ELEVATION	DYNAMIC PENETRATION TEST				Natural Moisture Content				UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m			SHEAR STRENGTH (kPa)				Plastic Limit w _p	Natural Moisture Content w	Liquid Limit w _L	WATER CONTENT (%)		
								○ SPT 20	⌢ Cone 40	blows/0.3m 60	80						
294.6																	
294.5	TOPSOIL: (170 mm)																
0.2	REWORKED SANDY SILT: trace to some clay, trace gravel, trace organics, trace rootlets, dark brown to brown, moist, very loose		1	SS	3												
294.0																	
0.6	SAND AND SILT TO SANDY SILT: some clay, trace gravel, sand pockets, containing cobbles and boulders, brown, moist, compact		2	SS	11												
			3	SS	17												
292.6																	
2.1	SAND AND SILT TO SILTY SAND: trace gravel, containing cobbles and boulders, brown, moist, very dense		4	SS	64												
291.7																	
2.9	FINE SAND: trace to some silt, trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense --- auger grinding		5	SS	59												
290.6																	
4.0	SILTY FINE SAND: trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense																
			6A	SS	69												
289.8																	
4.9	SAND AND SILT: trace clay, trace gravel, containing cobbles and boulders, brown, moist, very dense		6B	SS													
289.1																	
5.6	SILTY SAND: trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense																
288.4			7	SS	50 / 140 mm												
6.2	END OF BOREHOLE Note: 1) Borehole caved at a depth of 5.4 m below ground surface (mBGS) upon completion of drilling.																

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

[illegible]

PROJECT: Geotechnical Investigation for Proposed Residential Developments						DRILLING DATA															
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI						METHOD: Continuous Flight Auger - Auto Hammer						DIAMETER: 155 mm									
PROJECT LOCATION: County Road 27, Barrie, Ontario						FIELD ENGINEER: HR						DATE: 2018-04-30									
DATUM: Geodetic						SAMPLE REVIEW: DX						REF. NO.: 17-2099GE									
BH LOCATION: See Borehole Location Plan						CHECKED: DL						ENCL. NO.: 16									
SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION TEST								Natural Moisture Content				Liquid Limit		REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION	SHEAR STRENGTH (kPa)				WATER CONTENT (%)				UNIT WT (kN/m³)	GR	SA	SI	CL		
291.3 0.0	TOPSOIL: (330 mm)						○ SPT 20 ≥ Cone 40 60 80 blows/0.3m				Plastic Limit w _p Natural Moisture Content w Liquid Limit w _L										
291.0 0.3	REWORKED SAND AND SILT: trace clay, trace gravel, trace organics, trace rootlets, dark brown, wet, very loose		1	SS	2	291.0	● Unconfined ✕ Field Vane & Sensitivity				WATER CONTENT (%)										
290.7 0.6	SAND AND SILT: trace clay, trace gravel, organic stain, brown, wet, loose		2	SS	9	290.7	▲ Quick Triaxial ✕ Penetrometer + Lab Vane														
290.1 1.2	SAND AND SILT TO SILTY SAND: trace to some clay, trace gravel, layers of silty sand, pockets of sand, brown, moist to wet, loose to very dense		3	SS	7	290.1															
						289.8/May 11															
			4	SS	9	289.0															
			5	SS	11	288.0															
			6	SS	10	287.0															

PROJECT: Geotechnical Investigation for Proposed Residential Developments					DRILLING DATA														
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI					METHOD: Continuous Flight Auger - Auto Hammer					DIAMETER: 155 mm									
PROJECT LOCATION: County Road 27, Barrie, Ontario					FIELD ENGINEER: HR					DATE: 2018-04-30									
DATUM: Geodetic					SAMPLE REVIEW: DX					REF. NO.: 17-2099GE									
BH LOCATION: See Borehole Location Plan					CHECKED: DL					ENCL. NO.: 17									
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				Natural Moisture Content				UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)			
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SHEAR STRENGTH (kPa)				Plastic Limit w _p	Natural Moisture Content w	Liquid Limit w _L						
							○ SPT 20	≧ Cone 40	blows/0.3m 60	80									
							● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⓧ Penetrometer + Lab Vane				WATER CONTENT (%)								
299.0 0.0	PAVED SHOULDER ASPHALT: (60 mm) GRANULAR BASE/SUBBASE: (780 mm)		1	AS															
298.1 0.8	FILL: gravelly sand, trace silt, containing rock fragments, brown, moist, compact		2	SS	15														
297.7 1.2	FILL: organic sandy silt to organic silt, trace clay, trace gravel, dark brown, wet, loose		3A	SS	6														
297.2 1.8	FILL: sandy silt to sand and silt, trace to some clay, trace organics, brown, wet, loose		3B	SS															
296.8 2.1	SAND AND SILT: trace clay, trace gravel, brown to grey, wet, loose to compact		4	SS	7														
296.0 3.6			5	SS	11														
295.0 4.6																			
294.0 6.0	---grey		6	SS	29														
293.0 6.6																			
292.4 6.6	END OF BOREHOLE																		
Notes: 1) Water was encountered at a depth of 4.6 m below ground surface (mBGS) during drilling. 2) Water was at a depth of 5.5 mBGS upon completion of drilling. 3) Borehole caved at a depth of 6.0 mBGS upon completion of drilling.																			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments							DRILLING DATA											
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI							METHOD: Continuous Split Spoon							DIAMETER: 51 mm				
PROJECT LOCATION: County Road 27, Barrie, Ontario							FIELD ENGINEER: HR							DATE: 2018-05-02				
DATUM: Geodetic							SAMPLE REVIEW: DX							REF. NO.: 17-2099GE				
BH LOCATION: See Borehole Location Plan							CHECKED: DL							ENCL. NO.: 18				
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				Natural Moisture Content				UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)		
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SHEAR STRENGTH (kPa)				Plastic Limit w _p	Natural Moisture Content w	Liquid Limit w _L					
							○ SPT	≧ Cone	blows/0.3m									
							20	40	60	80								
298.4	TOPSOIL: (320 mm)																	
298.1																		
0.3	REWORKED SANDY SILT: some clay, trace to some organics, trace rootlets, brown, wet, very loose		1	SS	1													
297.6																		
0.8	SILTY CLAY: sandy, trace gravel, trace organics, organic stain, sand pockets, brown, wet, very soft to soft		2	SS	2													
1																		
296.9																		
1.5	SANDY SILT: some clay, trace gravel, layers/seams of clayey silt, brown, wet, loose to compact		3	SS	10													
296.3																		
2.1	CLAYEY SILT TO SILTY CLAY: trace to some sand, trace gravel, seams of silty sand, layers of sandy silt, brown, wet, stiff		4	SS	9													
295.3																		
3.1	SAND AND SILT: trace clay, trace gravel, containing cobbles and boulders, brown to grey, moist to wet, compact		5	SS	27													
294.7																		
3.7	END OF BOREHOLE																	
Notes: 1) Water was encountered at a depth of 0.8 m below ground surface (mBGS) during drilling. 2) Water was at a depth of 0.2 mBGS upon completion of drilling. 3) 38 mm dia. monitoring was installed in borehole upon completion of drilling. Water Level Reading Date W. L. Depth (mBGS) May 11, 2018 0.23																		

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments							DRILLING DATA													
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI							METHOD: Continuous Split Spoon							DIAMETER: 51 mm						
PROJECT LOCATION: County Road 27, Barrie, Ontario							FIELD ENGINEER: RR							DATE: 2018-05-01						
DATUM: Geodetic							SAMPLE REVIEW: DX							REF. NO.: 17-2099GE						
BH LOCATION: See Borehole Location Plan							CHECKED: DL							ENCL. NO.: 19						
SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION TEST										REMARKS AND GRAIN SIZE DISTRIBUTION (%)				
ELEV. DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m	GROUND WATER	ELEVATION	SHEAR STRENGTH (kPa)				WATER CONTENT (%)				UNIT WT (kN/m³)	GR	SA	SI	CL
								SPT				Natural Moisture Content								
296.6	TOPSOIL: (300 mm)							20	40	60	80	10	20	30	40					
296.3	REWORKED SAND AND SILT: trace clay, trace gravel, brown, moist to wet, very loose		1	SS	2		296													
295.8	SAND AND SILT: trace clay, trace gravel, trace rootlets, layers/seams /pockets of sand, containing cobbles and boulders, brown, moist to wet, loose to compact		2	SS	6		295.4/May 11													
			3	SS	8		295													
			4	SS	9		294													
			5	SS	17		293													
			6	SS	13		292													
			7	SS	10		291													
291.4	NO SAMPLE RECOVERY: likely silty sand		8	NR	19		291													
290.7	END OF BOREHOLE:																			
Notes: 1) Water was encountered at a depth of 2.3 m below ground surface (mBGS) during drilling. 2) Water was at a depth of 3.5 mBGS upon completion of drilling. 3) Borehole caved at a depth of 5.3 mBGS upon completion. 4) 38 mm dia. monitoring was installed in borehole upon completion of drilling. Water Level Reading Date W. L. Depth (mBGS) May 11, 2018 1.20																				

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, × 3: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments						DRILLING DATA												
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI						METHOD: Continuous Flight Auger - Auto Hammer						DIAMETER: 155 mm						
PROJECT LOCATION: County Road 27, Barrie, Ontario						FIELD ENGINEER: RR						DATE: 2018-04-24						
DATUM: Geodetic						SAMPLE REVIEW: DX						REF. NO.: 17-2099GE						
BH LOCATION: See Borehole Location Plan						CHECKED: DL						ENCL. NO.: 20						
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				Natural Moisture Content			UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)			
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SHEAR STRENGTH (kPa)				Plastic Limit w _p	Natural Moisture Content w	Liquid Limit w _L					
							○ SPT	≧ Cone	blows/0.3m									
						20	40	60	80									
295.3	TOPSOIL: (290 mm)																	
0.0																		
295.0																		
0.3	REWORKED FINE SAND AND SILT: trace organics, trace rootlets, pockets of organics, dark brown to brown, moist, loose		1	SS	4													
294.7																		
0.6																		
294.4	CLAYEY SILT: trace to some sand, trace organics, trace rootlets, zones of silty fine sand, organic stain, dark brown to brown, moist, soft to firm		2A	SS	4													
294.4																		
0.9																		
294.1	SAND AND SILT: trace to some clay, trace gravel, brown, moist to wet, loose		2B	SS	9													
294.1																		
1.2																		
293.3	SANDY SILT TO SAND AND SILT: trace to some clay, trace gravel, layers of clayey silt, containing cobbles and boulders, brown, moist to wet, loose		3	SS	9													
293.3																		
2.1																		
292.4	SAND AND SILT TILL: trace clay, trace gravel, layers of sand and silt, containing cobbles and boulders, brown, moist, compact		4	SS	17													
292.4																		
2.9																		
															</			

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, X 3: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments							DRILLING DATA									
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI							METHOD: Continuous Flight Auger - Auto Hammer							DIAMETER: 155 mm		
PROJECT LOCATION: County Road 27, Barrie, Ontario							FIELD ENGINEER: RR							DATE: 2018-04-24		
DATUM: Geodetic							SAMPLE REVIEW: DX							REF. NO.: 17-2099GE		
BH LOCATION: See Borehole Location Plan							CHECKED: DL							ENCL. NO.: 21		
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				Natural Moisture Content				UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
ELEV. DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SHEAR STRENGTH (kPa)				WATER CONTENT (%)					
							○ SPT	≥ Cone	blows/0.3m		W _p	W	Liquid Limit			
297.3	TOPSOIL: (280 mm)						20	40	60	80						
0.0																
297.0																
0.3	REWORKED SANDY SILT TO SAND AND SILT: trace clay, trace gravel, trace organics, trace rootlets, dark brown to brown, moist, loose		1	SS	4											
296.7																
0.6	SAND AND SILT TO SILTY SAND: trace to some clay, trace gravel, layers/pockets of sand, containing cobbles and boulders, brown, moist, compact to very dense ---auger grinding		2	SS	14											
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
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PROJECT: Geotechnical Investigation for Proposed Residential Developments

DRILLING DATA

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

METHOD: Continuous Flight Auger - Auto Hammer

DIAMETER: 155 mm

PROJECT LOCATION: County Road 27, Barrie, Ontario

FIELD ENGINEER: RR

DATE: 2018-04-23

DATUM: Geodetic

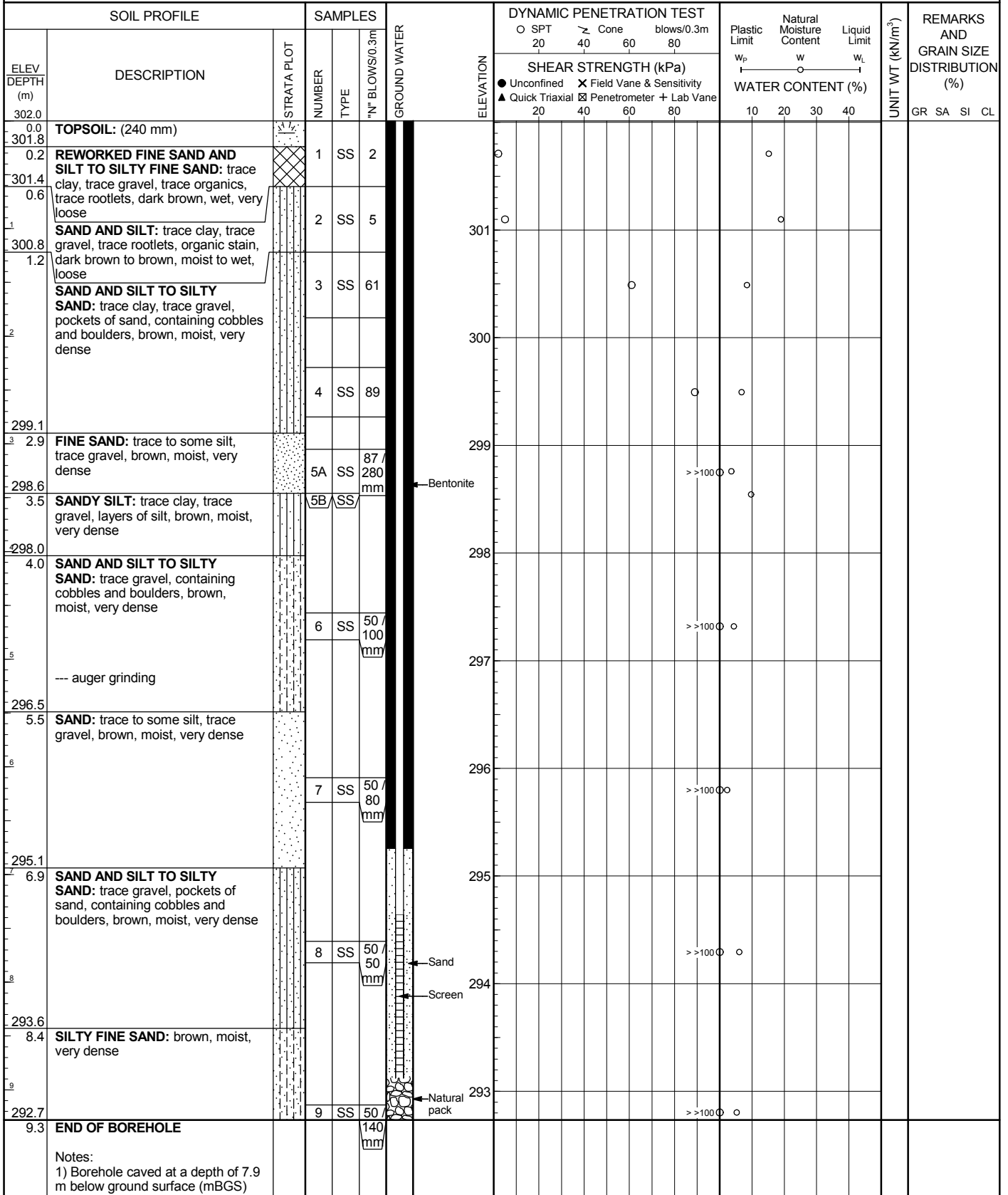
SAMPLE REVIEW: DX

REF. NO.: 17-2099GE

BH LOCATION: See Borehole Location Plan

CHECKED: DL

ENCL. NO.: 22



01 - GEOPRO SOIL LOG - GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC-DX-GPJ - 2018-05-29 17:04

Continued Next Page

GROUNDWATER ELEVATIONS
 Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, × 3: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments										DRILLING DATA															
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI										METHOD: Continuous Flight Auger - Auto Hammer										DIAMETER: 155 mm					
PROJECT LOCATION: County Road 27, Barrie, Ontario										FIELD ENGINEER: RR										DATE: 2018-04-23					
DATUM: Geodetic										SAMPLE REVIEW: DX										REF. NO.: 17-2099GE					
BH LOCATION: See Borehole Location Plan										CHECKED: DL										ENCL. NO.: 22					
SOIL PROFILE			SAMPLES			GROUND WATER		DYNAMIC PENETRATION TEST				Plastic Limit				Natural Moisture Content				Liquid Limit				REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
ELEV. DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION	SPT	Cone	blows/0.3m	W _p	W	W _L	UNIT WT (kN/m ³)												
	upon completion of drilling. 2) 51 mm dia. monitoring was installed in borehole upon completion of drilling.																								
	Water Level Reading Date W. L. Depth (mBGS) May 11, 2018 Dry																								

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC-DX-GPJ 2018-05-29 17:04

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH
NOTES

+³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments						DRILLING DATA															
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI						METHOD: Continuous Flight Auger - Auto Hammer						DIAMETER: 155 mm									
PROJECT LOCATION: County Road 27, Barrie, Ontario						FIELD ENGINEER: HR						DATE: 2018-04-30									
DATUM: Geodetic						SAMPLE REVIEW: DX						REF. NO.: 17-2099GE									
BH LOCATION: See Borehole Location Plan						CHECKED: DL						ENCL. NO.: 23									
SOIL PROFILE			SAMPLES			GROUND WATER		DYNAMIC PENETRATION TEST				Natural Moisture Content				UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)				
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m			ELEVATION	SHEAR STRENGTH (kPa)				WATER CONTENT (%)								
								○ SPT ≧ Cone blows/0.3m 20 40 60 80				Plastic Limit Natural Moisture Content Liquid Limit W _p W W _L									
								● Unconfined X Field Vane & Sensitivity ▲ Quick Triaxial □ Penetrometer + Lab Vane													
305.1	TOPSOIL: (230 mm)		1	SS	8			305	○							○					
304.9			2	SS	40			304										○			
0.2			3	SS	36													○			
303.0	SILTY FINE SAND: brown, saturated, loose to compact							303										○			
2.1			4	SS	10																
302.2	FINE SAND: trace to some silt, brown, saturated, compact							302		○								○			
2.9			5	SS	15																
301.1	SAND AND SILT: trace to some clay, trace gravel, sand pockets, containing cobbles and boulders, brown, moist to wet, very dense					301															
4.0			6	SS	59											○					
299.5	SAND: some silt, trace gravel, brown, wet, very dense					300															
5.6			7	SS	50	299											○				
298.9	END OF BOREHOLE																				
6.2			Notes: 1) Water encountered at a depth of 0.3 m below ground surface (mBGS) during drilling. 2) Borehole caved at a depth of 0.6 mBGS upon completion of drilling.																		

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, × 3: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments

DRILLING DATA

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

METHOD: Continuous Flight Auger - Auto Hammer

DIAMETER: 155 mm

PROJECT LOCATION: County Road 27, Barrie, Ontario

FIELD ENGINEER: RR

DATE: 2018-04-24

DATUM: Geodetic

SAMPLE REVIEW: DX

REF. NO.: 17-2099GE

BH LOCATION: See Borehole Location Plan

CHECKED: DL

ENCL. NO.: 24

SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				Plastic Limit			UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SHEAR STRENGTH (kPa)				W _p	W	W _L		
							● Unconfined	▲ Quick Triaxial	✕ Field Vane & Sensitivity	⊠ Penetrometer + Lab Vane					
299.2							20	40	60	80	blows/0.3m	10	20	30	40
0.0	TOPSOIL: (240 mm)														
298.9			1A	SS	4										
0.2	REWORKED FINE SAND AND SILT: trace organics, trace rootlets, dark brown, moist, loose		1B	SS											
298.7															
298.6	REWORKED SANDY SILT: some clay, trace gravel, trace organics, trace rootlets, dark brown to brown, moist, loose		2	SS	4										
0.6															
298.0	SANDY SILT: some clay, trace organics, trace rootlets, organic stain, layers of sand, dark brown to brown, moist, loose		3	SS	17										
1.2															
297.1	SAND AND SILT: trace clay, trace gravel, organic stain, brown, moist to wet, compact														
2.1	SAND AND SILT TO SILTY SAND: trace to some clay, trace gravel, sand pockets, containing cobbles and boulders, brown, moist to wet, dense to very dense		4	SS	44										
			5	SS	53										
	---auger grinding														
			6	SS	50 / 150 mm										
293.7	FINE SAND AND SILT TO SILTY FINE SAND: trace gravel, containing cobbles and boulders, brown, wet, very dense														
5.5															
293.0	END OF BOREHOLE		7	SS	50 / 120 mm										
6.2															
Notes: 1) Water encountered at a depth of 3.1 m below ground surface (mBGS) during drilling. 2) Water was at a depth of 3.7 mBGS upon completion of drilling. 3) Borehole caved at a depth of 5.9 mBGS upon completion of drilling. 4) 51 mm dia. monitoring was installed in borehole upon completion of drilling. Water Level Reading Date May 11, 2018 W. L. Depth (mBGS) 2.20															

GROUNDWATER ELEVATIONS

1st 2nd 3rd 4th
Measurement

GRAPH NOTES

+ 3, X 3: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Geotechnical Investigation for Proposed Residential Developments					DRILLING DATA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI					METHOD: Continuous Flight Auger - Auto Hammer					DIAMETER: 155 mm																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
PROJECT LOCATION: County Road 27, Barrie, Ontario					FIELD ENGINEER: HR					DATE: 2018-04-24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

[illegible]

PROJECT: Geotechnical Investigation for Proposed Residential Developments						DRILLING DATA													
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI						METHOD: Continuous Flight Auger - Auto Hammer						DIAMETER: 155 mm							
PROJECT LOCATION: County Road 27, Barrie, Ontario						FIELD ENGINEER: HR						DATE: 2018-04-30							
DATUM: Geodetic						SAMPLE REVIEW: DX						REF. NO.: 17-2099GE							
BH LOCATION: See Borehole Location Plan						CHECKED: DL						ENCL. NO.: 27							
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				Natural Moisture Content				UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)			
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SHEAR STRENGTH (kPa)				Plastic Limit w _p	Natural Moisture Content w	Liquid Limit w _L						
							○ SPT	≧ Cone	blows/0.3m										
						20	40	60	80										
306.5	TOPSOIL: (300 mm)																		
0.0																			
306.2	SAND AND SILT TO SILTY SAND: trace clay, trace gravel, trace to some organics, trace rootlets, layers of peats, dark brown, moist, compact FINE SAND: trace to some silt, trace gravel, brown, wet, compact to very dense		1	SS	14														
0.3																			
305.9			2	SS	33														
0.6																			
1			3	SS	18														
2																			
3																			
4			4	SS	37														
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6			5	SS	54														
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GROUNDWATER ELEVATIONS

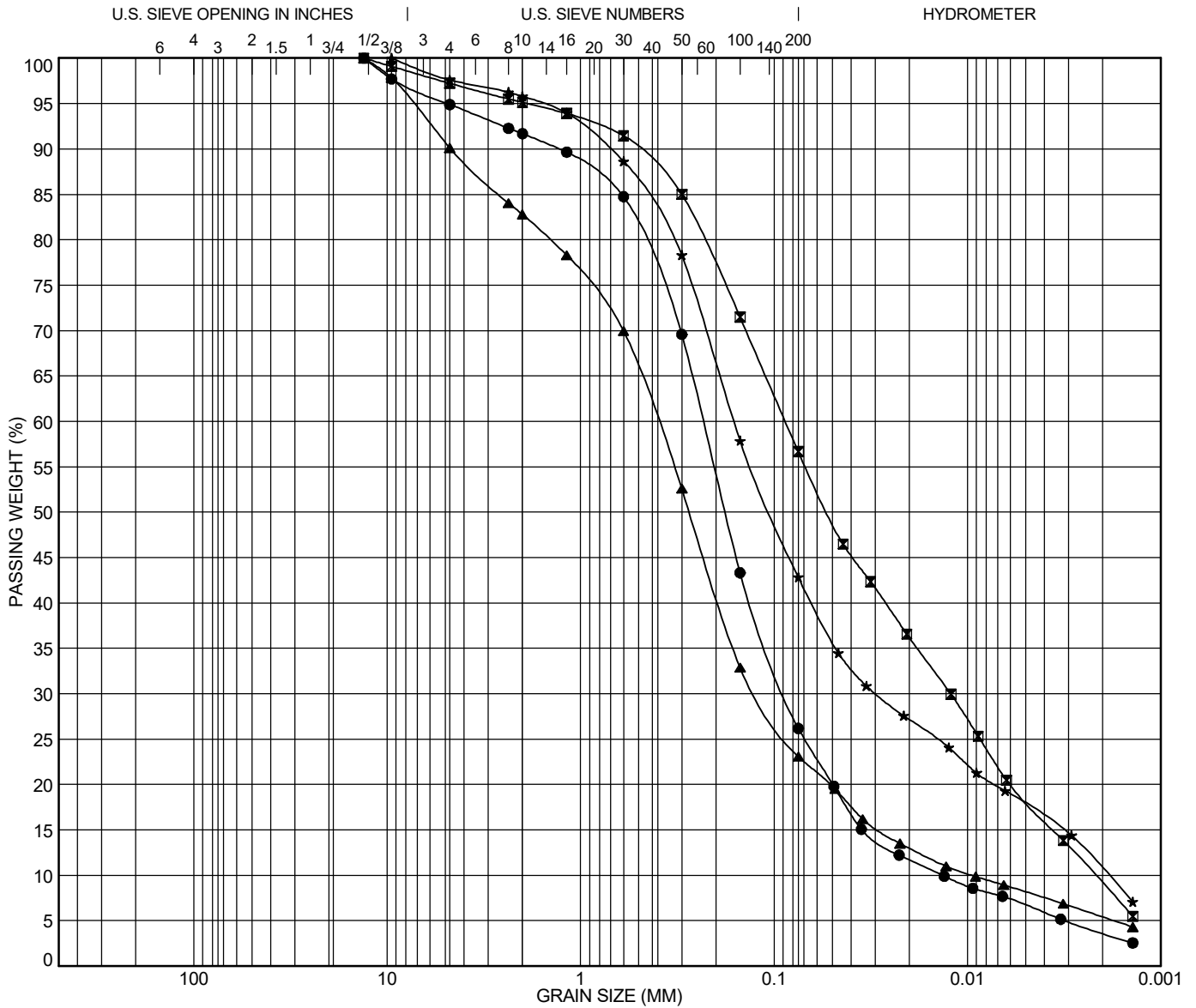
Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC-DX.GPJ 2018-05-29 17:04



COBBLES	GRAVEL		SAND			SILT	CLAY
	coarse	fine	coarse	medium	fine		

Specimen Identification			Classification				LL	PL	PI	Cc	Cu
●	BH02	SS5	3.05							2.43	17.20
■	BH03	SS2	0.61							0.78	40.03
▲	BH04	SS3	1.22							3.91	42.36
★	BH06	SS3	1.22							2.93	86.12
Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	BH02	SS5	3.05	13.2	0.233	0.088	0.014	5.1	68.7	22.5	3.6
■	BH03	SS2	0.61	13.2	0.088	0.012	0.002	2.8	40.6	47.6	9.1
▲	BH04	SS3	1.22	13.2	0.403	0.122	0.01	9.9	67.0	17.7	5.4
★	BH06	SS3	1.22	9.5	0.161	0.03	0.002	2.4	54.8	32.2	10.7



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office@geoproconsulting.ca www.geoproconsulting.ca

GRAIN SIZE DISTRIBUTION

PROJECT: Proposed Phase One Environmental Site Assessment (ESA) and Geotechnical Investigation

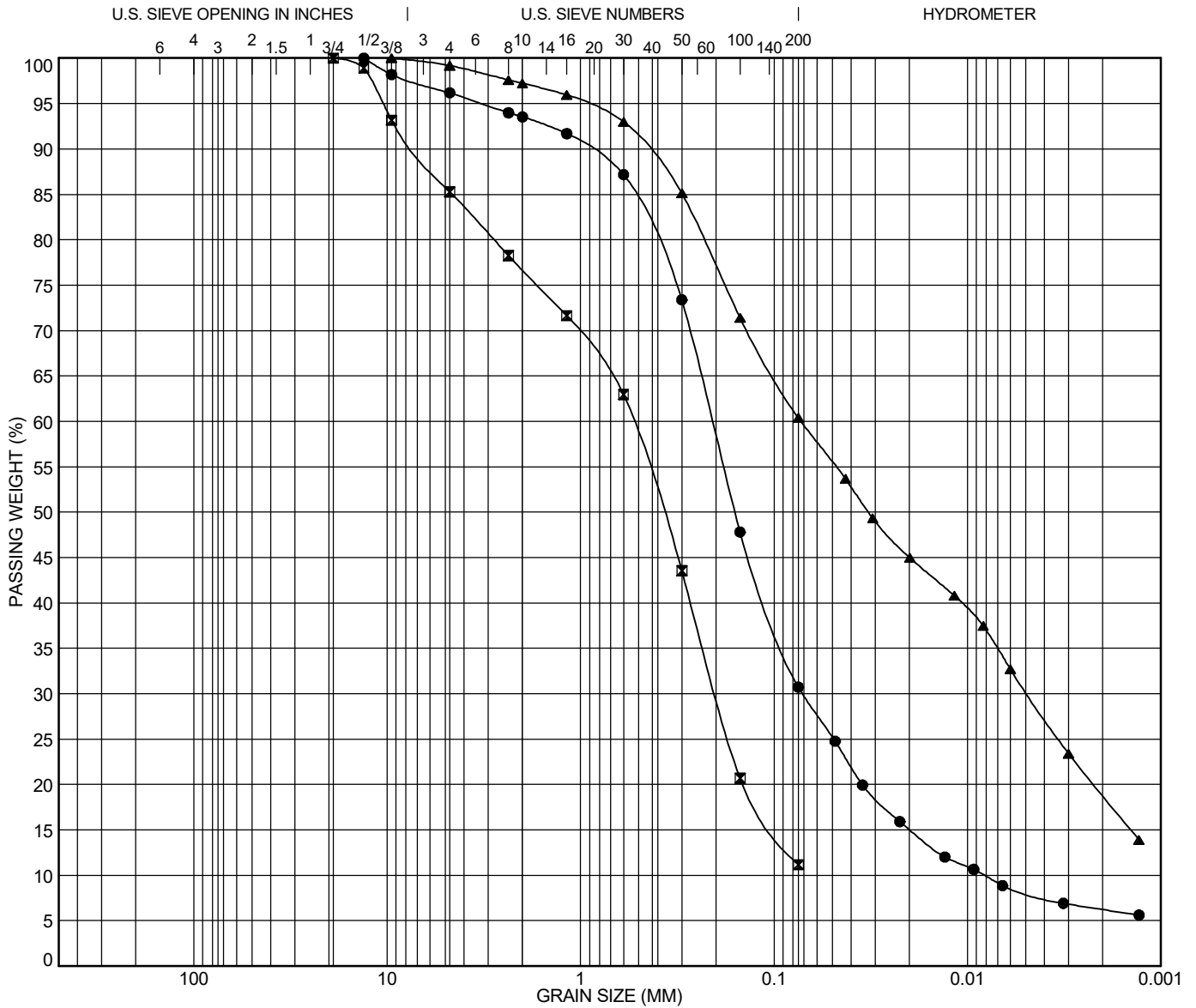
LOCATION: County Road 27, Barrie

PROJECT NO.: 17-2099GE

SAMPLED ON: 2018-04-26

FIGURE NO.: 1

TESTED ON: 2018-05-15



COBBLES	GRAVEL		SAND			SILT	CLAY
	coarse	fine	coarse	medium	fine		

Specimen Identification			Classification				LL	PL	PI	Cc	Cu
●	BH11	SS3	1.22							2.94	25.41
■	BH12	SS3	1.22							1.06	7.84
▲	BH13	SS2	0.61								
Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	BH11	SS3	1.22	13.2	0.209	0.071	0.008	3.8	65.4	24.5	6.2
■	BH12	SS3	1.22	19	0.54	0.199		14.7	74.1	11.2	
▲	BH13	SS2	0.61	9.5	0.073	0.005		0.8	38.8	41.6	18.8



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GRAIN SIZE DISTRIBUTION

PROJECT: Proposed Phase One Environmental Site Assessment (ESA) and Geotechnical Investigation

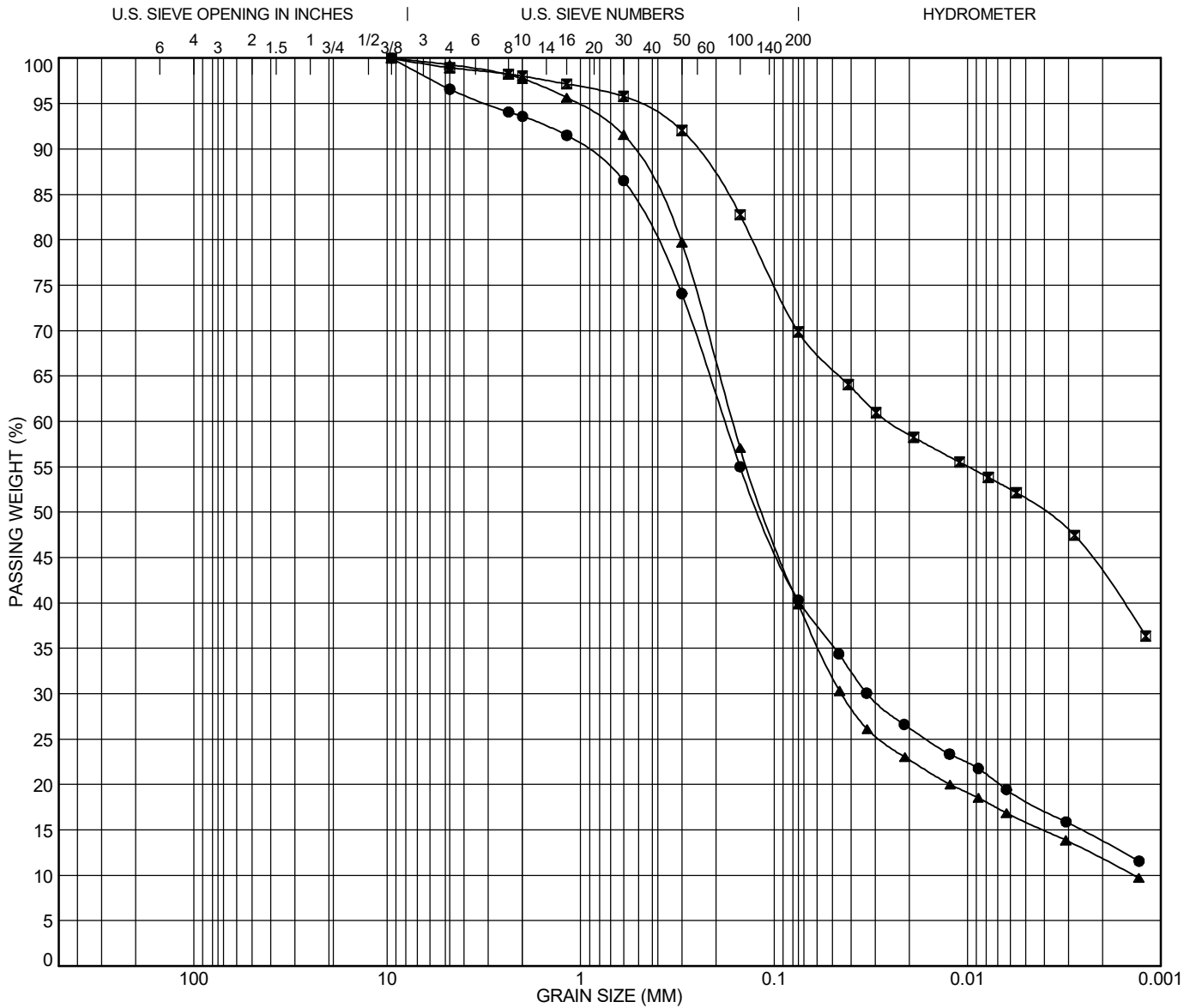
LOCATION: County Road 27, Barrie

PROJECT NO.: 17-2099GE

SAMPLED ON: 2018-04-24

FIGURE NO.: 3

TESTED ON: 2018-05-15



COBBLES	GRAVEL		SAND			SILT	CLAY
	coarse	fine	coarse	medium	fine		

Specimen Identification			Classification				LL	PL	PI	Cc	Cu
●	BH15	SS4	2.29								
■	BH17	SS2	0.76								
▲	BH20	SS4	2.29							8.85	118.54
Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	BH15	SS4	2.29	9.5	0.18	0.033	3.4	56.3	26.6	13.7	
■	BH17	SS2	0.76	9.5	0.025		1.0	29.1	26.8	43.0	
▲	BH20	SS4	2.29	9.5	0.164	0.045	0.001	59.4	28.1	11.8	



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GRAIN SIZE DISTRIBUTION

PROJECT: Proposed Phase One Environmental Site Assessment (ESA) and Geotechnical Investigation

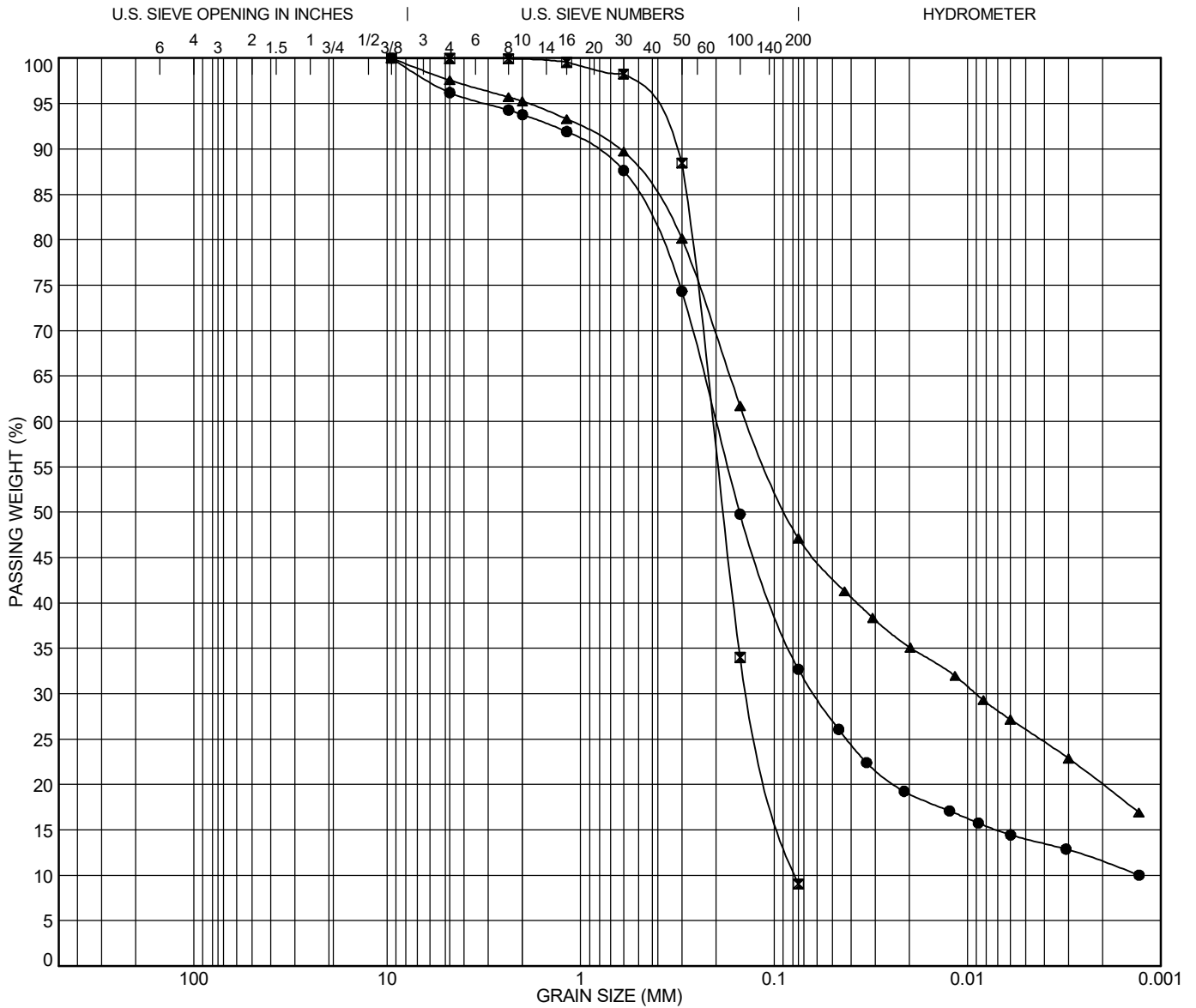
LOCATION: County Road 27, Barrie

PROJECT NO.: 17-2099GE

SAMPLED ON: 2018-04-24

FIGURE NO.: 4

TESTED ON: 2018-05-15



COBBLES	GRAVEL		SAND			SILT	CLAY
	coarse	fine	coarse	medium	fine		

Specimen Identification				Classification				LL	PL	PI	Cc	Cu
●	BH23	SS6	4.57									
■	BH25	SS3	1.22								1.12	2.71
▲	BH26	SS6B	4.70									
Specimen Identification				D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	BH23	SS6	4.57	9.5	0.2	0.062		3.8	63.5	21.3	11.4	
■	BH25	SS3	1.22	9.5	0.209	0.134	0.077	0.0	90.9	9.0		
▲	BH26	SS6B	4.70	9.5	0.138	0.009		2.4	50.5	27.2	20.0	



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GRAIN SIZE DISTRIBUTION

PROJECT: Proposed Phase One Environmental Site Assessment (ESA) and Geotechnical Investigation

LOCATION: County Road 27, Barrie

PROJECT NO.: 17-2099GE

SAMPLED ON: 2018-04-30

FIGURE NO.: 5

TESTED ON: 2018-05-15



GeoPro Consulting Limited

Geotechnical-Hydrogeology-Environmental-Materials-Inspection

APPENDIX B



GeoPro Consulting Limited

Geotechnical-Hydrogeology-Environmental-Materials-Inspection

ENCLOSURES



Enclosure 1A: Notes on Sample Descriptions

1. Each soil stratum is described according to the *Modified Unified Soil Classification System*. The compactness condition of cohesionless soils (SPT) and the consistency of cohesive soils (undrained shear strength) are defined according to Canadian Foundation Engineering Manual, 4th Edition. Different soil classification systems may be used by others. Please note that a description of the soil strata is based on visual and tactile examination of the samples augmented with field and laboratory test results, such as a grain size analysis and/or Atterberg Limits testing. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.
2. Fill: Where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc., none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional preliminary geotechnical site investigation.
3. Till: The term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.



Enclosure 1B: Explanation of Terms Used in the Record of Boreholes

Sample Type

AS	Auger sample
BS	Block sample
CS	Chunk sample
DO	Drive open
DS	Dimension type sample
FS	Foil sample
NR	No recovery
RC	Rock core
SC	Soil core
SS	Spoon sample
SH	Shelby tube Sample
ST	Slotted tube
TO	Thin-walled, open
TP	Thin-walled, piston
WS	Wash sample

Penetration Resistance

Standard Penetration Resistance (SPT), N:

The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in) required to drive a 50 mm (2 in) drive open sampler for a distance of 300 mm (12 in).

PM – Samples advanced by manual pressure

WR – Samples advanced by weight of sampler and rod

WH – Samples advanced by static weight of hammer

Dynamic Cone Penetration Resistance, N_d :

The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in) to drive uncased a 50 mm (2 in) diameter, 60° cone attached to “A” size drill rods for a distance of 300 mm (12 in).

Piezo-Cone Penetration Test (CPT):

An electronic cone penetrometer with a 60 degree conical tip and a projected end area of 10 cm² pushed through ground at a penetration rate of 2 cm/s. Measurement of tip resistance (Q_t), porewater pressure (PWP) and friction along a sleeve are recorded electronically at 25 mm penetration intervals.

Textural Classification of Soils (ASTM D2487)

Classification	Particle Size
Boulders	> 300 mm
Cobbles	75 mm - 300 mm
Gravel	4.75 mm - 75 mm
Sand	0.075 mm – 4.75 mm
Silt	0.002 mm-0.075 mm
Clay	<0.002 mm(*)

(*) Canadian Foundation Engineering Manual (4th Edition)

Coarse Grain Soil Description (50% greater than 0.075 mm)

Terminology	Proportion
Trace	0-10%
Some	10-20%
Adjective (e.g. silty or sandy)	20-35%
And (e.g. sand and gravel)	> 35%

Soil Description

a) Cohesive Soils(*)

Consistency	Undrained Shear Strength (kPa)	SPT “N” Value
Very soft	<12	0-2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very stiff	100-200	15-30
Hard	>200	>30

(*) Hierarchy of Shear Strength prediction

1. Lab triaxial test
2. Field vane shear test
3. Lab. vane shear test
4. SPT “N” value
5. Pocket penetrometer

b) Cohesionless Soils

Compactness Condition (Formerly Relative Density)	SPT “N” Value
Very loose	<4
Loose	4-10
Compact	10-30
Dense	30-50
Very dense	>50

Soil Tests

w	Water content
w _p	Plastic limit
w _l	Liquid limit
C	Consolidation (oedometer) test
CID	Consolidated isotropically drained triaxial test
CIU	consolidated isotropically undrained triaxial test with porewater pressure measurement
D _R	Relative density (specific gravity, G _s)
DS	Direct shear test
ENV	Environmental/ chemical analysis
M	Sieve analysis for particle size
MH	Combined sieve and hydrometer (H) analysis
MPC	Modified proctor compaction test
SPC	Standard proctor compaction test
OC	Organic content test
U	Unconsolidated Undrained Triaxial Test
V	Field vane (LV-laboratory vane test)
γ	Unit weight

PROJECT: Phase Two Environmental Site Assessment (ESA)						DRILLING DATA																		
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI						METHOD: Continuous Flight Auger - Auto Hammer						DIAMETER: 205 mm												
PROJECT LOCATION: County Road 27, Barrie, Ontario						FIELD ENGINEER: HR/FC						DATE: 2019-07-30												
DATUM: Geodetic						SAMPLE REVIEW: CK						REF. NO.: 17-2099E02												
BH LOCATION: See Borehole Location Plan						CHECKED: DX						ENCL. NO.: 2												
SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION TEST				SHEAR STRENGTH (kPa)				WATER CONTENT (%)				REMARKS AND GRAIN SIZE DISTRIBUTION						
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m	GROUND WATER	ELEVATION	DYNAMIC PENETRATION TEST				SHEAR STRENGTH (kPa)				WATER CONTENT (%)				UNIT WT (kN/m³)	GR	SA	SI	CL
								SPT	Cone	blows/0.3m	Unconfined	Field Vane & Sensitivity	Plastic Limit	Natural Moisture Content	Liquid Limit									
302.0								20	40	60	80	20	40	60	80	10	20	30	40					
301.7	TOPSOIL: (350 mm)		1	SS	5	Concrete																		
301.4	REWORKED: sand and silt, organic inclusions, brown, moist, very loose to loose		2A	SS	2																			
301.1	REWORKED: sand and silt to silty sand, some clay, trace gravel, organic inclusions, layers of sand and silt, pockets of organic, pockets of sand, brown, moist, very loose to loose		2B	SS	2																			
300.3	--- auger grinding		3A	SS	8																			
299.1	SAND AND SILT TO SILTY SAND: trace clay, trace gravel, containing cobbles and boulders, brown, moist, loose to compact		3B	SS	8	Bentonite																		
298.0	--- auger grinding		4	SS	26																			
297.3	SILTY FINE SAND: pockets of silt, brown, moist, dense		5	SS	42																			
296.6	SILTY SAND: some gravel, containing cobbles and boulders, brown, moist, very dense		6A	SS	50 / 80 mm																			
293.6	GRAVELLY SAND: some silt, containing cobbles and boulders, brown, moist, very dense		6B	SS	50 / 80 mm																			
	SILTY SAND: trace to some gravel, containing cobbles and boulders, brown, moist, very dense		7	SS	50 / 130 mm	Sand																		
	--- auger grinding		8	SS	50 / 80 mm	Screen																		
	--- auger grinding from 7.3 m to 7.6 m		9	SS	50 / 80 mm	Natural pack																		
	--- auger refused at 8.5 m, borehole moved 1.5 m north																							
8.5	END OF BOREHOLE DUE TO AUGER REFUSAL ON PROBABLE COBBLES AND BOULDERS																							
Notes:																								
1) Borehole was open and dry upon completion of drilling.																								
2) 51 mm dia. monitoring well was installed in borehole upon completion of drilling.																								
Water Level Readings																								
Date W. L. Depth (mBGS)																								
Sept 11, 2019 Dry																								
Sept 20, 2019 Dry																								

PROJECT: Phase Two Environmental Site Assessment (ESA)			DRILLING DATA																
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI			METHOD: Continuous Flight Auger - Auto Hammer					DIAMETER: 205 mm											
PROJECT LOCATION: County Road 27, Barrie, Ontario			FIELD ENGINEER: HR/FC					DATE: 2019-07-30											
DATUM: Geodetic			SAMPLE REVIEW: CK					REF. NO.: 17-2099E02											
BH LOCATION: See Borehole Location Plan			CHECKED: DX					ENCL. NO.: 3											
SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION TEST				SHEAR STRENGTH (kPa)				WATER CONTENT (%)				REMARKS AND GRAIN SIZE DISTRIBUTION (%)	
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION	○ SPT 20	➤ Cone 40	blows/0.3m 60	80	Plastic Limit w _p	Natural Moisture Content w	Liquid Limit w _L	UNIT WT (kN/m ³)	GR	SA	SI	CL	
306.9																			
306.6	TOPSOIL: (260 mm)																		
306.3	REWORKED: silty fine sand, trace silt, organic inclusions, brown, moist, loose		1	SS	7														
306.2	SILTY FINE SAND: brown, moist to wet, very loose to compact		2	SS	3														
304.7			3	SS	16														
302.8	SILT FINE SAND brown, wet, dense		4	SS	41														
302.2	--- layers of silt		5	SS	34														
301.3	SAND AND SILT: some clay, trace gravel, brown, wet, very dense		6A	SS	52														
299.9	SAND AND SILT TILL: trace clay, trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense		6B	SS															
299.1	--- auger grinding from 5.2 m to 5.5 m		7	SS	50 / 100 mm														
298.4	SAND AND SILT TO SILTY SAND: trace clay, trace gravel, grey, moist to wet, very dense		8A	SS	50 / 80 mm														
298.4	SILTY SAND TILL: trace clay, trace gravel, zones/layers of silty sand, containing cobbles and boulders, brown, moist, very dense		8B	SS															
295.3	SILTY FINE SAND: trace gravel, brown, moist, very dense		9	SS	50 / 130 mm														
294.3	SILTY SAND: trace gravel, containing cobbles and boulders, brown, moist to wet, very dense		10	SS	50 / 80 mm														
294.3	SAND AND SILT TO SANDY SILT: trace clay, layers of clayey silt, zones/layers of silt, seams of silty fine sand, brown, moist to wet, very dense		11	SS	88 / 240 mm														
Notes:																			
1) Water encountered at a depth of 2.3 m below ground surface (mBGS) during drilling.																			
2) Water was at a depth of 5.8 mBGS upon completion of drilling.																			
3) Borehole caved at a depth of 7.6 mBGS upon completion of drilling.																			
4) 51 mm dia. monitoring well was installed in borehole upon completion of drilling.																			
Water Level Readings																			
Date W. L. Depth (mBGS)																			
Aug 28, 2019 3.37																			

GROUNDWATER ELEVATIONS

	1st	2nd	3rd	4th
Measurement				

GRAPH
NOTES

+ 3, × 3: Numbers refer to Sensitivity

▲ **$\epsilon=3\%$** Strain at Failure

PROJECT: Phase Two Environmental Site Assessment (ESA)

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

DIAMETER: 205 mm

FIELD ENGINEER: HR/FC

DATE: 2019-07-30

SAMPLE REVIEW: CK

REF. NO.: 17-2099E02

CHECKED: DX

ENCL. NO.: 4

SOIL PROFILE			SAMPLES		GROUND WATER	DYNAMIC PENETRATION TEST				WATER CONTENT (%)			UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE		20	40	60	80	W _p	W	W _L		
308.1	TOPSOIL: (300 mm)		1	SS	6									
307.8	REWORKED: fine to medium sand, some silt, trace gravel, organic inclusions, brown, moist, loose		2	SS	13									
307.4	FINE TO MEDIUM SAND: some silt, trace gravel, pockets of sandy silt, brown, moist, compact		3	SS	21									
305.9	SILTY FINE SAND: trace gravel, layers of silt, brown, moist to wet, compact to dense		4	SS	33									
304.0	SILTY FINE SAND layers of silt, brown, wet, compact		5	SS	17									
303.1	CLAYEY SILT: trace sand, seams/layers of sand, brown, moist, stiff to very stiff		6A	SS	15									
302.5	SANDY SILT TILL: some clay, trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense		6B	SS										
301.0	SILTY FINE SAND: zones of silt, brown, wet, very dense		7	SS	52									
300.4	SAND AND SILT TILL: trace clay, trace gravel, layers of silty sand, containing cobbles and boulders, brown, moist, very dense		8A	SS	50 / 130 mm									
300.2	END OF BOREHOLE		8B	SS										
7.9	Notes: 1) Water encountered at a depth of 3.0 m below ground surface (mBGS) during drilling. 2) Water was at a depth of 3.7 mBGS upon completion of drilling. 3) Borehole caved at a depth of 4.9 mBGS upon completion of drilling. 4) 51 mm dia. monitoring well was installed in borehole upon completion of drilling. Water Level Readings Date W. L. Depth (mBGS) Aug 28, 2019 4.00 Sept 11, 2019 4.11 Sept 20, 2019 4.24													

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Phase Two Environmental Site Assessment (ESA) CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI PROJECT LOCATION: County Road 27, Barrie, Ontario DATUM: Geodetic BH LOCATION: See Borehole Location Plan					DRILLING DATA METHOD: Continuous Spilt Spoon FIELD ENGINEER: BV SAMPLE REVIEW: CK CHECKED: DX DIAMETER: 51 mm DATE: 2019-07-31 REF. NO.: 17-2099E02 ENCL. NO.: 5													
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST								Plastic Limit W _p	Natural Moisture Content W	Liquid Limit W _L	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		ELEVATION	SHEAR STRENGTH (kPa)										
305.3								SPT Cone blows/0.3m 20 40 60 80										UNIT WT (kN/m ³) GR SA SI CL
304.9	TOPSOIL: (250 mm)		1	SS	12	305	● Unconfined × Field Vane & Sensitivity ▲ Quick Triaxial ▣ Penetrometer + Lab Vane											
0.3	SILTY SAND: trace gravel, rootlet inclusions, layers of silty fine sand, brown, wet, compact to dense		2	SS	43	304	(Data points plotted on graph)											
303.3			3	SS	32													
2.0	END OF BOREHOLE Note: 1) Water encountered at a depth of 0.6 m below ground surface (mBGS) during drilling.																	

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

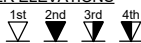
 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Phase Two Environmental Site Assessment (ESA) CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI PROJECT LOCATION: County Road 27, Barrie, Ontario DATUM: Geodetic BH LOCATION: See Borehole Location Plan					DRILLING DATA METHOD: Continuous Spilt Spoon FIELD ENGINEER: BV/DYL SAMPLE REVIEW: CK CHECKED: DX										DIAMETER: 51 mm DATE: 2019-08-06 REF. NO.: 17-2099E02 ENCL. NO.: 6			
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				WATER CONTENT (%)			UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)			
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		ELEVATION	SPT 20 Cone 40 60 80 blows/0.3m	Plastic Limit W _p Natural Moisture Content W Liquid Limit W _L									
306.4	TOPSOIL: (100 mm)		1	SS	19													
305.9	REWORKED: silty sand to sand and silt, trace clay, trace gravel, organic inclusions, rootlet inclusions, dark brown, moist, compact		2A	SS	14													
305.5			2B	SS	14													
304.6	FINE TO MEDIUM SAND: some silt, brown, wet, compact to dense		3	SS	39													
304.2	SILTY SAND: layers of fine sand and silt, brown, wet, very dense		4	SS	67													
304.0																		
303.6	SILTY FINE SAND: brown, wet, very dense		5	SS	90 / 230													
303.3	END OF BOREHOLE																	
2.8	Notes: 1) Water encountered at a depth of 0.9 m below ground surface (mBGS) during drilling. 2) Water was at a depth of 1.1 mBGS upon completion of drilling. 3) Borehole caved at a depth of 1.2 mBGS upon completion of drilling. 4) 19mm dia. monitoring well was installed in borehole upon completion of drilling. Water Level Readings Date W. L. Depth (mBGS) Aug 28, 2019 1.12 Sept 11, 2019 1.12 Sept 20, 2019 1.04																	

01 - GEOPRO SOIL LOG GEOPRO 17-2099E02 BH LOG PROJECT DATA 20191007 - BN - BN - BN - BN - BY - BY - NL - SA, GPJ 2019-10-21 13:42

GROUNDWATER ELEVATIONS

 Measurement 1st 2nd 3rd 4th


GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Phase Two Environmental Site Assessment (ESA)							DRILLING DATA													
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI							METHOD: Continuous Spilt Spoon							DIAMETER: 51 mm						
PROJECT LOCATION: County Road 27, Barrie, Ontario							FIELD ENGINEER: BV/DYL							DATE: 2019-08-06						
DATUM: Geodetic							SAMPLE REVIEW: CK							REF. NO.: 17-2099E02						
BH LOCATION: See Borehole Location Plan							CHECKED: DX							ENCL. NO.: 9						
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST				Natural Moisture Content				UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)				
ELEV DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SHEAR STRENGTH (kPa)				Plastic Limit w _p	Natural Moisture Content w	Liquid Limit w _L							
							○ SPT	≧ Cone	blows/0.3m											
							20	40	60	80										
303.7																				
0.0	TOPSOIL: (60 mm)		1	SS	9															
303.1																				
0.6	SAND AND SILT: trace clay, trace gravel, organic inclusions, rootlet inclusions, brown to grey, moist to wet, very loose to loose		2	SS	6															
301.9			3	SS	3															
1.8	SILTY SAND: trace clay, trace gravel, containing cobbles and boulders, grey, wet, loose to very dense		4	SS	9															
300.6			5	SS	62															
3.2	END OF BOREHOLE		6	SS	56/100 mm															
Notes: 1) Water encountered at a depth of 0.6 m below ground surface (mBGS) during drilling. 2) Water was at a depth of 2.3 mBGS upon completion of drilling. 3) Borehole caved at a depth of 2.9 mBGS upon completion of drilling. 4) 38 mm dia. monitoring well was installed in borehole upon completion of drilling. Water Level Readings Date W. L. Depth (mBGS) Aug 28, 2019 1.25 Sept 11, 2019 1.07 Sept 20, 2019 1.04																				

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

 +³, ×³: Numbers refer to Sensitivity

▲ s=3% Strain at Failure

PROJECT: Phase Two Environmental Site Assessment (ESA) CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI PROJECT LOCATION: County Road 27, Barrie, Ontario DATUM: Geodetic BH LOCATION: See Borehole Location Plan					DRILLING DATA METHOD: Continuous Spilt Spoon FIELD ENGINEER: HR SAMPLE REVIEW: CK CHECKED: DX										DIAMETER: 51 mm DATE: 2019-08-25 REF. NO.: 17-2099E02 ENCL. NO.: 8				
SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC PENETRATION TEST								UNIT WT (kN/m ³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)			
ELEV. DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m		SPT				Cone						Plastic Limit	Natural Moisture Content	Liquid Limit
306.1							20 40 60 80				20 40 60 80				W _p	W	W _L		
305.2							20 40 60 80				20 40 60 80				W _p	W	W _L		
304.1							20 40 60 80				20 40 60 80				W _p	W	W _L		
303.4							20 40 60 80				20 40 60 80				W _p	W	W _L		
302.8							20 40 60 80				20 40 60 80				W _p	W	W _L		
302.1							20 40 60 80				20 40 60 80				W _p	W	W _L		
301.6							20 40 60 80				20 40 60 80				W _p	W	W _L		
300.9							20 40 60 80				20 40 60 80				W _p	W	W _L		
300.2							20 40 60 80				20 40 60 80				W _p	W	W _L		
300.0							20 40 60 80				20 40 60 80				W _p	W	W _L		
299.3							20 40 60 80				20 40 60 80				W _p	W	W _L		
298.6							20 40 60 80				20 40 60 80				W _p	W	W _L		
297.9							20 40 60 80				20 40 60 80				W _p	W	W _L		
297.2							20 40 60 80				20 40 60 80				W _p	W	W _L		
296.5							20 40 60 80				20 40 60 80				W _p	W	W _L		
295.8							20 40 60 80				20 40 60 80				W _p	W	W _L		
295.1							20 40 60 80				20 40 60 80				W _p	W	W _L		
294.4							20 40 60 80				20 40 60 80				W _p	W	W _L		
293.7							20 40 60 80				20 40 60 80				W _p	W	W _L		
293.0							20 40 60 80				20 40 60 80				W _p	W	W _L		
292.3							20 40 60 80				20 40 60 80				W _p	W	W _L		
291.6							20 40 60 80				20 40 60 80				W _p	W	W _L		
290.9							20 40 60 80				20 40 60 80				W _p	W	W _L		
290.2							20 40 60 80				20 40 60 80				W _p	W	W _L		
289.5							20 40 60 80				20 40 60 80				W _p	W	W _L		
288.8							20 40 60 80				20 40 60 80				W _p	W	W _L		
288.1							20 40 60 80				20 40 60 80				W _p	W	W _L		
287.4							20 40 60 80				20 40 60 80				W _p	W	W _L		
286.7							20 40 60 80				20 40 60 80				W _p	W	W _L		
286.0							20 40 60 80				20 40 60 80				W _p	W	W _L		
285.3							20 40 60 80				20 40 60 80				W _p	W	W _L		
284.6							20 40 60 80				20 40 60 80				W _p	W	W _L		
283.9							20 40 60 80				20 40 60 80				W _p	W	W _L		
283.2							20 40 60 80				20 40 60 80				W _p	W	W _L		
282.5							20 40 60 80				20 40 60 80				W _p	W	W _L		
281.8							20 40 60 80				20 40 60 80				W _p	W	W _L		
281.1							20 40 60 80				20 40 60 80				W _p	W	W _L		
280.4							20 40 60 80				20 40 60 80				W _p	W	W _L		
279.7							20 40 60 80				20 40 60 80				W _p	W	W _L		
279.0							20 40 60 80				20 40 60 80				W _p	W	W _L		
278.3							20 40 60 80				20 40 60 80				W _p	W	W _L		
277.6							20 40 60 80				20 40 60 80				W _p	W	W _L		
276.9							20 40 60 80				20 40 60 80				W _p	W	W _L		
276.2							20 40 60 80				20 40 60 80				W _p	W	W _L		
275.5							20 40 60 80				20 40 60 80				W _p	W	W _L		
274.8							20 40 60 80				20 40 60 80				W _p	W	W _L		
274.1							20 40 60 80				20 40 60 80				W _p	W	W _L		
273.4							20 40 60 80				20 40 60 80				W _p	W	W _L		
272.7							20 40 60 80				20 40 60 80				W _p	W	W _L		
272.0							20 40 60 80				20 40 60 80				W _p	W	W _L		
271.3							20 40 60 80				20 40 60 80				W _p	W	W _L		
270.6							20 40 60 80				20 40 60 80				W _p	W	W _L		
269.9							20 40 60 80				20 40 60 80				W _p	W	W _L		
269.2							20 40 60 80				20 40 60 80				W _p	W	W _L		
268.5							20 40 60 80				20 40 60 80				W _p	W	W _L		
267.8							20 40 60 80				20 40 60 80				W _p	W	W _L		
267.1							20 40 60 80				20 40 60 80				W _p	W	W _L		
266.4							20 40 60 80				20 40 60 80				W _p	W	W _L		
265.7							20 40 60 80				20 40 60 80				W _p	W	W _L		
265.0							20 40 60 80				20 40 60 80				W _p	W	W _L		
264.3							20 40 60 80				20 40 60 80				W _p	W	W _L		
263.6							20 40 60 80				20 40 60 80				W _p	W	W _L		
262.9							20 40 60 80				20 40 60 80				W _p	W	W _L		
262.2							20 40 60 80				20 40 60 80				W _p	W	W _L		
261.5							20 40 60 80				20 40 60 80				W _p	W	W _L		
260.8							20 40 60 80				20 40 60 80				W _p	W	W _L		
260.1							20 40 60 80				20 40 60 80				W _p	W	W _L		
259.4							20 40 60 80				20 40 60 80				W _p	W	W _L		
258.7							20 40 60 80				20 40 60 80				W _p	W	W _L		
258.0							20 40 60 80				20 40 60 80				W _p	W	W _L		
257.3							20 40 60 80				20 40 60 80				W _p	W	W _L		
256.6							20 40 60 80				20 40 60 80				W _p	W	W _L		
255.9							20 40 60 80				20 40 60 80				W _p	W	W _L		
255.2							20 40 60 80				20 40 60 80				W _p	W	W _L		
254.5							20 40 60 80				20 40 60 80				W _p	W	W _L		
253.8							20 40 60 80				20 40 60 80				W _p	W	W _L		
253.1							20 40 60 80				20 40 60 80				W _p	W	W _L		
252.4							20 40 60 80				20 40 60 80				W _p	W			



GeoPro Consulting Limited

Geotechnical-Hydrogeology-Environmental-Materials-Inspection

APPENDIX C



GeoPro Consulting Limited (Richmond Hill)
ATTN: Sarena Medina
40 Vogell Road
Unit 22
Richmond Hill ON L4B 3N6

Date Received: 30-JUL-19
Report Date: 21-OCT-19 12:20 (MT)
Version: FINAL REV. 2

Client Phone: 905-237-8336

Certificate of Analysis

Lab Work Order #: L2319791
Project P.O. #: NOT SUBMITTED
Job Reference: 17-2099E
C of C Numbers:
Legal Site Desc: TORONTO

Comments:

21-OCT-2019 Sample and Job ID revised as per client correspondence.

Rick Hawthorne
Account Manager

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ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927
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L2319791 CONT'D....
Job Reference: 17-2099E
PAGE 2 of 11
21-OCT-19 12:20 (MT)

Guideline	ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use (No parameter exceedances)							



ANALYTICAL REPORT

Physical Tests - SOIL

		Lab ID		L2319791-1	L2319791-2	L2319791-3
		Sample Date		30-JUL-19	30-JUL-19	30-JUL-19
		Sample ID		BH101 SS8	BH102 SS4	BH103 SS6
		Guide Limits				
Analyte	Unit	#1	#2			
% Moisture	%	-	-	4.38	13.8	18.0

Guide Limit #1: T1-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.



Environmental

ANALYTICAL REPORT

Metals - SOIL

Analyte	Unit	Lab ID				
		Sample Date				
		Sample ID				
				L2319791-1	L2319791-2	L2319791-3
				30-JUL-19	30-JUL-19	30-JUL-19
				BH101 SS8	BH102 SS4	BH103 SS6
Analyte	Unit	Guide Limits				
		#1	#2			
Antimony (Sb)	ug/g	1.3	-	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	-	<1.0	<1.0	<1.0
Barium (Ba)	ug/g	220	-	36.9	6.1	31.8
Beryllium (Be)	ug/g	2.5	-	<0.50	<0.50	<0.50
Boron (B)	ug/g	36	-	<5.0	<5.0	<5.0
Boron (B), Hot Water Ext.	ug/g	36	-	<0.10	0.17	<0.10
Cadmium (Cd)	ug/g	1.2	-	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	70	-	9.3	10.0	9.3
Cobalt (Co)	ug/g	21	-	3.1	1.7	2.3
Copper (Cu)	ug/g	92	-	4.5	1.8	4.4
Lead (Pb)	ug/g	120	-	1.3	1.1	1.6
Mercury (Hg)	ug/g	0.27	-	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)	ug/g	2	-	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	82	-	5.4	2.7	4.2
Selenium (Se)	ug/g	1.5	-	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	0.5	-	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	1	-	<0.50	<0.50	<0.50
Uranium (U)	ug/g	2.5	-	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	-	26.2	33.7	23.1
Zinc (Zn)	ug/g	290	-	15.0	5.8	9.7

Guide Limit #1: T1-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

Analyte	Unit	Lab ID				
		Sample Date				
		Sample ID				
		Guide Limits				
		#1	#2			
Chromium, Hexavalent	ug/g	0.66	-	<0.20	<0.20	<0.20

Guide Limit #1: T1-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.



Environmental

ANALYTICAL REPORT

Volatile Organic Compounds - SOIL

		Lab ID	L2319791-2	L2319791-3
		Sample Date	30-JUL-19	30-JUL-19
		Sample ID	BH102 SS4	BH103 SS6
		Guide Limits		
Analyte	Unit	#1	#2	
Benzene	ug/g	0.02	-	<0.0068
Ethylbenzene	ug/g	0.05	-	<0.018
Toluene	ug/g	0.2	-	<0.080
o-Xylene	ug/g	-	-	<0.020
m+p-Xylenes	ug/g	-	-	<0.030
Xylenes (Total)	ug/g	0.05	-	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	86.2
Surrogate: 1,4-Difluorobenzene	%	-	-	94.8

Guide Limit #1: T1-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.



L2319791 CONT'D....
Job Reference: 17-2099E
PAGE 7 of 11
21-OCT-19 12:20 (MT)

Hydrocarbons - SOIL

		Lab ID	L2319791-2	L2319791-3
		Sample Date	30-JUL-19	30-JUL-19
		Sample ID	BH102 SS4	BH103 SS6
		Guide Limits		
Analyte	Unit	#1	#2	
F1 (C6-C10)	ug/g	25	-	<5.0
F1-BTEX	ug/g	25	-	<5.0
F2 (C10-C16)	ug/g	10	-	<10
F2-Naphth	ug/g	-	-	<10
F3 (C16-C34)	ug/g	240	-	<50
F3-PAH	ug/g	-	-	<50
F4 (C34-C50)	ug/g	120	-	<50
Total Hydrocarbons (C6-C50)	ug/g	-	-	<72
Chrom. to baseline at nC50		-	-	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	76.6
Surrogate: 3,4-Dichlorotoluene	%	-	-	98.3

Guide Limit #1: T1-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.



Environmental

ANALYTICAL REPORT

Polycyclic Aromatic Hydrocarbons - SOIL

		Lab ID	L2319791-2	L2319791-3
		Sample Date	30-JUL-19	30-JUL-19
		Sample ID	BH102 SS4	BH103 SS6
		Guide Limits		
Analyte	Unit	#1	#2	
Acenaphthene	ug/g	0.072	-	<0.050
Acenaphthylene	ug/g	0.093	-	<0.050
Anthracene	ug/g	0.16	-	<0.050
Benzo(a)anthracene	ug/g	0.36	-	<0.050
Benzo(a)pyrene	ug/g	0.3	-	<0.050
Benzo(b)fluoranthene	ug/g	0.47	-	<0.050
Benzo(g,h,i)perylene	ug/g	0.68	-	<0.050
Benzo(k)fluoranthene	ug/g	0.48	-	<0.050
Chrysene	ug/g	2.8	-	<0.050
Dibenzo(ah)anthracene	ug/g	0.1	-	<0.050
Fluoranthene	ug/g	0.56	-	<0.050
Fluorene	ug/g	0.12	-	<0.050
Indeno(1,2,3-cd)pyrene	ug/g	0.23	-	<0.050
1+2-Methylnaphthalenes	ug/g	0.59	-	<0.042
1-Methylnaphthalene	ug/g	0.59	-	<0.030
2-Methylnaphthalene	ug/g	0.59	-	<0.030
Naphthalene	ug/g	0.09	-	<0.013
Phenanthrene	ug/g	0.69	-	<0.046
Pyrene	ug/g	1	-	<0.050
Surrogate: 2-Fluorobiphenyl	%	-	-	94.6
Surrogate: p-Terphenyl d14	%	-	-	82.1

Guide Limit #1: T1-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).			
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).			
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).			
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

Reference Information

L2319791 CONT'D....
Job Reference: 17-2099E
PAGE 10 of 11
21-OCT-19 12:20 (MT)

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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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.

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-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, 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).

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 technique is 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.

Reference Information

L2319791 CONT'D....
Job Reference: 17-2099E
PAGE 11 of 11
21-OCT-19 12:20 (MT)

Chain of Custody Numbers:

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 ww - 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: L2319791

Report Date: 21-OCT-19

Page 1 of 12

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT		Soil						
Batch	R4743355							
WG3126237-4	DUP	L2319755-20						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	08-AUG-19
WG3126237-2	IRM	WT SAR3						
Boron (B), Hot Water Ext.			88.3		%		70-130	08-AUG-19
WG3126237-3	LCS							
Boron (B), Hot Water Ext.			98.1		%		70-130	08-AUG-19
WG3126237-1	MB							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	08-AUG-19
BTX-511-HS-WT		Soil						
Batch	R4742798							
WG3125313-4	DUP	WG3125313-3						
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	08-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	08-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	08-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	08-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	08-AUG-19
WG3125313-2	LCS							
Benzene			107.8		%		70-130	07-AUG-19
Ethylbenzene			111.1		%		70-130	07-AUG-19
m+p-Xylenes			109.1		%		70-130	07-AUG-19
o-Xylene			111.7		%		70-130	07-AUG-19
Toluene			107.3		%		70-130	07-AUG-19
WG3125313-1	MB							
Benzene			<0.0068		ug/g		0.0068	07-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	07-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	07-AUG-19
o-Xylene			<0.020		ug/g		0.02	07-AUG-19
Toluene			<0.080		ug/g		0.08	07-AUG-19
Surrogate: 1,4-Difluorobenzene			105.1		%		50-140	07-AUG-19
Surrogate: 4-Bromofluorobenzene			94.2		%		50-140	07-AUG-19
WG3125313-5	MS	L2319811-4						
Benzene			110.7		%		60-140	08-AUG-19
Ethylbenzene			120.6		%		60-140	08-AUG-19
m+p-Xylenes			115.3		%		60-140	08-AUG-19
o-Xylene			118.8		%		60-140	08-AUG-19
Toluene			115.1		%		60-140	08-AUG-19



Quality Control Report

Workorder: L2319791

Report Date: 21-OCT-19

Page 2 of 12

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-511-HS-WT		Soil						
Batch	R4742907							
WG3124381-4	DUP	WG3124381-3						
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	07-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	07-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	07-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	07-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	07-AUG-19
WG3124381-2	LCS							
Benzene			108.8		%		70-130	07-AUG-19
Ethylbenzene			104.2		%		70-130	07-AUG-19
m+p-Xylenes			105.0		%		70-130	07-AUG-19
o-Xylene			102.8		%		70-130	07-AUG-19
Toluene			105.3		%		70-130	07-AUG-19
WG3124381-1	MB							
Benzene			<0.0068		ug/g		0.0068	07-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	07-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	07-AUG-19
o-Xylene			<0.020		ug/g		0.02	07-AUG-19
Toluene			<0.080		ug/g		0.08	07-AUG-19
Surrogate: 1,4-Difluorobenzene			131.3		%		50-140	07-AUG-19
Surrogate: 4-Bromofluorobenzene			120.5		%		50-140	07-AUG-19
WG3124381-5	MS	L2319683-7						
Benzene			104.0		%		60-140	07-AUG-19
Ethylbenzene			101.2		%		60-140	07-AUG-19
m+p-Xylenes			103.9		%		60-140	07-AUG-19
o-Xylene			99.0		%		60-140	07-AUG-19
Toluene			102.5		%		60-140	07-AUG-19
CR-CR6-IC-WT		Soil						
Batch	R4739767							
WG3122095-4	CRM	WT-SQC012						
Chromium, Hexavalent			88.1		%		70-130	06-AUG-19
WG3122095-3	DUP	L2319795-1						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	06-AUG-19
WG3122095-2	LCS							
Chromium, Hexavalent			97.8		%		80-120	06-AUG-19
WG3122095-1	MB							
Chromium, Hexavalent			<0.20		ug/g		0.2	06-AUG-19



Quality Control Report

Workorder: L2319791

Report Date: 21-OCT-19

Page 3 of 12

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT		Soil						
Batch	R4742798							
WG3125313-4	DUP	WG3125313-3						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	08-AUG-19
WG3125313-2	LCS							
F1 (C6-C10)			117.6		%		80-120	07-AUG-19
WG3125313-1	MB							
F1 (C6-C10)			<5.0		ug/g		5	07-AUG-19
Surrogate: 3,4-Dichlorotoluene			118.2		%		60-140	07-AUG-19
WG3125313-6	MS	L2320666-4						
F1 (C6-C10)			110.4		%		60-140	08-AUG-19
Batch	R4742907							
WG3124381-4	DUP	WG3124381-3						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	07-AUG-19
WG3124381-2	LCS							
F1 (C6-C10)			107.2		%		80-120	07-AUG-19
WG3124381-1	MB							
F1 (C6-C10)			<5.0		ug/g		5	07-AUG-19
Surrogate: 3,4-Dichlorotoluene			124.5		%		60-140	07-AUG-19
WG3124381-6	MS	L2319683-10						
F1 (C6-C10)			101.9		%		60-140	07-AUG-19
F2-F4-511-WT		Soil						
Batch	R4738680							
WG3122490-3	DUP	WG3122490-5						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	02-AUG-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	02-AUG-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	02-AUG-19
WG3122490-2	LCS							
F2 (C10-C16)			102.0		%		80-120	02-AUG-19
F3 (C16-C34)			101.1		%		80-120	02-AUG-19
F4 (C34-C50)			109.2		%		80-120	02-AUG-19
WG3122490-1	MB							
F2 (C10-C16)			<10		ug/g		10	02-AUG-19
F3 (C16-C34)			<50		ug/g		50	02-AUG-19
F4 (C34-C50)			<50		ug/g		50	02-AUG-19
Surrogate: 2-Bromobenzotrifluoride			82.0		%		60-140	02-AUG-19
WG3122490-4	MS	WG3122490-5						
F2 (C10-C16)			104.4		%		60-140	02-AUG-19
F3 (C16-C34)			108.1		%		60-140	02-AUG-19

Quality Control Report

Workorder: L2319791

Report Date: 21-OCT-19

Page 5 of 12

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-WT		Soil						
Batch	R4743676							
WG3126102-3	LCS							
Mercury (Hg)			102.0		%		80-120	08-AUG-19
WG3126102-1	MB							
Mercury (Hg)			<0.0050		mg/kg		0.005	08-AUG-19
MET-200.2-CCMS-WT		Soil						
Batch	R4744171							
WG3126102-2	CRM	WT-CANMET-TILL1						
Antimony (Sb)			99.2		%		70-130	08-AUG-19
Arsenic (As)			100.0		%		70-130	08-AUG-19
Barium (Ba)			95.1		%		70-130	08-AUG-19
Beryllium (Be)			94.3		%		70-130	08-AUG-19
Boron (B)			2.5		mg/kg		0-8.2	08-AUG-19
Cadmium (Cd)			100.6		%		70-130	08-AUG-19
Chromium (Cr)			100.8		%		70-130	08-AUG-19
Cobalt (Co)			100.2		%		70-130	08-AUG-19
Copper (Cu)			101.4		%		70-130	08-AUG-19
Lead (Pb)			95.6		%		70-130	08-AUG-19
Molybdenum (Mo)			96.5		%		70-130	08-AUG-19
Nickel (Ni)			100.3		%		70-130	08-AUG-19
Selenium (Se)			0.32		mg/kg		0.11-0.51	08-AUG-19
Silver (Ag)			0.22		mg/kg		0.13-0.33	08-AUG-19
Thallium (Tl)			0.114		mg/kg		0.077-0.18	08-AUG-19
Uranium (U)			96.2		%		70-130	08-AUG-19
Vanadium (V)			99.0		%		70-130	08-AUG-19
Zinc (Zn)			97.2		%		70-130	08-AUG-19
WG3126102-6	DUP	WG3126102-5						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	08-AUG-19
Arsenic (As)		0.60	0.59		ug/g	2.2	30	08-AUG-19
Barium (Ba)		36.9	35.7		ug/g	3.2	40	08-AUG-19
Beryllium (Be)		0.19	0.21		ug/g	9.5	30	08-AUG-19
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	08-AUG-19
Cadmium (Cd)		<0.020	<0.020	RPD-NA	ug/g	N/A	30	08-AUG-19
Chromium (Cr)		9.33	9.65		ug/g	3.4	30	08-AUG-19
Cobalt (Co)		3.10	3.11		ug/g	0.1	30	08-AUG-19
Copper (Cu)		4.51	4.68		ug/g	3.6	30	08-AUG-19

Quality Control Report

Workorder: L2319791

Report Date: 21-OCT-19

Page 6 of 12

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT		Soil						
Batch	R4744171							
WG3126102-6	DUP	WG3126102-5						
Lead (Pb)		1.28	1.27		ug/g	0.7	40	08-AUG-19
Molybdenum (Mo)		0.13	0.12		ug/g	10	40	08-AUG-19
Nickel (Ni)		5.42	5.37		ug/g	0.8	30	08-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	08-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	08-AUG-19
Thallium (Tl)		<0.050	<0.050	RPD-NA	ug/g	N/A	30	08-AUG-19
Uranium (U)		0.239	0.228		ug/g	4.8	30	08-AUG-19
Vanadium (V)		26.2	25.5		ug/g	2.6	30	08-AUG-19
Zinc (Zn)		15.0	15.9		ug/g	5.7	30	08-AUG-19
WG3126102-4	LCS							
Antimony (Sb)			103.3		%		80-120	08-AUG-19
Arsenic (As)			97.0		%		80-120	08-AUG-19
Barium (Ba)			95.7		%		80-120	08-AUG-19
Beryllium (Be)			94.5		%		80-120	08-AUG-19
Boron (B)			82.7		%		80-120	08-AUG-19
Cadmium (Cd)			97.7		%		80-120	08-AUG-19
Chromium (Cr)			96.1		%		80-120	08-AUG-19
Cobalt (Co)			94.9		%		80-120	08-AUG-19
Copper (Cu)			94.3		%		80-120	08-AUG-19
Lead (Pb)			93.7		%		80-120	08-AUG-19
Molybdenum (Mo)			100.5		%		80-120	08-AUG-19
Nickel (Ni)			93.7		%		80-120	08-AUG-19
Selenium (Se)			97.9		%		80-120	08-AUG-19
Silver (Ag)			98.3		%		80-120	08-AUG-19
Thallium (Tl)			94.3		%		80-120	08-AUG-19
Uranium (U)			93.9		%		80-120	08-AUG-19
Vanadium (V)			96.9		%		80-120	08-AUG-19
Zinc (Zn)			92.1		%		80-120	08-AUG-19
WG3126102-1	MB							
Antimony (Sb)			<0.10		mg/kg		0.1	08-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	08-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	08-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	08-AUG-19
Boron (B)			<5.0		mg/kg		5	08-AUG-19

Quality Control Report

Workorder: L2319791

Report Date: 21-OCT-19

Page 8 of 12

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT		Soil						
Batch	R4744381							
WG3126418-6	DUP	WG3126418-5						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	08-AUG-19
Arsenic (As)		1.18	1.18		ug/g	0.4	30	08-AUG-19
Barium (Ba)		19.4	18.6		ug/g	3.8	40	08-AUG-19
Beryllium (Be)		0.12	0.12		ug/g	3.4	30	08-AUG-19
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	08-AUG-19
Cadmium (Cd)		0.028	0.028		ug/g	0.9	30	08-AUG-19
Chromium (Cr)		7.46	6.80		ug/g	9.4	30	08-AUG-19
Cobalt (Co)		2.12	2.01		ug/g	5.2	30	08-AUG-19
Copper (Cu)		3.66	3.45		ug/g	5.8	30	08-AUG-19
Lead (Pb)		4.41	4.24		ug/g	3.9	40	08-AUG-19
Molybdenum (Mo)		0.15	0.14		ug/g	5.0	40	08-AUG-19
Nickel (Ni)		3.45	3.23		ug/g	6.5	30	08-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	08-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	08-AUG-19
Thallium (Tl)		<0.050	<0.050	RPD-NA	ug/g	N/A	30	08-AUG-19
Uranium (U)		0.443	0.408		ug/g	8.2	30	08-AUG-19
Vanadium (V)		21.2	19.9		ug/g	6.5	30	08-AUG-19
Zinc (Zn)		14.2	14.0		ug/g	1.0	30	08-AUG-19
WG3126418-1	MB							
Antimony (Sb)			<0.10		mg/kg		0.1	08-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	08-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	08-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	08-AUG-19
Boron (B)			<5.0		mg/kg		5	08-AUG-19
Cadmium (Cd)			<0.020		mg/kg		0.02	08-AUG-19
Chromium (Cr)			<0.50		mg/kg		0.5	08-AUG-19
Cobalt (Co)			<0.10		mg/kg		0.1	08-AUG-19
Copper (Cu)			<0.50		mg/kg		0.5	08-AUG-19
Lead (Pb)			<0.50		mg/kg		0.5	08-AUG-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	08-AUG-19
Nickel (Ni)			<0.50		mg/kg		0.5	08-AUG-19
Selenium (Se)			<0.20		mg/kg		0.2	08-AUG-19
Silver (Ag)			<0.10		mg/kg		0.1	08-AUG-19



Quality Control Report

Workorder: L2319791

Report Date: 21-OCT-19

Page 9 of 12

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	Soil							
Batch R4744381								
WG3126418-1 MB								
Thallium (Tl)			<0.050		mg/kg		0.05	08-AUG-19
Uranium (U)			<0.050		mg/kg		0.05	08-AUG-19
Vanadium (V)			<0.20		mg/kg		0.2	08-AUG-19
Zinc (Zn)			<2.0		mg/kg		2	08-AUG-19
MOISTURE-WT	Soil							
Batch R4734215								
WG3120969-3 DUP		L2319795-1						
% Moisture		2.89	2.85		%	1.3	20	01-AUG-19
WG3120969-2 LCS								
% Moisture			101.2		%		90-110	01-AUG-19
WG3120969-1 MB								
% Moisture			<0.10		%		0.1	01-AUG-19
PAH-511-WT	Soil							
Batch R4741590								
WG3122323-3 DUP		WG3122323-5						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	07-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	07-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	07-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	07-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	07-AUG-19
WG3122323-2 LCS								

Quality Control Report

Workorder: L2319791

Report Date: 21-OCT-19

Page 10 of 12

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT		Soil						
Batch	R4741590							
WG3122323-2	LCS							
1-Methylnaphthalene			99.0		%		50-140	06-AUG-19
2-Methylnaphthalene			93.9		%		50-140	06-AUG-19
Acenaphthene			99.4		%		50-140	06-AUG-19
Acenaphthylene			103.1		%		50-140	06-AUG-19
Anthracene			100.6		%		50-140	06-AUG-19
Benzo(a)anthracene			103.1		%		50-140	06-AUG-19
Benzo(a)pyrene			96.3		%		50-140	06-AUG-19
Benzo(b)fluoranthene			95.7		%		50-140	06-AUG-19
Benzo(g,h,i)perylene			105.2		%		50-140	06-AUG-19
Benzo(k)fluoranthene			95.9		%		50-140	06-AUG-19
Chrysene			102.8		%		50-140	06-AUG-19
Dibenzo(ah)anthracene			98.7		%		50-140	06-AUG-19
Fluoranthene			100.2		%		50-140	06-AUG-19
Fluorene			97.2		%		50-140	06-AUG-19
Indeno(1,2,3-cd)pyrene			96.6		%		50-140	06-AUG-19
Naphthalene			98.0		%		50-140	06-AUG-19
Phenanthrene			99.5		%		50-140	06-AUG-19
Pyrene			101.2		%		50-140	06-AUG-19
WG3122323-1	MB							
1-Methylnaphthalene			<0.030		ug/g		0.03	06-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	06-AUG-19
Acenaphthene			<0.050		ug/g		0.05	06-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	06-AUG-19
Anthracene			<0.050		ug/g		0.05	06-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	06-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	06-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	06-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	06-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	06-AUG-19
Chrysene			<0.050		ug/g		0.05	06-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	06-AUG-19
Fluoranthene			<0.050		ug/g		0.05	06-AUG-19
Fluorene			<0.050		ug/g		0.05	06-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	06-AUG-19



Quality Control Report

Workorder: L2319791

Report Date: 21-OCT-19

Page 11 of 12

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT		Soil						
Batch	R4741590							
WG3122323-1	MB							
Naphthalene			<0.013		ug/g		0.013	06-AUG-19
Phenanthrene			<0.046		ug/g		0.046	06-AUG-19
Pyrene			<0.050		ug/g		0.05	06-AUG-19
Surrogate: 2-Fluorobiphenyl			94.9		%		50-140	06-AUG-19
Surrogate: p-Terphenyl d14			85.6		%		50-140	06-AUG-19
WG3122323-4	MS	WG3122323-5						
1-Methylnaphthalene			100.7		%		50-140	07-AUG-19
2-Methylnaphthalene			95.6		%		50-140	07-AUG-19
Acenaphthene			101.7		%		50-140	07-AUG-19
Acenaphthylene			101.3		%		50-140	07-AUG-19
Anthracene			99.0		%		50-140	07-AUG-19
Benzo(a)anthracene			100.3		%		50-140	07-AUG-19
Benzo(a)pyrene			97.5		%		50-140	07-AUG-19
Benzo(b)fluoranthene			99.1		%		50-140	07-AUG-19
Benzo(g,h,i)perylene			99.4		%		50-140	07-AUG-19
Benzo(k)fluoranthene			100.2		%		50-140	07-AUG-19
Chrysene			105.5		%		50-140	07-AUG-19
Dibenzo(ah)anthracene			99.4		%		50-140	07-AUG-19
Fluoranthene			99.8		%		50-140	07-AUG-19
Fluorene			98.2		%		50-140	07-AUG-19
Indeno(1,2,3-cd)pyrene			89.9		%		50-140	07-AUG-19
Naphthalene			99.4		%		50-140	07-AUG-19
Phenanthrene			101.7		%		50-140	07-AUG-19
Pyrene			99.5		%		50-140	07-AUG-19

Quality Control Report

Workorder: L2319791

Report Date: 21-OCT-19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6
Contact: Sarena Medina

Page 12 of 12

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.

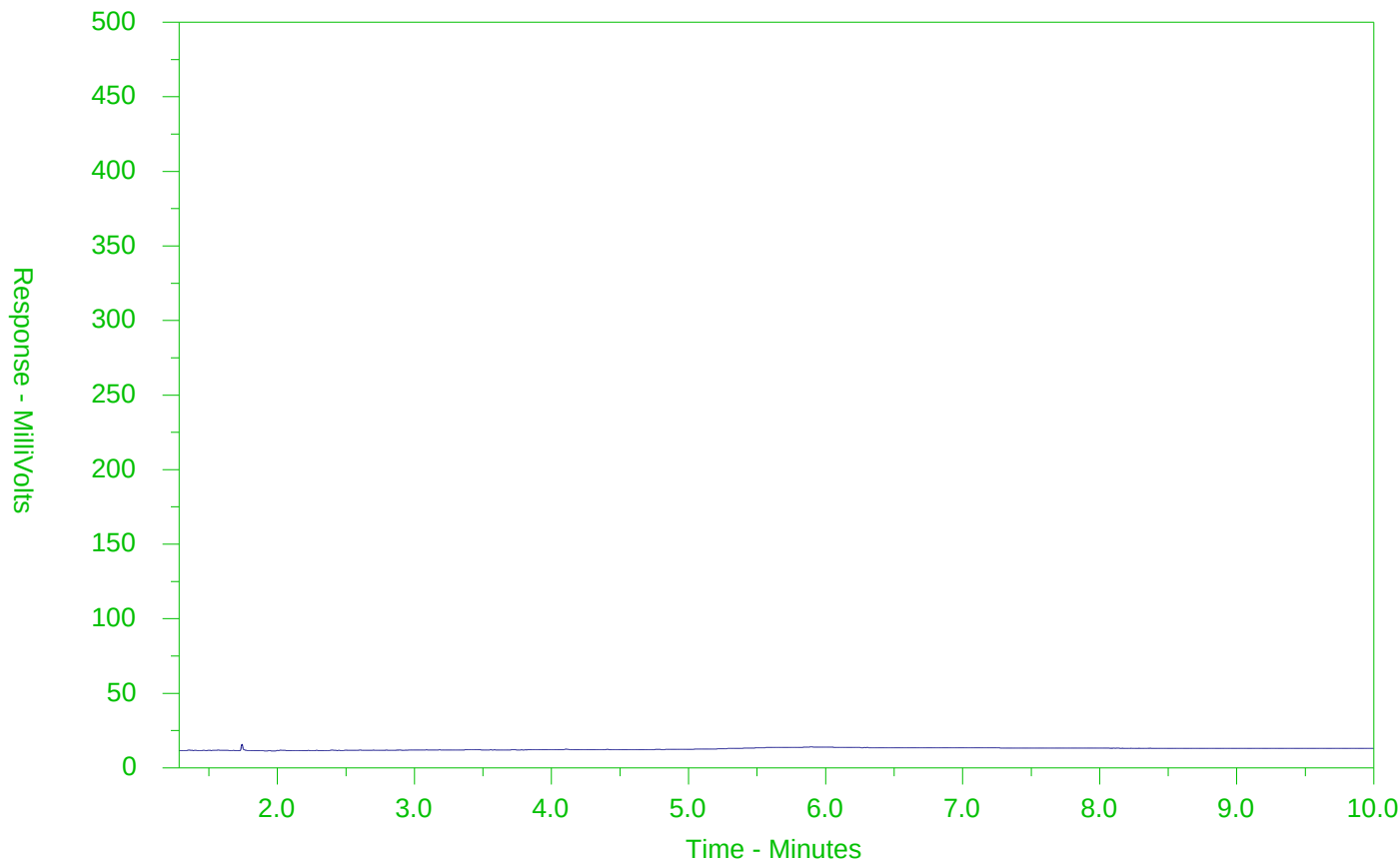
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2319791-2
Client Sample ID: BH2 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.

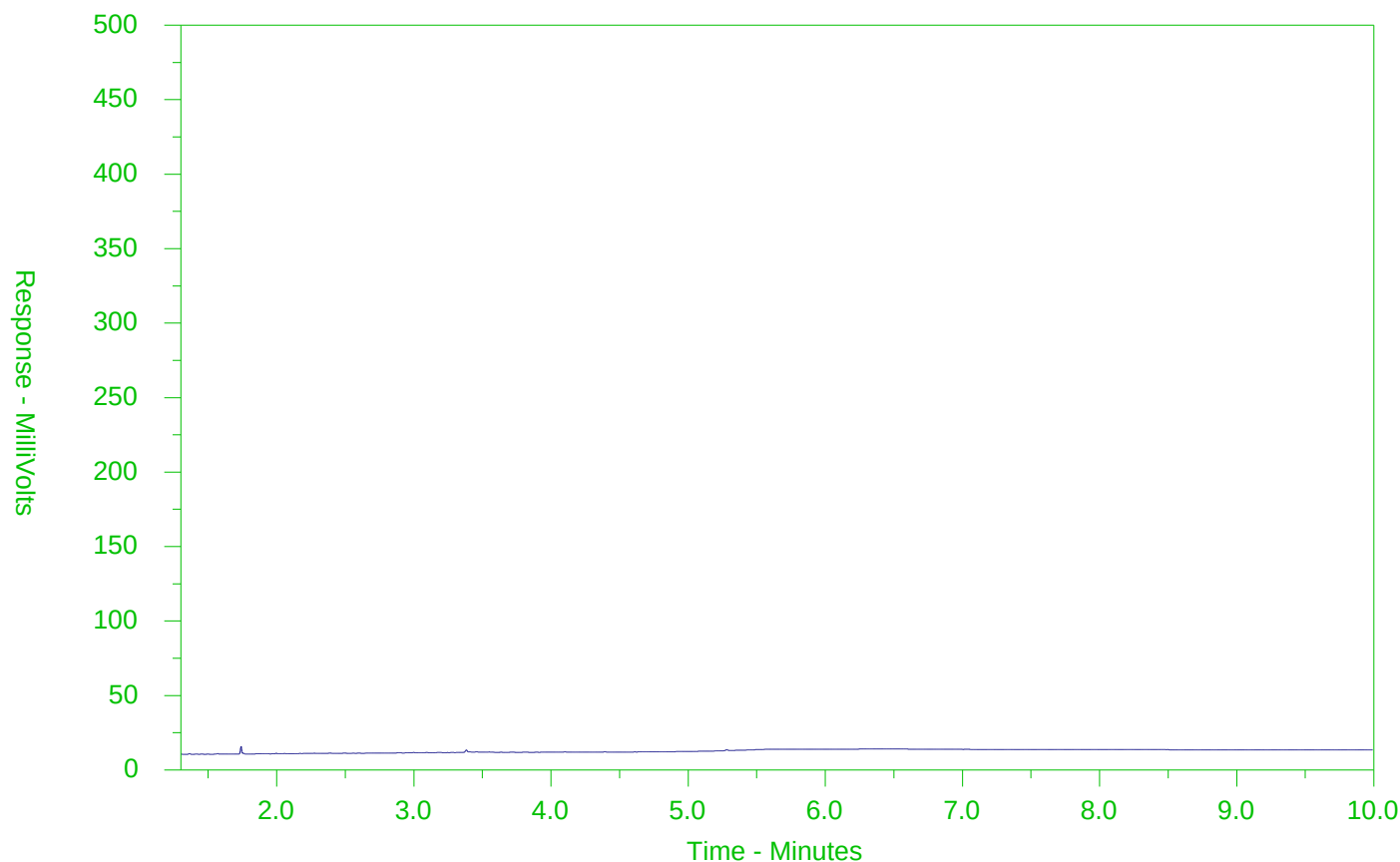
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

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: L2319791-3
Client Sample ID: BH3 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.

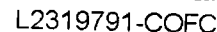
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.



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Page 1 of 1

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OCTOBER 2015 FROM

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



GeoPro Consulting Limited (Richmond Hill)
ATTN: Sarena Medina
40 Vogell Road
Unit 22
Richmond Hill ON L4B 3N6

Date Received: 14-AUG-19
Report Date: 21-OCT-19 12:22 (MT)
Version: FINAL REV. 2

Client Phone: 905-237-8336

Certificate of Analysis

Lab Work Order #: L2328748

Project P.O. #: NOT SUBMITTED

Job Reference: 17-2099E

C of C Numbers:

Legal Site Desc: Country Road 27, Barrie, Ontario

Comments:

21-OCT-2019 Sampled ID revised as per client correspondence.

Rick Hawthorne
Account Manager

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ANALYTICAL REPORT

Summary of Guideline Exceedances

Guideline							
ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit	
Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use							
(No parameter exceedances)							

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

ANALYTICAL REPORT

Physical Tests - SOIL

		Lab ID	L2328748-1	
		Sample Date	31-JUL-19	
		Sample ID	BH104 SS1B+SS2	
		Guide Limits		
Analyte	Unit	#1	#2	
Conductivity	mS/cm	0.57	-	0.0861
% Moisture	%	-	-	13.9
pH	pH units	-	-	7.90

Guide Limit #1: T1-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.

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



ANALYTICAL REPORT

Cyanides - SOIL

		Lab ID	L2328748-1	
		Sample Date	31-JUL-19	
		Sample ID	BH104 SS1B+SS2	
		Guide Limits		
Analyte	Unit	#1	#2	
Cyanide, Weak Acid Diss	ug/g	0.051	-	<0.050

Guide Limit #1: T1-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.

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



ANALYTICAL REPORT

Environmental

Saturated Paste Extractables - SOIL

Lab ID L2328748-1
Sample Date 31-JUL-19
Sample ID BH104
 SS1B+SS2

Guide Limits

Analyte	Unit	#1	#2	
SAR	SAR	2.4	-	0.33 ^{SAR:M}
Calcium (Ca)	mg/L	-	-	6.03
Magnesium (Mg)	mg/L	-	-	<0.50
Sodium (Na)	mg/L	-	-	2.94

Guide Limit #1: T1-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

		Lab ID	L2328748-1	
		Sample Date	31-JUL-19	
		Sample ID	BH104 SS1B+SS2	
Analyte	Unit	Guide Limits		
		#1	#2	
Antimony (Sb)	ug/g	1.3	-	<1.0
Arsenic (As)	ug/g	18	-	<1.0
Barium (Ba)	ug/g	220	-	9.8
Beryllium (Be)	ug/g	2.5	-	<0.50
Boron (B)	ug/g	36	-	<5.0
Boron (B), Hot Water Ext.	ug/g	36	-	<0.10
Cadmium (Cd)	ug/g	1.2	-	<0.50
Chromium (Cr)	ug/g	70	-	8.3
Cobalt (Co)	ug/g	21	-	1.3
Copper (Cu)	ug/g	92	-	2.4
Lead (Pb)	ug/g	120	-	1.0
Mercury (Hg)	ug/g	0.27	-	<0.0050
Molybdenum (Mo)	ug/g	2	-	<1.0
Nickel (Ni)	ug/g	82	-	3.5
Selenium (Se)	ug/g	1.5	-	<1.0
Silver (Ag)	ug/g	0.5	-	<0.20
Thallium (Tl)	ug/g	1	-	<0.50
Uranium (U)	ug/g	2.5	-	<1.0
Vanadium (V)	ug/g	86	-	17.7
Zinc (Zn)	ug/g	290	-	9.4

Guide Limit #1: T1-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.

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



ANALYTICAL REPORT

Speciated Metals - SOIL

		Lab ID	L2328748-1	
		Sample Date	31-JUL-19	
		Sample ID	BH104 SS1B+SS2	
		Guide Limits		
Analyte	Unit	#1	#2	
Chromium, Hexavalent	ug/g	0.66	-	<0.20

Guide Limit #1: T1-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.

Volatile Organic Compounds - SOIL

		Lab ID	L2328748-1	
		Sample Date	31-JUL-19	
		Sample ID	BH104 SS1B+SS2	
Analyte	Unit	Guide Limits		
		#1	#2	
Acetone	ug/g	0.5	-	<0.50
Benzene	ug/g	0.02	-	<0.0068
Bromodichloromethane	ug/g	0.05	-	<0.050
Bromoform	ug/g	0.05	-	<0.050
Bromomethane	ug/g	0.05	-	<0.050
Carbon tetrachloride	ug/g	0.05	-	<0.050
Chlorobenzene	ug/g	0.05	-	<0.050
Dibromochloromethane	ug/g	0.05	-	<0.050
Chloroform	ug/g	0.05	-	<0.050
1,2-Dibromoethane	ug/g	0.05	-	<0.050
1,2-Dichlorobenzene	ug/g	0.05	-	<0.050
1,3-Dichlorobenzene	ug/g	0.05	-	<0.050
1,4-Dichlorobenzene	ug/g	0.05	-	<0.050
Dichlorodifluoromethane	ug/g	0.05	-	<0.050
1,1-Dichloroethane	ug/g	0.05	-	<0.050
1,2-Dichloroethane	ug/g	0.05	-	<0.050
1,1-Dichloroethylene	ug/g	0.05	-	<0.050
cis-1,2-Dichloroethylene	ug/g	0.05	-	<0.050
trans-1,2-Dichloroethylene	ug/g	0.05	-	<0.050
Methylene Chloride	ug/g	0.05	-	<0.050
1,2-Dichloropropane	ug/g	0.05	-	<0.050
cis-1,3-Dichloropropene	ug/g	-	-	<0.030
trans-1,3-Dichloropropene	ug/g	-	-	<0.030
1,3-Dichloropropene (cis & trans)	ug/g	0.05	-	<0.042
Ethylbenzene	ug/g	0.05	-	<0.018
n-Hexane	ug/g	0.05	-	<0.050
Methyl Ethyl Ketone	ug/g	0.5	-	<0.50
Methyl Isobutyl Ketone	ug/g	0.5	-	<0.50
MTBE	ug/g	0.05	-	<0.050
Styrene	ug/g	0.05	-	<0.050

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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

Volatile Organic Compounds - SOIL

		Lab ID	L2328748-1	
		Sample Date	31-JUL-19	
		Sample ID	BH104 SS1B+SS2	
Analyte	Unit	Guide Limits		
		#1	#2	
1,1,1,2-Tetrachloroethane	ug/g	0.05	-	<0.050
1,1,2,2-Tetrachloroethane	ug/g	0.05	-	<0.050
Tetrachloroethylene	ug/g	0.05	-	<0.050
Toluene	ug/g	0.2	-	<0.080
1,1,1-Trichloroethane	ug/g	0.05	-	<0.050
1,1,2-Trichloroethane	ug/g	0.05	-	<0.050
Trichloroethylene	ug/g	0.05	-	<0.010
Trichlorofluoromethane	ug/g	0.25	-	<0.050
Vinyl chloride	ug/g	0.02	-	<0.020
o-Xylene	ug/g	-	-	<0.020
m+p-Xylenes	ug/g	-	-	<0.030
Xylenes (Total)	ug/g	0.05	-	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	75.0
Surrogate: 1,4-Difluorobenzene	%	-	-	101.6

Guide Limit #1: T1-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

		Lab ID	L2328748-1	
		Sample Date	31-JUL-19	
		Sample ID	BH104 SS1B+SS2	
Analyte	Unit	Guide Limits		
		#1	#2	
F1 (C6-C10)	ug/g	25	-	<5.0
F1-BTEX	ug/g	25	-	<5.0
F2 (C10-C16)	ug/g	10	-	<10
F2-Naphth	ug/g	-	-	<10
F3 (C16-C34)	ug/g	240	-	<50
F3-PAH	ug/g	-	-	<50
F4 (C34-C50)	ug/g	120	-	<50
Total Hydrocarbons (C6-C50)	ug/g	-	-	<72
Chrom. to baseline at nC50		-	-	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	83.6
Surrogate: 3,4-Dichlorotoluene	%	-	-	81.0

Guide Limit #1: T1-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.



Environmental

ANALYTICAL REPORT

Polycyclic Aromatic Hydrocarbons - SOIL

		Lab ID	L2328748-1	
		Sample Date	31-JUL-19	
		Sample ID	BH104 SS1B+SS2	
Analyte	Unit	Guide Limits		
		#1	#2	
Acenaphthene	ug/g	0.072	-	<0.050
Acenaphthylene	ug/g	0.093	-	<0.050
Anthracene	ug/g	0.16	-	<0.050
Benzo(a)anthracene	ug/g	0.36	-	<0.050
Benzo(a)pyrene	ug/g	0.3	-	<0.050
Benzo(b)fluoranthene	ug/g	0.47	-	<0.050
Benzo(g,h,i)perylene	ug/g	0.68	-	<0.050
Benzo(k)fluoranthene	ug/g	0.48	-	<0.050
Chrysene	ug/g	2.8	-	<0.050
Dibenzo(ah)anthracene	ug/g	0.1	-	<0.050
Fluoranthene	ug/g	0.56	-	<0.050
Fluorene	ug/g	0.12	-	<0.050
Indeno(1,2,3-cd)pyrene	ug/g	0.23	-	<0.050
1+2-Methylnaphthalenes	ug/g	0.59	-	<0.042
1-Methylnaphthalene	ug/g	0.59	-	<0.030
2-Methylnaphthalene	ug/g	0.59	-	<0.030
Naphthalene	ug/g	0.09	-	<0.013
Phenanthrene	ug/g	0.69	-	<0.046
Pyrene	ug/g	1	-	<0.050
Surrogate: 2-Fluorobiphenyl	%	-	-	102.4
Surrogate: p-Terphenyl d14	%	-	-	92.0

Guide Limit #1: T1-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.

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

Polychlorinated Biphenyls - SOIL

		Lab ID	L2328748-1		
		Sample Date	31-JUL-19		
		Sample ID	BH104 SS1B+SS2		
		Guide Limits			
Analyte	Unit	#1	#2		
Aroclor 1242	ug/g	-	-	<0.010	
Aroclor 1248	ug/g	-	-	<0.010	
Aroclor 1254	ug/g	-	-	<0.010	
Aroclor 1260	ug/g	-	-	<0.010	
Total PCBs	ug/g	0.3	-	<0.020	
Surrogate: d14-Terphenyl	%	-	-	88.2	

Guide Limit #1: T1-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.

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

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
-----------	-------------

SAR:M Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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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).

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).

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).

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.

Reference Information

L2328748 CONT'D....
Job Reference: 17-2099E
PAGE 14 of 16
21-OCT-19 12:22 (MT)

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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. 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-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, 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).			
METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)

Reference Information

L2328748 CONT'D....
Job Reference: 17-2099E
PAGE 15 of 16
21-OCT-19 12:22 (MT)

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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 technique is 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).			
PCB-511-WT	Soil	PCB-O.Reg 153/04 (July 2011)	SW846 3510/8082
An aliquot of a solid sample is extracted with a solvent, extract is cleaned up and analyzed on the 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).			
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).			
VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)
Soil and sediment samples are extracted in methanol and analyzed 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), 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:			
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

L2328748 CONT'D....
Job Reference: 17-2099E
PAGE 16 of 16
21-OCT-19 12:22 (MT)

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 ww - 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: L2328748

Report Date: 21-OCT-19

Page 3 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAA-WT		Soil						
Batch	R4763651							
WG3139765-2	CRM	WT-CANMET-TILL1						
Mercury (Hg)			114.8		%		70-130	22-AUG-19
WG3139765-6	DUP	WG3139765-5						
Mercury (Hg)		<0.0050	<0.0050	RPD-NA	ug/g	N/A	40	22-AUG-19
WG3139765-4	LCS							
Mercury (Hg)			117.5		%		80-120	22-AUG-19
WG3139765-1	MB							
Mercury (Hg)			<0.0050		mg/kg		0.005	22-AUG-19
MET-200.2-CCMS-WT		Soil						
Batch	R4765117							
WG3139765-2	CRM	WT-CANMET-TILL1						
Antimony (Sb)			100.2		%		70-130	22-AUG-19
Arsenic (As)			97.7		%		70-130	22-AUG-19
Barium (Ba)			89.9		%		70-130	22-AUG-19
Beryllium (Be)			94.4		%		70-130	22-AUG-19
Boron (B)			2.6		mg/kg		0-8.2	22-AUG-19
Cadmium (Cd)			100.3		%		70-130	22-AUG-19
Chromium (Cr)			95.9		%		70-130	22-AUG-19
Cobalt (Co)			95.1		%		70-130	22-AUG-19
Copper (Cu)			98.7		%		70-130	22-AUG-19
Lead (Pb)			93.5		%		70-130	22-AUG-19
Molybdenum (Mo)			99.4		%		70-130	22-AUG-19
Nickel (Ni)			95.5		%		70-130	22-AUG-19
Selenium (Se)			0.22		mg/kg		0.11-0.51	22-AUG-19
Silver (Ag)			0.23		mg/kg		0.13-0.33	22-AUG-19
Thallium (Tl)			0.112		mg/kg		0.077-0.18	22-AUG-19
Uranium (U)			91.1		%		70-130	22-AUG-19
Vanadium (V)			96.1		%		70-130	22-AUG-19
Zinc (Zn)			91.1		%		70-130	22-AUG-19
WG3139765-6	DUP	WG3139765-5						
Antimony (Sb)		0.11	<0.10	RPD-NA	ug/g	N/A	30	22-AUG-19
Arsenic (As)		1.98	1.89		ug/g	4.6	30	22-AUG-19
Barium (Ba)		15.4	14.9		ug/g	3.2	40	22-AUG-19
Beryllium (Be)		0.10	<0.10	RPD-NA	ug/g	N/A	30	22-AUG-19
Boron (B)		5.2	5.1		ug/g	1.7	30	22-AUG-19

Quality Control Report

Workorder: L2328748

Report Date: 21-OCT-19

Page 5 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT		Soil						
Batch R4765117								
WG3139765-1	MB							
Antimony (Sb)			<0.10		mg/kg		0.1	22-AUG-19
Arsenic (As)			<0.10		mg/kg		0.1	22-AUG-19
Barium (Ba)			<0.50		mg/kg		0.5	22-AUG-19
Beryllium (Be)			<0.10		mg/kg		0.1	22-AUG-19
Boron (B)			<5.0		mg/kg		5	22-AUG-19
Cadmium (Cd)			<0.020		mg/kg		0.02	22-AUG-19
Chromium (Cr)			<0.50		mg/kg		0.5	22-AUG-19
Cobalt (Co)			<0.10		mg/kg		0.1	22-AUG-19
Copper (Cu)			<0.50		mg/kg		0.5	22-AUG-19
Lead (Pb)			<0.50		mg/kg		0.5	22-AUG-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	22-AUG-19
Nickel (Ni)			<0.50		mg/kg		0.5	22-AUG-19
Selenium (Se)			<0.20		mg/kg		0.2	22-AUG-19
Silver (Ag)			<0.10		mg/kg		0.1	22-AUG-19
Thallium (Tl)			<0.050		mg/kg		0.05	22-AUG-19
Uranium (U)			<0.050		mg/kg		0.05	22-AUG-19
Vanadium (V)			<0.20		mg/kg		0.2	22-AUG-19
Zinc (Zn)			<2.0		mg/kg		2	22-AUG-19
MOISTURE-WT		Soil						
Batch R4758559								
WG3134609-3	DUP	L2328812-5						
% Moisture		6.51	6.86		%	5.2	20	17-AUG-19
WG3134609-2	LCS							
% Moisture			101.7		%		90-110	17-AUG-19
WG3134609-1	MB							
% Moisture			<0.10		%		0.1	17-AUG-19
PAH-511-WT		Soil						
Batch R4762018								
WG3136356-3	DUP	WG3136356-5						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed	
PAH-511-WT		Soil							
Batch	R4762018								
WG3136356-3		DUP	WG3136356-5						
Benzo(a)anthracene			<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Benzo(a)pyrene			<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Benzo(b)fluoranthene			<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Benzo(g,h,i)perylene			<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Benzo(k)fluoranthene			<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Chrysene			<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Dibenzo(ah)anthracene			<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Fluoranthene			<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Fluorene			<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Naphthalene			<0.013	<0.013	RPD-NA	ug/g	N/A	40	21-AUG-19
Phenanthrene			<0.046	<0.046	RPD-NA	ug/g	N/A	40	21-AUG-19
Pyrene			<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
WG3136356-2		LCS							
1-Methylnaphthalene				103.5		%		50-140	21-AUG-19
2-Methylnaphthalene				98.8		%		50-140	21-AUG-19
Acenaphthene				105.3		%		50-140	21-AUG-19
Acenaphthylene				107.6		%		50-140	21-AUG-19
Anthracene				103.1		%		50-140	21-AUG-19
Benzo(a)anthracene				105.2		%		50-140	21-AUG-19
Benzo(a)pyrene				105.1		%		50-140	21-AUG-19
Benzo(b)fluoranthene				104.3		%		50-140	21-AUG-19
Benzo(g,h,i)perylene				107.9		%		50-140	21-AUG-19
Benzo(k)fluoranthene				103.5		%		50-140	21-AUG-19
Chrysene				112.3		%		50-140	21-AUG-19
Dibenzo(ah)anthracene				114.2		%		50-140	21-AUG-19
Fluoranthene				99.8		%		50-140	21-AUG-19
Fluorene				103.3		%		50-140	21-AUG-19
Indeno(1,2,3-cd)pyrene				110.4		%		50-140	21-AUG-19
Naphthalene				101.7		%		50-140	21-AUG-19
Phenanthrene				104.9		%		50-140	21-AUG-19
Pyrene				99.8		%		50-140	21-AUG-19
WG3136356-1		MB							
							0.03		



Quality Control Report

Workorder: L2328748

Report Date: 21-OCT-19

Page 7 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT		Soil						
Batch	R4762018							
WG3136356-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	21-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	21-AUG-19
Acenaphthene			<0.050		ug/g		0.05	21-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	21-AUG-19
Anthracene			<0.050		ug/g		0.05	21-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	21-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	21-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	21-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	21-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	21-AUG-19
Chrysene			<0.050		ug/g		0.05	21-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	21-AUG-19
Fluoranthene			<0.050		ug/g		0.05	21-AUG-19
Fluorene			<0.050		ug/g		0.05	21-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	21-AUG-19
Naphthalene			<0.013		ug/g		0.013	21-AUG-19
Phenanthrene			<0.046		ug/g		0.046	21-AUG-19
Pyrene			<0.050		ug/g		0.05	21-AUG-19
Surrogate: 2-Fluorobiphenyl			98.0		%		50-140	21-AUG-19
Surrogate: p-Terphenyl d14			85.5		%		50-140	21-AUG-19
WG3136356-4 MS		WG3136356-5						
1-Methylnaphthalene			106.4		%		50-140	21-AUG-19
2-Methylnaphthalene			101.7		%		50-140	21-AUG-19
Acenaphthene			108.5		%		50-140	21-AUG-19
Acenaphthylene			108.4		%		50-140	21-AUG-19
Anthracene			104.9		%		50-140	21-AUG-19
Benzo(a)anthracene			109.3		%		50-140	21-AUG-19
Benzo(a)pyrene			109.0		%		50-140	21-AUG-19
Benzo(b)fluoranthene			108.6		%		50-140	21-AUG-19
Benzo(g,h,i)perylene			108.0		%		50-140	21-AUG-19
Benzo(k)fluoranthene			109.1		%		50-140	21-AUG-19
Chrysene			117.2		%		50-140	21-AUG-19
Dibenzo(ah)anthracene			115.3		%		50-140	21-AUG-19
Fluoranthene			108.6		%		50-140	21-AUG-19

Quality Control Report

Workorder: L2328748

Report Date: 21-OCT-19

Page 9 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT		Soil						
Batch	R4765241							
WG3140439-4	DUP	WG3140439-3						
Calcium (Ca)		20.7	20.7		mg/L	0.0	30	22-AUG-19
Sodium (Na)		6.63	6.48		mg/L	2.3	30	22-AUG-19
Magnesium (Mg)		2.14	2.14		mg/L	0.0	30	22-AUG-19
WG3140439-2	IRM	WT SAR3						
Calcium (Ca)			80.4		%		70-130	22-AUG-19
Sodium (Na)			98.5		%		70-130	22-AUG-19
Magnesium (Mg)			85.5		%		70-130	22-AUG-19
WG3140439-5	LCS							
Calcium (Ca)			101.3		%		70-130	22-AUG-19
Sodium (Na)			100.0		%		70-130	22-AUG-19
Magnesium (Mg)			97.0		%		70-130	22-AUG-19
WG3140439-1	MB							
Calcium (Ca)			<0.50		mg/L		0.5	22-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	22-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	22-AUG-19
VOC-511-HS-WT		Soil						
Batch	R4762315							
WG3137326-4	DUP	WG3137326-3						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	21-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19

Quality Control Report

Workorder: L2328748

Report Date: 21-OCT-19

Page 10 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4762315							
WG3137326-4	DUP	WG3137326-3						
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-AUG-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	21-AUG-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	21-AUG-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	21-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-AUG-19
Trichloroethylene		0.043	0.043		ug/g	0.6	40	21-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-AUG-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	21-AUG-19
WG3137326-2	LCS							
1,1,1,2-Tetrachloroethane			113.9		%		60-130	21-AUG-19
1,1,1,2,2-Tetrachloroethane			119.1		%		60-130	21-AUG-19
1,1,1-Trichloroethane			121.2		%		60-130	21-AUG-19
1,1,2-Trichloroethane			114.3		%		60-130	21-AUG-19
1,1-Dichloroethane			104.5		%		60-130	21-AUG-19
1,1-Dichloroethylene			115.9		%		60-130	21-AUG-19
1,2-Dibromoethane			104.3		%		70-130	21-AUG-19
1,2-Dichlorobenzene			108.3		%		70-130	21-AUG-19



Quality Control Report

Workorder: L2328748

Report Date: 21-OCT-19

Page 11 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4762315							
WG3137326-2	LCS							
1,2-Dichloroethane			125.4		%		60-130	21-AUG-19
1,2-Dichloropropane			123.7		%		70-130	21-AUG-19
1,3-Dichlorobenzene			105.9		%		70-130	21-AUG-19
1,4-Dichlorobenzene			102.0		%		70-130	21-AUG-19
Acetone			127.1		%		60-140	21-AUG-19
Benzene			124.8		%		70-130	21-AUG-19
Bromodichloromethane			119.5		%		50-140	21-AUG-19
Bromoform			107.3		%		70-130	21-AUG-19
Bromomethane			98.1		%		50-140	21-AUG-19
Carbon tetrachloride			118.9		%		70-130	21-AUG-19
Chlorobenzene			111.1		%		70-130	21-AUG-19
Chloroform			117.1		%		70-130	21-AUG-19
cis-1,2-Dichloroethylene			109.3		%		70-130	21-AUG-19
cis-1,3-Dichloropropene			106.8		%		70-130	21-AUG-19
Dibromochloromethane			108.8		%		60-130	21-AUG-19
Dichlorodifluoromethane			76.9		%		50-140	21-AUG-19
Ethylbenzene			107.1		%		70-130	21-AUG-19
n-Hexane			104.2		%		70-130	21-AUG-19
Methylene Chloride			104.4		%		70-130	21-AUG-19
MTBE			107.0		%		70-130	21-AUG-19
m+p-Xylenes			114.7		%		70-130	21-AUG-19
Methyl Ethyl Ketone			103.8		%		60-140	21-AUG-19
Methyl Isobutyl Ketone			114.5		%		60-140	21-AUG-19
o-Xylene			107.2		%		70-130	21-AUG-19
Styrene			105.4		%		70-130	21-AUG-19
Tetrachloroethylene			102.6		%		60-130	21-AUG-19
Toluene			111.5		%		70-130	21-AUG-19
trans-1,2-Dichloroethylene			107.2		%		60-130	21-AUG-19
trans-1,3-Dichloropropene			98.7		%		70-130	21-AUG-19
Trichloroethylene			111.1		%		60-130	21-AUG-19
Trichlorofluoromethane			99.7		%		50-140	21-AUG-19
Vinyl chloride			119.7		%		60-140	21-AUG-19
WG3137326-1	MB							
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	21-AUG-19

Quality Control Report

Workorder: L2328748

Report Date: 21-OCT-19

Page 12 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4762315							
WG3137326-1	MB							
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	21-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	21-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	21-AUG-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	21-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	21-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	21-AUG-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	21-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	21-AUG-19
Acetone			<0.50		ug/g		0.5	21-AUG-19
Benzene			<0.0068		ug/g		0.0068	21-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	21-AUG-19
Bromoform			<0.050		ug/g		0.05	21-AUG-19
Bromomethane			<0.050		ug/g		0.05	21-AUG-19
Carbon tetrachloride			<0.050		ug/g		0.05	21-AUG-19
Chlorobenzene			<0.050		ug/g		0.05	21-AUG-19
Chloroform			<0.050		ug/g		0.05	21-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	21-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	21-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	21-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	21-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	21-AUG-19
n-Hexane			<0.050		ug/g		0.05	21-AUG-19
Methylene Chloride			<0.050		ug/g		0.05	21-AUG-19
MTBE			<0.050		ug/g		0.05	21-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	21-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	21-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	21-AUG-19
o-Xylene			<0.020		ug/g		0.02	21-AUG-19
Styrene			<0.050		ug/g		0.05	21-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	21-AUG-19



Quality Control Report

Workorder: L2328748

Report Date: 21-OCT-19

Page 13 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4762315							
WG3137326-1 MB								
Toluene			<0.080		ug/g		0.08	21-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	21-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	21-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	21-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	21-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	21-AUG-19
Surrogate: 1,4-Difluorobenzene			117.5		%		50-140	21-AUG-19
Surrogate: 4-Bromofluorobenzene			86.2		%		50-140	21-AUG-19
WG3137326-5 MS		L2328158-4						
1,1,1,2-Tetrachloroethane			115.3		%		50-140	21-AUG-19
1,1,2,2-Tetrachloroethane			115.4		%		50-140	21-AUG-19
1,1,1-Trichloroethane			120.3		%		50-140	21-AUG-19
1,1,2-Trichloroethane			115.7		%		50-140	21-AUG-19
1,1-Dichloroethane			104.6		%		50-140	21-AUG-19
1,1-Dichloroethylene			115.8		%		50-140	21-AUG-19
1,2-Dibromoethane			106.5		%		50-140	21-AUG-19
1,2-Dichlorobenzene			108.5		%		50-140	21-AUG-19
1,2-Dichloroethane			122.8		%		50-140	21-AUG-19
1,2-Dichloropropane			122.2		%		50-140	21-AUG-19
1,3-Dichlorobenzene			106.4		%		50-140	21-AUG-19
1,4-Dichlorobenzene			102.4		%		50-140	21-AUG-19
Acetone			125.7		%		50-140	21-AUG-19
Benzene			123.3		%		50-140	21-AUG-19
Bromodichloromethane			117.2		%		50-140	21-AUG-19
Bromoform			106.2		%		50-140	21-AUG-19
Bromomethane			98.6		%		50-140	21-AUG-19
Carbon tetrachloride			117.9		%		50-140	21-AUG-19
Chlorobenzene			111.6		%		50-140	21-AUG-19
Chloroform			115.6		%		50-140	21-AUG-19
cis-1,2-Dichloroethylene			108.5		%		50-140	21-AUG-19
cis-1,3-Dichloropropene			101.8		%		50-140	21-AUG-19
Dibromochloromethane			109.8		%		50-140	21-AUG-19
Dichlorodifluoromethane			84.4		%		50-140	21-AUG-19
Ethylbenzene			107.2		%		50-140	21-AUG-19



Quality Control Report

Workorder: L2328748 Report Date: 21-OCT-19 Page 14 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
 40 Vogell Road Unit 22
 Richmond Hill ON L4B 3N6
Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4762315							
WG3137326-5	MS	L2328158-4						
n-Hexane			106.3		%		50-140	21-AUG-19
Methylene Chloride			103.0		%		50-140	21-AUG-19
MTBE			108.5		%		50-140	21-AUG-19
m+p-Xylenes			114.2		%		50-140	21-AUG-19
Methyl Ethyl Ketone			97.7		%		50-140	21-AUG-19
Methyl Isobutyl Ketone			107.9		%		50-140	21-AUG-19
o-Xylene			106.9		%		50-140	21-AUG-19
Styrene			103.7		%		50-140	21-AUG-19
Tetrachloroethylene			105.2		%		50-140	21-AUG-19
Toluene			112.3		%		50-140	21-AUG-19
trans-1,2-Dichloroethylene			105.9		%		50-140	21-AUG-19
trans-1,3-Dichloropropene			96.2		%		50-140	21-AUG-19
Trichloroethylene			109.4		%		50-140	21-AUG-19
Trichlorofluoromethane			101.4		%		50-140	21-AUG-19
Vinyl chloride			123.6		%		50-140	21-AUG-19

Quality Control Report

Workorder: L2328748

Report Date: 21-OCT-19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Page 15 of 16

Contact: Sarena Medina

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.

Quality Control Report

Workorder: L2328748

Report Date: 21-OCT-19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6
Contact: Sarena Medina

Page 16 of 16

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
% Moisture	1	31-JUL-19	17-AUG-19 09:30	14	17	days	EHTR
Cyanides							
Cyanide (WAD)-O.Reg 153/04 (July 2011)	1	31-JUL-19	19-AUG-19 09:00	14	19	days	EHTR
Volatile Organic Compounds							
VOC-O.Reg 153/04 (July 2011)	1	31-JUL-19	19-AUG-19 22:26	14	19	days	EHTR
Hydrocarbons							
F1-O.Reg 153/04 (July 2011)	1	31-JUL-19	19-AUG-19 22:26	14	19	days	EHTR
F2-F4-O.Reg 153/04 (July 2011)	1	31-JUL-19	15-AUG-19 10:00	14	15	days	EHTR

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2328748 were received on 14-AUG-19 15:43.

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.

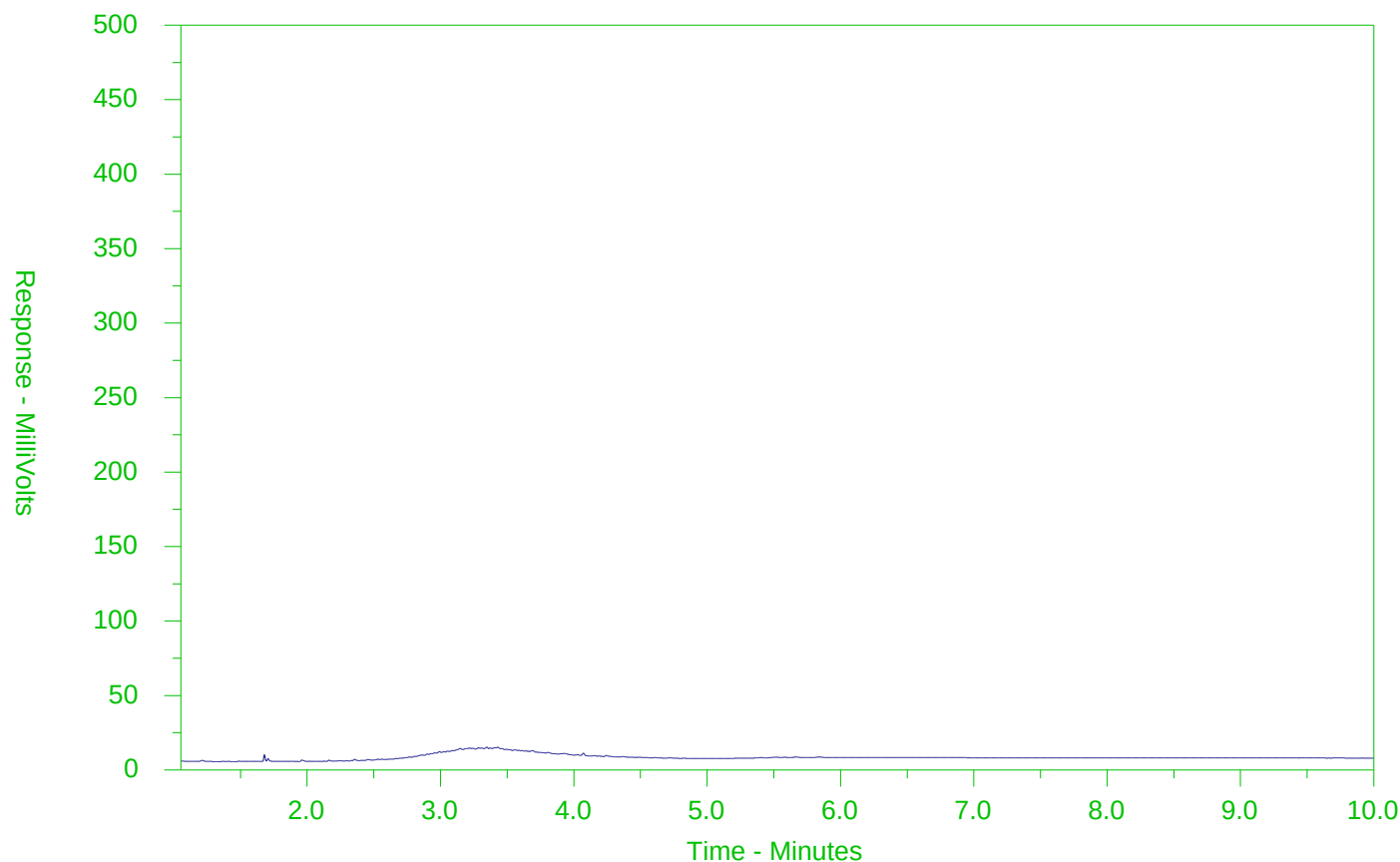
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2328748-1
Client Sample ID: BH4 SS1B+SS2



← 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.



Affix ALS barcode label here
(lab use only)

COC Number: 17-2099E-20190814

Page 1 of 1

Canada Toll Free: 1 800 668 9878

[illegible]

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NOV 2018 FROM

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**.



GeoPro Consulting Limited (Richmond Hill)
ATTN: Sarena Medina
40 Vogell Road
Unit 22
Richmond Hill ON L4B 3N6

Date Received: 20-AUG-19
Report Date: 21-OCT-19 12:18 (MT)
Version: FINAL REV. 2

Client Phone: 905-237-8336

Certificate of Analysis

Lab Work Order #: L2332408
Project P.O. #: NOT SUBMITTED
Job Reference: 17-2099E
C of C Numbers:
Legal Site Desc: TORONTO

Comments:

21-OCT-2019 ID revision as per client correspondence.

Rick Hawthorne
Account Manager

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

ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927
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ANALYTICAL REPORT

Summary of Guideline Exceedances

Guideline		Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
ALS ID							
Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use							
L2332408-1	BH106 SS1		Saturated Paste Extractables	SAR	2.80	2.4	SAR
L2332408-2	BH106 SS3		Saturated Paste Extractables	SAR	2.54	2.4	SAR
			Polycyclic Aromatic Hydrocarbons	1+2-Methylnaphthalenes	2.91	0.59	ug/g
				1-Methylnaphthalene	1.03	0.59	ug/g
				2-Methylnaphthalene	1.89	0.59	ug/g
				Naphthalene	1.76	0.09	ug/g

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



ANALYTICAL REPORT

Physical Tests - SOIL

		Lab ID	L2332408-1	L2332408-2
		Sample Date	06-AUG-19	06-AUG-19
		Sample ID	BH106 SS1	BH106 SS3
		Guide Limits		
Analyte	Unit	#1	#2	
Conductivity	mS/cm	0.57	-	0.242 0.177
% Moisture	%	-	-	11.9 18.3
pH	pH units	-	-	7.55 7.70

Guide Limit #1: T1-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.



Environmental

ANALYTICAL REPORT

Cyanides - SOIL

Lab ID	L2332408-1	L2332408-2
Sample Date	06-AUG-19	06-AUG-19
Sample ID	BH106 SS1	BH106 SS3

Guide Limits	
#1	#2

Analyte

Unit

Cyanide, Weak Acid Diss	ug/g	0.051	-	<0.050	<0.050
-------------------------	------	-------	---	--------	--------

Guide Limit #1: T1-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

		Lab ID	L2332408-1	L2332408-2
		Sample Date	06-AUG-19	06-AUG-19
		Sample ID	BH106 SS1	BH106 SS3
		Guide Limits		
Analyte	Unit	#1	#2	
SAR	SAR	2.4	-	2.80 2.54 SAR-M
Calcium (Ca)	mg/L	-	-	16.9 5.80
Magnesium (Mg)	mg/L	-	-	1.61 <0.50
Sodium (Na)	mg/L	-	-	45.0 22.2

Guide Limit #1: T1-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.



Environmental

ANALYTICAL REPORT

Metals - SOIL

		Lab ID	L2332408-1	L2332408-2	
		Sample Date	06-AUG-19	06-AUG-19	
		Sample ID	BH106 SS1	BH106 SS3	
Analyte	Unit	Guide Limits			
		#1	#2		
Antimony (Sb)	ug/g	1.3	-	<1.0	<1.0
Arsenic (As)	ug/g	18	-	1.5	<1.0
Barium (Ba)	ug/g	220	-	35.6	34.6
Beryllium (Be)	ug/g	2.5	-	<0.50	<0.50
Boron (B)	ug/g	36	-	<5.0	<5.0
Boron (B), Hot Water Ext.	ug/g	36	-	0.10	<0.10
Cadmium (Cd)	ug/g	1.2	-	<0.50	<0.50
Chromium (Cr)	ug/g	70	-	15.0	10.9
Cobalt (Co)	ug/g	21	-	4.2	3.0
Copper (Cu)	ug/g	92	-	7.5	5.9
Lead (Pb)	ug/g	120	-	4.5	2.1
Mercury (Hg)	ug/g	0.27	-	0.0172	<0.0050
Molybdenum (Mo)	ug/g	2	-	<1.0	<1.0
Nickel (Ni)	ug/g	82	-	7.6	5.6
Selenium (Se)	ug/g	1.5	-	<1.0	<1.0
Silver (Ag)	ug/g	0.5	-	<0.20	<0.20
Thallium (Tl)	ug/g	1	-	<0.50	<0.50
Uranium (U)	ug/g	2.5	-	<1.0	<1.0
Vanadium (V)	ug/g	86	-	34.6	23.7
Zinc (Zn)	ug/g	290	-	18.9	15.1

Guide Limit #1: T1-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.

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



ANALYTICAL REPORT

Speciated Metals - SOIL

		Lab ID	L2332408-1	L2332408-2
		Sample Date	06-AUG-19	06-AUG-19
		Sample ID	BH106 SS1	BH106 SS3
		Guide Limits		
Analyte	Unit	#1	#2	
Chromium, Hexavalent	ug/g	0.66	-	0.25 <0.20

Guide Limit #1: T1-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.



Environmental

ANALYTICAL REPORT

Volatile Organic Compounds - SOIL

Analyte	Unit	Lab ID			
		Sample Date		Sample ID	
		Guide Limits			
		#1	#2		
Acetone	ug/g	0.5	-	<0.50	<0.50
Benzene	ug/g	0.02	-	<0.0068	<0.0068
Bromodichloromethane	ug/g	0.05	-	<0.050	<0.050
Bromoform	ug/g	0.05	-	<0.050	<0.050
Bromomethane	ug/g	0.05	-	<0.050	<0.050
Carbon tetrachloride	ug/g	0.05	-	<0.050	<0.050
Chlorobenzene	ug/g	0.05	-	<0.050	<0.050
Dibromochloromethane	ug/g	0.05	-	<0.050	<0.050
Chloroform	ug/g	0.05	-	<0.050	<0.050
1,2-Dibromoethane	ug/g	0.05	-	<0.050	<0.050
1,2-Dichlorobenzene	ug/g	0.05	-	<0.050	<0.050
1,3-Dichlorobenzene	ug/g	0.05	-	<0.050	<0.050
1,4-Dichlorobenzene	ug/g	0.05	-	<0.050	<0.050
Dichlorodifluoromethane	ug/g	0.05	-	<0.050	<0.050
1,1-Dichloroethane	ug/g	0.05	-	<0.050	<0.050
1,2-Dichloroethane	ug/g	0.05	-	<0.050	<0.050
1,1-Dichloroethylene	ug/g	0.05	-	<0.050	<0.050
cis-1,2-Dichloroethylene	ug/g	0.05	-	<0.050	<0.050
trans-1,2-Dichloroethylene	ug/g	0.05	-	<0.050	<0.050
Methylene Chloride	ug/g	0.05	-	<0.050	<0.050
1,2-Dichloropropane	ug/g	0.05	-	<0.050	<0.050
cis-1,3-Dichloropropene	ug/g	-	-	<0.030	<0.030
trans-1,3-Dichloropropene	ug/g	-	-	<0.030	<0.030
1,3-Dichloropropene (cis & trans)	ug/g	0.05	-	<0.042	<0.042
Ethylbenzene	ug/g	0.05	-	<0.018	<0.018
n-Hexane	ug/g	0.05	-	<0.050	<0.050
Methyl Ethyl Ketone	ug/g	0.5	-	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	0.5	-	<0.50	<0.50
MTBE	ug/g	0.05	-	<0.050	<0.050
Styrene	ug/g	0.05	-	<0.050	<0.050

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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



ANALYTICAL REPORT

Volatile Organic Compounds - SOIL

		Lab ID	L2332408-1	L2332408-2
		Sample Date	06-AUG-19	06-AUG-19
		Sample ID	BH106 SS1	BH106 SS3
		Guide Limits		
Analyte	Unit	#1	#2	
1,1,1,2-Tetrachloroethane	ug/g	0.05	-	<0.050
1,1,2,2-Tetrachloroethane	ug/g	0.05	-	<0.050
Tetrachloroethylene	ug/g	0.05	-	<0.050
Toluene	ug/g	0.2	-	<0.080
1,1,1-Trichloroethane	ug/g	0.05	-	<0.050
1,1,2-Trichloroethane	ug/g	0.05	-	<0.050
Trichloroethylene	ug/g	0.05	-	<0.010
Trichlorofluoromethane	ug/g	0.25	-	<0.050
Vinyl chloride	ug/g	0.02	-	<0.020
o-Xylene	ug/g	-	-	<0.020
m+p-Xylenes	ug/g	-	-	<0.030
Xylenes (Total)	ug/g	0.05	-	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	86.7
Surrogate: 1,4-Difluorobenzene	%	-	-	99.3

Guide Limit #1: T1-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.

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



ANALYTICAL REPORT

L2332408 CONT'D....

Job Reference: 17-2099E

PAGE 10 of 15

21-OCT-19 12:18 (MT)

Hydrocarbons - SOIL

		Lab ID	L2332408-1	L2332408-2	
		Sample Date	06-AUG-19	06-AUG-19	
		Sample ID	BH106 SS1	BH106 SS3	
Analyte	Unit	Guide Limits			
		#1	#2		
F1 (C6-C10)	ug/g	25	-	<5.0	<5.0
F1-BTEX	ug/g	25	-	<5.0	<5.0
F2 (C10-C16)	ug/g	10	-	<10	<10
F2-Naphth	ug/g	-	-	<10	<10
F3 (C16-C34)	ug/g	240	-	<50	<50
F3-PAH	ug/g	-	-	<50	<50
F4 (C34-C50)	ug/g	120	-	<50	<50
Total Hydrocarbons (C6-C50)	ug/g	-	-	<72	<72
Chrom. to baseline at nC50		-	-	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	80.2	81.6
Surrogate: 3,4-Dichlorotoluene	%	-	-	89.4	99.8

Guide Limit #1: T1-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.

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

Polycyclic Aromatic Hydrocarbons - SOIL

Analyte	Unit	Guide Limits			
		#1	#2		
Acenaphthene	ug/g	0.072	-	<0.050	<0.050
Acenaphthylene	ug/g	0.093	-	<0.050	<0.050
Anthracene	ug/g	0.16	-	<0.050	<0.050
Benzo(a)anthracene	ug/g	0.36	-	<0.050	<0.050
Benzo(a)pyrene	ug/g	0.3	-	<0.050	<0.050
Benzo(b)fluoranthene	ug/g	0.47	-	<0.050	<0.050
Benzo(g,h,i)perylene	ug/g	0.68	-	<0.050	<0.050
Benzo(k)fluoranthene	ug/g	0.48	-	<0.050	<0.050
Chrysene	ug/g	2.8	-	<0.050	<0.050
Dibenzo(ah)anthracene	ug/g	0.1	-	<0.050	<0.050
Fluoranthene	ug/g	0.56	-	<0.050	<0.050
Fluorene	ug/g	0.12	-	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	ug/g	0.23	-	<0.050	<0.050
1+2-Methylnaphthalenes	ug/g	0.59	-	<0.042	2.91
1-Methylnaphthalene	ug/g	0.59	-	<0.030	1.03
2-Methylnaphthalene	ug/g	0.59	-	<0.030	1.89
Naphthalene	ug/g	0.09	-	<0.013	1.76
Phenanthrene	ug/g	0.69	-	<0.046	0.057
Pyrene	ug/g	1	-	<0.050	<0.050
Surrogate: 2-Fluorobiphenyl	%	-	-	126.0	128.7
Surrogate: p-Terphenyl d14	%	-	-	112.6	110.7

Guide Limit #1: T1-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

L2332408 CONT'D....
Job Reference: 17-2099E
PAGE 12 of 15
21-OCT-19 12:18 (MT)

Qualifiers for Individual Parameters Listed:

Qualifier	Description
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SAR:M Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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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).

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).

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).

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.

Reference Information

L2332408 CONT'D....
Job Reference: 17-2099E
PAGE 13 of 15
21-OCT-19 12:18 (MT)

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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. 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-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, 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).			
METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)

Reference Information

L2332408 CONT'D....
 Job Reference: 17-2099E
 PAGE 14 of 15
 21-OCT-19 12:18 (MT)

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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 technique is 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).			
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).			
VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)
Soil and sediment samples are extracted in methanol and analyzed 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), 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:			
<i>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:</i>			
Laboratory Definition Code	Laboratory Location		
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA		

Reference Information

L2332408 CONT'D....
Job Reference: 17-2099E
PAGE 15 of 15
21-OCT-19 12:18 (MT)

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 ww - 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: L2332408

Report Date: 21-OCT-19

Page 1 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT		Soil						
Batch	R4776610							
WG3146500-4 DUP		L2332993-1						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	29-AUG-19
WG3146500-2 IRM		WT SAR3						
Boron (B), Hot Water Ext.			95.4		%		70-130	29-AUG-19
WG3146500-3 LCS								
Boron (B), Hot Water Ext.			91.4		%		70-130	29-AUG-19
WG3146500-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	29-AUG-19
Batch	R4777833							
WG3146741-4 DUP		L2333560-1						
Boron (B), Hot Water Ext.		3.32	3.31		ug/g	0.3	30	29-AUG-19
WG3146741-2 IRM		WT SAR3						
Boron (B), Hot Water Ext.			102.4		%		70-130	29-AUG-19
WG3146741-3 LCS								
Boron (B), Hot Water Ext.			80.0		%		70-130	29-AUG-19
WG3146741-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	29-AUG-19
CN-WAD-R511-WT		Soil						
Batch	R4768449							
WG3140475-3 DUP		L2332408-2						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	23-AUG-19
WG3140475-2 LCS								
Cyanide, Weak Acid Diss			98.0		%		80-120	23-AUG-19
WG3140475-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	23-AUG-19
WG3140475-4 MS		L2332408-2						
Cyanide, Weak Acid Diss			106.1		%		70-130	23-AUG-19
CR-CR6-IC-WT		Soil						
Batch	R4769647							
WG3140726-4 CRM		WT-SQC012						
Chromium, Hexavalent			97.2		%		70-130	27-AUG-19
WG3140726-3 DUP		L2332087-4						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	27-AUG-19
WG3140726-2 LCS								
Chromium, Hexavalent			94.3		%		80-120	27-AUG-19
WG3140726-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	27-AUG-19



Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Page 2 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT		Soil						
Batch	R4776668							
WG3146514-4	DUP	WG3146514-3						
Conductivity		0.0820	0.0760		mS/cm	7.6	20	29-AUG-19
WG3146514-2	IRM	WT SAR3						
Conductivity			99.0		%		70-130	29-AUG-19
WG3146775-1	LCS							
Conductivity			101.0		%		90-110	29-AUG-19
WG3146514-1	MB							
Conductivity			<0.0040		mS/cm		0.004	29-AUG-19
Batch	R4778337							
WG3147350-7	DUP	WG3147350-6						
Conductivity		0.750	0.744		mS/cm	0.8	20	30-AUG-19
WG3147350-2	IRM	WT SAR3						
Conductivity			92.8		%		70-130	30-AUG-19
WG3147636-1	LCS							
Conductivity			98.4		%		90-110	30-AUG-19
WG3147350-1	MB							
Conductivity			<0.0040		mS/cm		0.004	30-AUG-19
F1-HS-511-WT		Soil						
Batch	R4768844							
WG3143008-4	DUP	WG3143008-3						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	26-AUG-19
WG3143008-2	LCS							
F1 (C6-C10)			92.8		%		80-120	26-AUG-19
WG3143008-1	MB							
F1 (C6-C10)			<5.0		ug/g		5	26-AUG-19
Surrogate: 3,4-Dichlorotoluene			101.9		%		60-140	26-AUG-19
WG3143008-6	MS	L2332166-2						
F1 (C6-C10)			98.3		%		60-140	26-AUG-19
F2-F4-511-WT		Soil						
Batch	R4767735							
WG3140102-3	DUP	WG3140102-5						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	23-AUG-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	23-AUG-19
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	23-AUG-19
WG3140102-2	LCS							
F2 (C10-C16)			95.6		%		80-120	23-AUG-19
F3 (C16-C34)			95.4		%		80-120	23-AUG-19



Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Page 3 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT Soil								
Batch	R4767735							
WG3140102-2	LCS							
F4 (C34-C50)			97.3		%		80-120	23-AUG-19
WG3140102-1	MB							
F2 (C10-C16)			<10		ug/g		10	23-AUG-19
F3 (C16-C34)			<50		ug/g		50	23-AUG-19
F4 (C34-C50)			<50		ug/g		50	23-AUG-19
Surrogate: 2-Bromobenzotrifluoride			73.9		%		60-140	23-AUG-19
WG3140102-4	MS	WG3140102-5						
F2 (C10-C16)			95.6		%		60-140	23-AUG-19
F3 (C16-C34)			94.5		%		60-140	23-AUG-19
F4 (C34-C50)			98.6		%		60-140	23-AUG-19
HG-200.2-CVAA-WT Soil								
Batch	R4776710							
WG3146270-2	CRM	WT-CANMET-TILL1						
Mercury (Hg)			96.4		%		70-130	29-AUG-19
WG3146270-6	DUP	WG3146270-5						
Mercury (Hg)		0.0124	0.0129		ug/g	4.0	40	29-AUG-19
WG3146270-3	LCS							
Mercury (Hg)			102.0		%		80-120	29-AUG-19
WG3146270-1	MB							
Mercury (Hg)			<0.0050		mg/kg		0.005	29-AUG-19
MET-200.2-CCMS-WT Soil								
Batch	R4777859							
WG3146270-2	CRM	WT-CANMET-TILL1						
Antimony (Sb)			94.6		%		70-130	29-AUG-19
Arsenic (As)			97.2		%		70-130	29-AUG-19
Barium (Ba)			88.8		%		70-130	29-AUG-19
Beryllium (Be)			97.0		%		70-130	29-AUG-19
Boron (B)			3.0		mg/kg		0-8.2	29-AUG-19
Cadmium (Cd)			87.9		%		70-130	29-AUG-19
Chromium (Cr)			100.6		%		70-130	29-AUG-19
Cobalt (Co)			97.1		%		70-130	29-AUG-19
Copper (Cu)			97.4		%		70-130	29-AUG-19
Lead (Pb)			93.3		%		70-130	29-AUG-19
Molybdenum (Mo)			97.0		%		70-130	29-AUG-19
Nickel (Ni)			99.3		%		70-130	29-AUG-19

Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Page 4 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT		Soil						
Batch	R4777859							
WG3146270-2	CRM	WT-CANMET-TILL1						
Selenium (Se)			0.26		mg/kg		0.11-0.51	29-AUG-19
Silver (Ag)			0.21		mg/kg		0.13-0.33	29-AUG-19
Thallium (Tl)			0.118		mg/kg		0.077-0.18	29-AUG-19
Uranium (U)			99.2		%		70-130	29-AUG-19
Vanadium (V)			100.7		%		70-130	29-AUG-19
Zinc (Zn)			97.9		%		70-130	29-AUG-19
WG3146270-6	DUP	WG3146270-5						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	29-AUG-19
Arsenic (As)		2.34	2.41		ug/g	3.2	30	29-AUG-19
Barium (Ba)		30.7	32.1		ug/g	4.4	40	29-AUG-19
Beryllium (Be)		0.40	0.37		ug/g	7.9	30	29-AUG-19
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	29-AUG-19
Cadmium (Cd)		0.067	0.067		ug/g	0.4	30	29-AUG-19
Chromium (Cr)		16.0	15.7		ug/g	1.5	30	29-AUG-19
Cobalt (Co)		6.46	6.52		ug/g	1.0	30	29-AUG-19
Copper (Cu)		13.5	13.9		ug/g	3.3	30	29-AUG-19
Lead (Pb)		6.45	6.77		ug/g	4.7	40	29-AUG-19
Molybdenum (Mo)		0.43	0.39		ug/g	8.7	40	29-AUG-19
Nickel (Ni)		14.2	14.6		ug/g	3.2	30	29-AUG-19
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	29-AUG-19
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	29-AUG-19
Thallium (Tl)		0.099	0.104		ug/g	5.7	30	29-AUG-19
Uranium (U)		0.365	0.387		ug/g	5.9	30	29-AUG-19
Vanadium (V)		23.5	24.0		ug/g	2.2	30	29-AUG-19
Zinc (Zn)		33.3	33.1		ug/g	0.5	30	29-AUG-19
WG3146270-4	LCS							
Antimony (Sb)			111.6		%		80-120	29-AUG-19
Arsenic (As)			111.1		%		80-120	29-AUG-19
Barium (Ba)			97.2		%		80-120	29-AUG-19
Beryllium (Be)			101.2		%		80-120	29-AUG-19
Boron (B)			100.2		%		80-120	29-AUG-19
Cadmium (Cd)			104.2		%		80-120	29-AUG-19
Chromium (Cr)			104.6		%		80-120	29-AUG-19



Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Page 6 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WT		Soil						
Batch	R4762281							
WG3138827-3	DUP	L2328123-9						
% Moisture		19.1	20.1		%	5.2	20	21-AUG-19
WG3138827-2	LCS							
% Moisture			96.4		%		90-110	21-AUG-19
WG3138827-1	MB							
% Moisture			<0.10		%		0.1	21-AUG-19
PAH-511-WT		Soil						
Batch	R4765166							
WG3139902-3	DUP	WG3139902-5						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	22-AUG-19
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	22-AUG-19
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	22-AUG-19
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	22-AUG-19
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	22-AUG-19
WG3139902-2	LCS							
1-Methylnaphthalene			129.0		%		50-140	22-AUG-19
2-Methylnaphthalene			122.1		%		50-140	22-AUG-19
Acenaphthene			132.3		%		50-140	22-AUG-19
Acenaphthylene			137.3		%		50-140	22-AUG-19
Anthracene			132.6		%		50-140	22-AUG-19
Benzo(a)anthracene			133.2		%		50-140	22-AUG-19
Benzo(a)pyrene			129.8		%		50-140	22-AUG-19



Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Page 7 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT		Soil						
Batch	R4765166							
WG3139902-2	LCS							
Benzo(b)fluoranthene			131.5		%		50-140	22-AUG-19
Benzo(g,h,i)perylene			117.0		%		50-140	22-AUG-19
Benzo(k)fluoranthene			129.5		%		50-140	22-AUG-19
Chrysene			138.4		%		50-140	22-AUG-19
Dibenzo(ah)anthracene			114.6		%		50-140	22-AUG-19
Fluoranthene			128.8		%		50-140	22-AUG-19
Fluorene			130.6		%		50-140	22-AUG-19
Indeno(1,2,3-cd)pyrene			116.2		%		50-140	22-AUG-19
Naphthalene			121.9		%		50-140	22-AUG-19
Phenanthrene			131.1		%		50-140	22-AUG-19
Pyrene			130.0		%		50-140	22-AUG-19
WG3139902-1	MB							
1-Methylnaphthalene			<0.030		ug/g		0.03	22-AUG-19
2-Methylnaphthalene			<0.030		ug/g		0.03	22-AUG-19
Acenaphthene			<0.050		ug/g		0.05	22-AUG-19
Acenaphthylene			<0.050		ug/g		0.05	22-AUG-19
Anthracene			<0.050		ug/g		0.05	22-AUG-19
Benzo(a)anthracene			<0.050		ug/g		0.05	22-AUG-19
Benzo(a)pyrene			<0.050		ug/g		0.05	22-AUG-19
Benzo(b)fluoranthene			<0.050		ug/g		0.05	22-AUG-19
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	22-AUG-19
Benzo(k)fluoranthene			<0.050		ug/g		0.05	22-AUG-19
Chrysene			<0.050		ug/g		0.05	22-AUG-19
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	22-AUG-19
Fluoranthene			<0.050		ug/g		0.05	22-AUG-19
Fluorene			<0.050		ug/g		0.05	22-AUG-19
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	22-AUG-19
Naphthalene			<0.013		ug/g		0.013	22-AUG-19
Phenanthrene			<0.046		ug/g		0.046	22-AUG-19
Pyrene			<0.050		ug/g		0.05	22-AUG-19
Surrogate: 2-Fluorobiphenyl			136.5		%		50-140	22-AUG-19
Surrogate: p-Terphenyl d14			117.3		%		50-140	22-AUG-19
WG3139902-4	MS	WG3139902-5						
1-Methylnaphthalene			131.0		%		50-140	22-AUG-19



Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Page 9 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT		Soil						
Batch	R4775892							
WG3146514-5	LCS							
Calcium (Ca)			102.7		%		70-130	29-AUG-19
Sodium (Na)			99.6		%		70-130	29-AUG-19
Magnesium (Mg)			97.8		%		70-130	29-AUG-19
WG3146514-1	MB							
Calcium (Ca)			<0.50		mg/L		0.5	29-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	29-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	29-AUG-19
Batch	R4776908							
WG3146526-4	DUP	WG3146526-3						
Calcium (Ca)		3.00	3.15		mg/L	4.9	30	29-AUG-19
Sodium (Na)		88.7	70.1		mg/L	23	30	29-AUG-19
Magnesium (Mg)		8.17	6.32		mg/L	26	30	29-AUG-19
WG3146526-2	IRM	WT SAR3						
Calcium (Ca)			92.5		%		70-130	29-AUG-19
Sodium (Na)			95.4		%		70-130	29-AUG-19
Magnesium (Mg)			93.5		%		70-130	29-AUG-19
WG3146526-5	LCS							
Calcium (Ca)			103.7		%		70-130	29-AUG-19
Sodium (Na)			100.2		%		70-130	29-AUG-19
Magnesium (Mg)			99.0		%		70-130	29-AUG-19
WG3146526-1	MB							
Calcium (Ca)			<0.50		mg/L		0.5	29-AUG-19
Sodium (Na)			<0.50		mg/L		0.5	29-AUG-19
Magnesium (Mg)			<0.50		mg/L		0.5	29-AUG-19
VOC-511-HS-WT		Soil						
Batch	R4768844							
WG3143008-4	DUP	WG3143008-3						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19

Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Page 10 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4768844							
WG3143008-4	DUP	WG3143008-3						
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-AUG-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	26-AUG-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-AUG-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	26-AUG-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-AUG-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-AUG-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	26-AUG-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-AUG-19
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	26-AUG-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	26-AUG-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	26-AUG-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	26-AUG-19
Vinyl chloride		<0.020	<0.020		ug/g			26-AUG-19

Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Page 11 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4768844							
WG3143008-4	DUP	WG3143008-3						
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	26-AUG-19
WG3143008-2	LCS							
1,1,1,2-Tetrachloroethane			108.1		%		60-130	26-AUG-19
1,1,2,2-Tetrachloroethane			111.6		%		60-130	26-AUG-19
1,1,1-Trichloroethane			107.8		%		60-130	26-AUG-19
1,1,2-Trichloroethane			110.1		%		60-130	26-AUG-19
1,1-Dichloroethane			105.6		%		60-130	26-AUG-19
1,1-Dichloroethylene			98.4		%		60-130	26-AUG-19
1,2-Dibromoethane			110.5		%		70-130	26-AUG-19
1,2-Dichlorobenzene			108.9		%		70-130	26-AUG-19
1,2-Dichloroethane			111.7		%		60-130	26-AUG-19
1,2-Dichloropropane			113.7		%		70-130	26-AUG-19
1,3-Dichlorobenzene			109.0		%		70-130	26-AUG-19
1,4-Dichlorobenzene			109.2		%		70-130	26-AUG-19
Acetone			113.5		%		60-140	26-AUG-19
Benzene			111.6		%		70-130	26-AUG-19
Bromodichloromethane			115.0		%		50-140	26-AUG-19
Bromoform			113.2		%		70-130	26-AUG-19
Bromomethane			94.3		%		50-140	26-AUG-19
Carbon tetrachloride			105.5		%		70-130	26-AUG-19
Chlorobenzene			109.5		%		70-130	26-AUG-19
Chloroform			108.7		%		70-130	26-AUG-19
cis-1,2-Dichloroethylene			107.2		%		70-130	26-AUG-19
cis-1,3-Dichloropropene			120.3		%		70-130	26-AUG-19
Dibromochloromethane			108.8		%		60-130	26-AUG-19
Dichlorodifluoromethane			85.4		%		50-140	26-AUG-19
Ethylbenzene			107.3		%		70-130	26-AUG-19
n-Hexane			93.0		%		70-130	26-AUG-19
Methylene Chloride			105.7		%		70-130	26-AUG-19
MTBE			113.1		%		70-130	26-AUG-19
m+p-Xylenes			108.9		%		70-130	26-AUG-19
Methyl Ethyl Ketone			112.2		%		60-140	26-AUG-19
Methyl Isobutyl Ketone			109.4		%		60-140	26-AUG-19
o-Xylene			107.3		%		70-130	26-AUG-19



Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Page 12 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4768844							
WG3143008-2	LCS							
Styrene			108.3		%		70-130	26-AUG-19
Tetrachloroethylene			111.5		%		60-130	26-AUG-19
Toluene			108.0		%		70-130	26-AUG-19
trans-1,2-Dichloroethylene			104.2		%		60-130	26-AUG-19
trans-1,3-Dichloropropene			113.8		%		70-130	26-AUG-19
Trichloroethylene			112.8		%		60-130	26-AUG-19
Trichlorofluoromethane			103.1		%		50-140	26-AUG-19
Vinyl chloride			113.4		%		60-140	26-AUG-19
WG3143008-1	MB							
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	26-AUG-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	26-AUG-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	26-AUG-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	26-AUG-19
1,1-Dichloroethane			<0.050		ug/g		0.05	26-AUG-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	26-AUG-19
1,2-Dibromoethane			<0.050		ug/g		0.05	26-AUG-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	26-AUG-19
1,2-Dichloroethane			<0.050		ug/g		0.05	26-AUG-19
1,2-Dichloropropane			<0.050		ug/g		0.05	26-AUG-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	26-AUG-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	26-AUG-19
Acetone			<0.50		ug/g		0.5	26-AUG-19
Benzene			<0.0068		ug/g		0.0068	26-AUG-19
Bromodichloromethane			<0.050		ug/g		0.05	26-AUG-19
Bromoform			<0.050		ug/g		0.05	26-AUG-19
Bromomethane			<0.050		ug/g		0.05	26-AUG-19
Carbon tetrachloride			<0.050		ug/g		0.05	26-AUG-19
Chlorobenzene			<0.050		ug/g		0.05	26-AUG-19
Chloroform			<0.050		ug/g		0.05	26-AUG-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-AUG-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	26-AUG-19
Dibromochloromethane			<0.050		ug/g		0.05	26-AUG-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	26-AUG-19
Ethylbenzene			<0.018		ug/g		0.018	26-AUG-19



Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Page 13 of 16

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4768844							
WG3143008-1 MB								
n-Hexane			<0.050		ug/g		0.05	26-AUG-19
Methylene Chloride			<0.050		ug/g		0.05	26-AUG-19
MTBE			<0.050		ug/g		0.05	26-AUG-19
m+p-Xylenes			<0.030		ug/g		0.03	26-AUG-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	26-AUG-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	26-AUG-19
o-Xylene			<0.020		ug/g		0.02	26-AUG-19
Styrene			<0.050		ug/g		0.05	26-AUG-19
Tetrachloroethylene			<0.050		ug/g		0.05	26-AUG-19
Toluene			<0.080		ug/g		0.08	26-AUG-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	26-AUG-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	26-AUG-19
Trichloroethylene			<0.010		ug/g		0.01	26-AUG-19
Trichlorofluoromethane			<0.050		ug/g		0.05	26-AUG-19
Vinyl chloride			<0.020		ug/g		0.02	26-AUG-19
Surrogate: 1,4-Difluorobenzene			109.2		%		50-140	26-AUG-19
Surrogate: 4-Bromofluorobenzene			95.7		%		50-140	26-AUG-19
WG3143008-5 MS		L2332154-6						
1,1,1,2-Tetrachloroethane			131.0		%		50-140	26-AUG-19
1,1,2,2-Tetrachloroethane			107.0		%		50-140	27-AUG-19
1,1,1-Trichloroethane			103.2		%		50-140	26-AUG-19
1,1,2-Trichloroethane			110.0		%		50-140	27-AUG-19
1,1-Dichloroethane			125.6		%		50-140	26-AUG-19
1,1-Dichloroethylene			86.4		%		50-140	26-AUG-19
1,2-Dibromoethane			107.0		%		50-140	27-AUG-19
1,2-Dichlorobenzene			121.8		%		50-140	26-AUG-19
1,2-Dichloroethane			104.0		%		50-140	27-AUG-19
1,2-Dichloropropane			110.9		%		50-140	27-AUG-19
1,3-Dichlorobenzene			105.6		%		50-140	26-AUG-19
1,4-Dichlorobenzene			110.7		%		50-140	26-AUG-19
Acetone			98.8		%		50-140	27-AUG-19
Benzene			133.1		%		50-140	26-AUG-19
Bromodichloromethane			106.4		%		50-140	27-AUG-19
Bromoform			104.4		%		50-140	27-AUG-19



Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Page 14 of 16

Client:

GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact:

Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	Soil							
Batch	R4768844							
WG3143008-5	MS	L2332154-6						
Bromomethane			107.9		%		50-140	26-AUG-19
Carbon tetrachloride			97.2		%		50-140	26-AUG-19
Chlorobenzene			123.1		%		50-140	26-AUG-19
Chloroform			111.0		%		50-140	27-AUG-19
cis-1,2-Dichloroethylene			106.8		%		50-140	27-AUG-19
cis-1,3-Dichloropropene			114.0		%		50-140	27-AUG-19
Dibromochloromethane			106.0		%		50-140	27-AUG-19
Dichlorodifluoromethane			61.0		%		50-140	26-AUG-19
Ethylbenzene			98.2		%		50-140	26-AUG-19
n-Hexane			57.1		%		50-140	26-AUG-19
Methylene Chloride			104.5		%		50-140	27-AUG-19
MTBE			121.3		%		50-140	26-AUG-19
m+p-Xylenes			102.0		%		50-140	26-AUG-19
Methyl Ethyl Ketone			93.2		%		50-140	27-AUG-19
Methyl Isobutyl Ketone			97.4		%		50-140	27-AUG-19
o-Xylene			108.9		%		50-140	26-AUG-19
Styrene			123.6		%		50-140	26-AUG-19
Tetrachloroethylene			92.7		%		50-140	26-AUG-19
Toluene			102.1		%		50-140	26-AUG-19
trans-1,2-Dichloroethylene			106.8		%		50-140	26-AUG-19
trans-1,3-Dichloropropene			112.5		%		50-140	27-AUG-19
Trichloroethylene			121.0		%		50-140	26-AUG-19
Trichlorofluoromethane			84.9		%		50-140	26-AUG-19
Vinyl chloride			93.9		%		50-140	26-AUG-19

Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6
Contact: Sarena Medina

Page 15 of 16

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.

Quality Control Report

Workorder: L2332408

Report Date: 21-OCT-19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6
Contact: Sarena Medina

Page 16 of 16

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
% Moisture	1	06-AUG-19	21-AUG-19 10:55	14	15	days	EHTR
	2	06-AUG-19	21-AUG-19 10:56	14	15	days	EHTR
Cyanides							
Cyanide (WAD)-O.Reg 153/04 (July 2011)	1	06-AUG-19	22-AUG-19 14:00	14	16	days	EHTR
	2	06-AUG-19	22-AUG-19 14:00	14	16	days	EHTR
Volatile Organic Compounds							
VOC-O.Reg 153/04 (July 2011)	1	06-AUG-19	26-AUG-19 00:27	14	20	days	EHTR
	2	06-AUG-19	26-AUG-19 00:28	14	20	days	EHTR
Hydrocarbons							
F1-O.Reg 153/04 (July 2011)	1	06-AUG-19	26-AUG-19 00:27	14	20	days	EHTR
	2	06-AUG-19	26-AUG-19 00:28	14	20	days	EHTR
F2-F4-O.Reg 153/04 (July 2011)	1	06-AUG-19	22-AUG-19 10:00	14	16	days	EHTR
	2	06-AUG-19	22-AUG-19 10:00	14	16	days	EHTR

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2332408 were received on 20-AUG-19 18:30.

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.

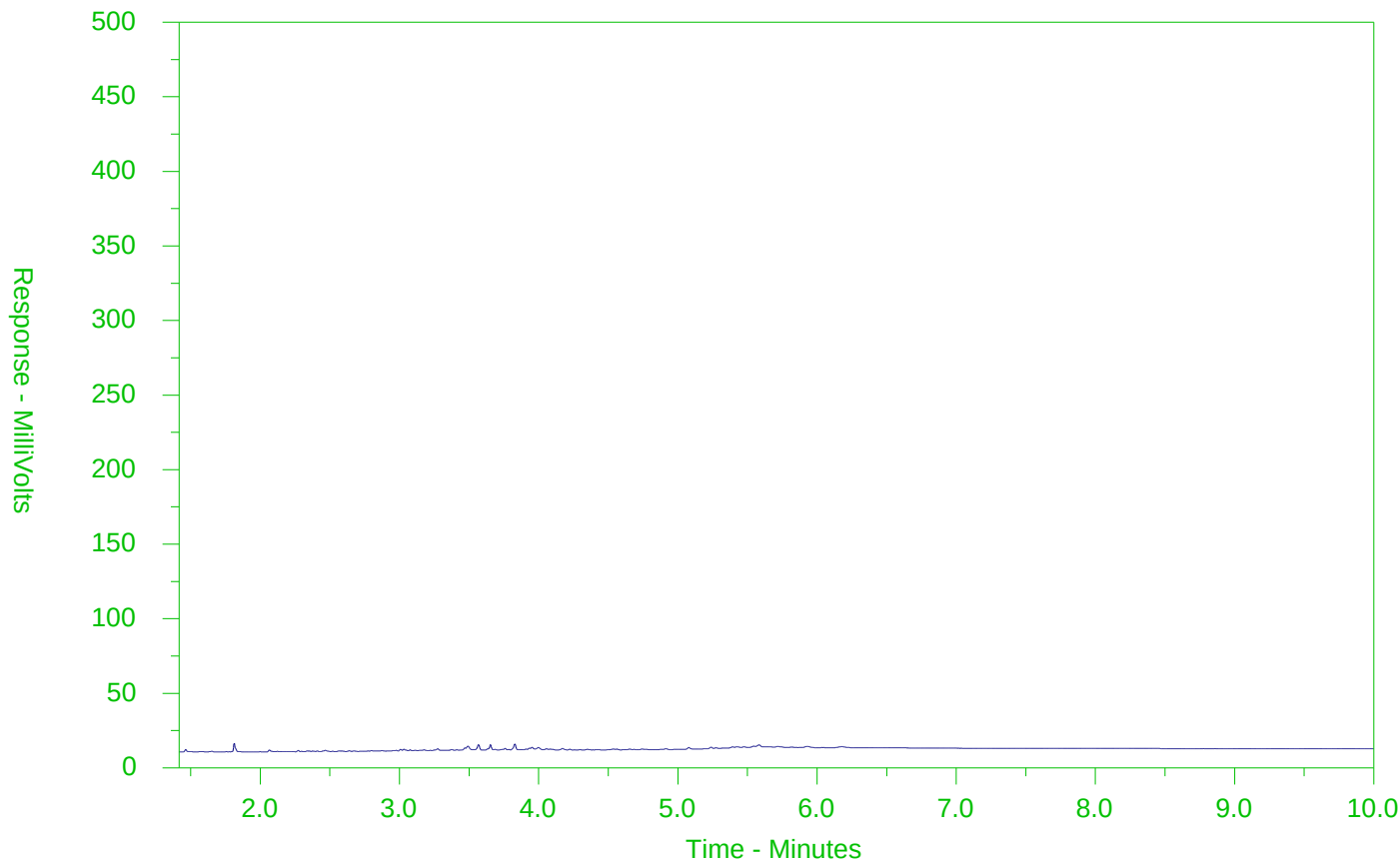
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2332408-1
Client Sample ID: BH7 SS1



← 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.

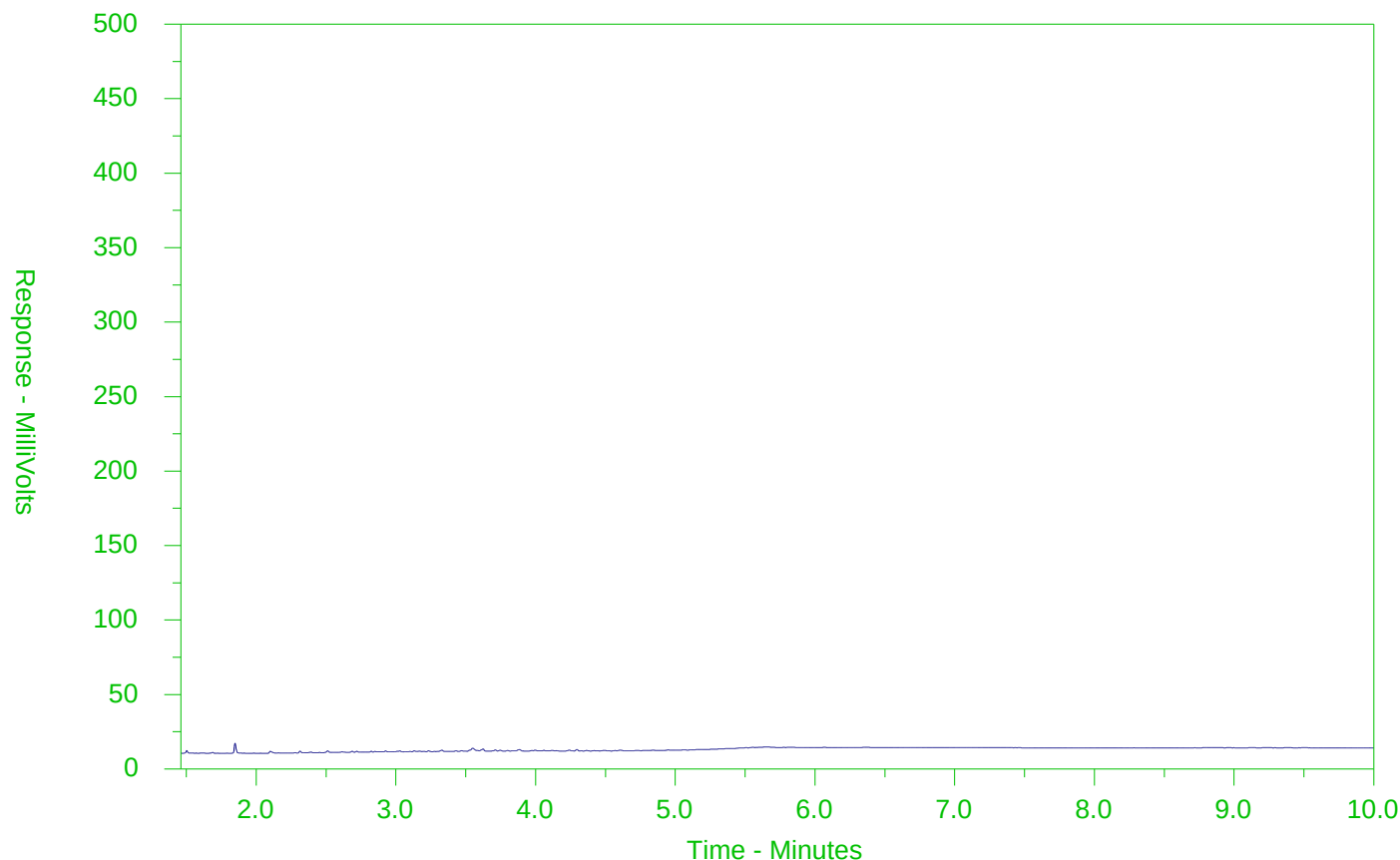
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

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: L2332408-2
Client Sample ID: BH7 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.

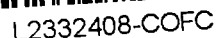
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.



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Page 1 of 1

www.alsglobal.com

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FROM

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**.



GeoPro Consulting Limited (Richmond Hill)
ATTN: Sarena Medina
40 Vogell Road
Unit 22
Richmond Hill ON L4B 3N6

Date Received: 29-AUG-19
Report Date: 21-OCT-19 09:35 (MT)
Version: FINAL REV. 2

Client Phone: 905-237-8336

Certificate of Analysis

Lab Work Order #: L2338731
Project P.O. #: NOT SUBMITTED
Job Reference: 2099E
C of C Numbers: 17-732863
Legal Site Desc:

Comments:

21-OCT-2019 ID amended as per client correspondence.

Rick Hawthorne
Account Manager

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

ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927
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L2338731 CONT'D....
Job Reference: 2099E
PAGE 2 of 8
21-OCT-19 09:35 (MT)



ANALYTICAL REPORT

L2338731 CONT'D....
Job Reference: 2099E
PAGE 3 of 8
21-OCT-19 09:35 (MT)

Physical Tests - SOIL

		Lab ID	L2338731-1		
		Sample Date	25-AUG-19		
		Sample ID	BH107 (SS2+SS3)		
		Guide Limits			
Analyte	Unit	#1	#2		
% Moisture	%	-	-	11.0	

Guide Limit #1: T1-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

		Lab ID	L2338731-1	
		Sample Date	25-AUG-19	
		Sample ID	BH107 (SS2+SS3)	
Analyte	Unit	Guide Limits		
		#1	#2	
Acetone	ug/g	0.5	-	<0.50
Benzene	ug/g	0.02	-	<0.0068
Bromodichloromethane	ug/g	0.05	-	<0.050
Bromoform	ug/g	0.05	-	<0.050
Bromomethane	ug/g	0.05	-	<0.050
Carbon tetrachloride	ug/g	0.05	-	<0.050
Chlorobenzene	ug/g	0.05	-	<0.050
Dibromochloromethane	ug/g	0.05	-	<0.050
Chloroform	ug/g	0.05	-	<0.050
1,2-Dibromoethane	ug/g	0.05	-	<0.050
1,2-Dichlorobenzene	ug/g	0.05	-	<0.050
1,3-Dichlorobenzene	ug/g	0.05	-	<0.050
1,4-Dichlorobenzene	ug/g	0.05	-	<0.050
Dichlorodifluoromethane	ug/g	0.05	-	<0.050
1,1-Dichloroethane	ug/g	0.05	-	<0.050
1,2-Dichloroethane	ug/g	0.05	-	<0.050
1,1-Dichloroethylene	ug/g	0.05	-	<0.050
cis-1,2-Dichloroethylene	ug/g	0.05	-	<0.050
trans-1,2-Dichloroethylene	ug/g	0.05	-	<0.050
Methylene Chloride	ug/g	0.05	-	<0.050
1,2-Dichloropropane	ug/g	0.05	-	<0.050
cis-1,3-Dichloropropene	ug/g	-	-	<0.030
trans-1,3-Dichloropropene	ug/g	-	-	<0.030
1,3-Dichloropropene (cis & trans)	ug/g	0.05	-	<0.042
Ethylbenzene	ug/g	0.05	-	<0.018
n-Hexane	ug/g	0.05	-	<0.050
Methyl Ethyl Ketone	ug/g	0.5	-	<0.50
Methyl Isobutyl Ketone	ug/g	0.5	-	<0.50
MTBE	ug/g	0.05	-	<0.050
Styrene	ug/g	0.05	-	<0.050

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use



ANALYTICAL REPORT

Volatile Organic Compounds - SOIL

		Lab ID	L2338731-1	
		Sample Date	25-AUG-19	
		Sample ID	BH107 (SS2+SS3)	
Analyte	Unit	Guide Limits		
		#1	#2	
1,1,1,2-Tetrachloroethane	ug/g	0.05	-	<0.050
1,1,2,2-Tetrachloroethane	ug/g	0.05	-	<0.050
Tetrachloroethylene	ug/g	0.05	-	<0.050
Toluene	ug/g	0.2	-	<0.080
1,1,1-Trichloroethane	ug/g	0.05	-	<0.050
1,1,2-Trichloroethane	ug/g	0.05	-	<0.050
Trichloroethylene	ug/g	0.05	-	<0.010
Trichlorofluoromethane	ug/g	0.25	-	<0.050
Vinyl chloride	ug/g	0.02	-	<0.020
o-Xylene	ug/g	-	-	<0.020
m+p-Xylenes	ug/g	-	-	<0.030
Xylenes (Total)	ug/g	0.05	-	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	89.6
Surrogate: 1,4-Difluorobenzene	%	-	-	107.9

Guide Limit #1: T1-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

		Lab ID	L2338731-1	
		Sample Date	25-AUG-19	
		Sample ID	BH107 (SS2+SS3)	
Analyte	Unit	Guide Limits		
		#1	#2	
F1 (C6-C10)	ug/g	25	-	<5.0
F1-BTEX	ug/g	25	-	<5.0
F2 (C10-C16)	ug/g	10	-	<10
F3 (C16-C34)	ug/g	240	-	<50
F4 (C34-C50)	ug/g	120	-	<50
Total Hydrocarbons (C6-C50)	ug/g	-	-	<72
Chrom. to baseline at nC50		-	-	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	72.0
Surrogate: 3,4-Dichlorotoluene	%	-	-	79.0

Guide Limit #1: T1-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

L2338731 CONT'D....
Job Reference: 2099E
PAGE 7 of 8
21-OCT-19 09:35 (MT)

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
---------------	--------	------------------	--------------------

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.

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)
--------------------	------	------------	---------------------------------

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
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Reference Information

L2338731 CONT'D....
Job Reference: 2099E
PAGE 8 of 8
21-OCT-19 09:35 (MT)

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)
Soil and sediment samples are extracted in methanol and analyzed 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), 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:

17-732863

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 ww - 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: L2338731

Report Date: 21-OCT-19

Page 1 of 7

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT		Soil						
Batch	R4782647							
WG3150058-4	DUP	WG3150058-3						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	04-SEP-19
WG3150058-2	LCS							
F1 (C6-C10)			108.9		%		80-120	04-SEP-19
WG3150058-1	MB							
F1 (C6-C10)			<5.0		ug/g		5	04-SEP-19
Surrogate: 3,4-Dichlorotoluene			91.1		%		60-140	04-SEP-19
WG3150058-6	MS	L2335694-2						
F1 (C6-C10)			105.5		%		60-140	04-SEP-19
F2-F4-511-WT		Soil						
Batch	R4783961							
WG3151718-8	DUP	WG3151718-10						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	05-SEP-19
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	05-SEP-19
F4 (C34-C50)		<50	71	RPD-NA	ug/g	N/A	30	05-SEP-19
WG3151718-7	LCS							
F2 (C10-C16)			97.3		%		80-120	05-SEP-19
F3 (C16-C34)			101.6		%		80-120	05-SEP-19
F4 (C34-C50)			102.5		%		80-120	05-SEP-19
WG3151718-6	MB							
F2 (C10-C16)			<10		ug/g		10	05-SEP-19
F3 (C16-C34)			<50		ug/g		50	05-SEP-19
F4 (C34-C50)			<50		ug/g		50	05-SEP-19
Surrogate: 2-Bromobenzotrifluoride			57.3	MBS	%		60-140	05-SEP-19
WG3151718-9	MS	WG3151718-10						
F2 (C10-C16)			94.8		%		60-140	05-SEP-19
F3 (C16-C34)			98.9		%		60-140	05-SEP-19
F4 (C34-C50)			101.1		%		60-140	05-SEP-19
MOISTURE-WT		Soil						
Batch	R4778055							
WG3148031-3	DUP	L2336787-1						
% Moisture		32.1	31.2		%	2.8	20	30-AUG-19
WG3148031-2	LCS							
% Moisture			100.8		%		90-110	30-AUG-19
WG3148031-1	MB							
% Moisture			<0.10		%		0.1	30-AUG-19

Quality Control Report

Workorder: L2338731

Report Date: 21-OCT-19

Page 2 of 7

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4782647							
WG3150058-4	DUP	WG3150058-3						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	04-SEP-19
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	04-SEP-19
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	04-SEP-19
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	04-SEP-19
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	04-SEP-19
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	04-SEP-19
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	04-SEP-19
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	04-SEP-19
Styrene		<0.050	<0.050		ug/g			04-SEP-19

Quality Control Report

Workorder: L2338731

Report Date: 21-OCT-19

Page 3 of 7

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4782647							
WG3150058-4	DUP	WG3150058-3						
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	04-SEP-19
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	04-SEP-19
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	04-SEP-19
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	04-SEP-19
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	04-SEP-19
WG3150058-2	LCS							
1,1,1,2-Tetrachloroethane			102.8		%		60-130	04-SEP-19
1,1,1,2,2-Tetrachloroethane			92.4		%		60-130	04-SEP-19
1,1,1-Trichloroethane			105.7		%		60-130	04-SEP-19
1,1,2-Trichloroethane			96.2		%		60-130	04-SEP-19
1,1-Dichloroethane			90.5		%		60-130	04-SEP-19
1,1-Dichloroethylene			87.6		%		60-130	04-SEP-19
1,2-Dibromoethane			93.6		%		70-130	04-SEP-19
1,2-Dichlorobenzene			105.3		%		70-130	04-SEP-19
1,2-Dichloroethane			94.7		%		60-130	04-SEP-19
1,2-Dichloropropane			98.7		%		70-130	04-SEP-19
1,3-Dichlorobenzene			105.6		%		70-130	04-SEP-19
1,4-Dichlorobenzene			108.6		%		70-130	04-SEP-19
Acetone			80.0		%		60-140	04-SEP-19
Benzene			104.5		%		70-130	04-SEP-19
Bromodichloromethane			105.8		%		50-140	04-SEP-19
Bromoform			105.8		%		70-130	04-SEP-19
Bromomethane			80.7		%		50-140	04-SEP-19
Carbon tetrachloride			109.1		%		70-130	04-SEP-19
Chlorobenzene			105.5		%		70-130	04-SEP-19
Chloroform			105.2		%		70-130	04-SEP-19
cis-1,2-Dichloroethylene			101.0		%		70-130	04-SEP-19
cis-1,3-Dichloropropene			103.7		%		70-130	04-SEP-19
Dibromochloromethane			98.0		%		60-130	04-SEP-19
Dichlorodifluoromethane			60.5		%		50-140	04-SEP-19



Quality Control Report

Workorder: L2338731

Report Date: 21-OCT-19

Page 4 of 7

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4782647							
WG3150058-2	LCS							
Ethylbenzene			95.2		%		70-130	04-SEP-19
n-Hexane			68.3	LCS-L	%		70-130	04-SEP-19
Methylene Chloride			97.1		%		70-130	04-SEP-19
MTBE			104.6		%		70-130	04-SEP-19
m+p-Xylenes			98.5		%		70-130	04-SEP-19
Methyl Ethyl Ketone			82.6		%		60-140	04-SEP-19
Methyl Isobutyl Ketone			79.1		%		60-140	04-SEP-19
o-Xylene			95.3		%		70-130	04-SEP-19
Styrene			100.5		%		70-130	04-SEP-19
Tetrachloroethylene			106.1		%		60-130	04-SEP-19
Toluene			97.7		%		70-130	04-SEP-19
trans-1,2-Dichloroethylene			91.6		%		60-130	04-SEP-19
trans-1,3-Dichloropropene			92.4		%		70-130	04-SEP-19
Trichloroethylene			113.6		%		60-130	04-SEP-19
Trichlorofluoromethane			95.3		%		50-140	04-SEP-19
Vinyl chloride			85.8		%		60-140	04-SEP-19
WG3150058-1	MB							
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1,1-Trichloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1,2-Trichloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1-Dichloroethane			<0.050		ug/g		0.05	04-SEP-19
1,1-Dichloroethylene			<0.050		ug/g		0.05	04-SEP-19
1,2-Dibromoethane			<0.050		ug/g		0.05	04-SEP-19
1,2-Dichlorobenzene			<0.050		ug/g		0.05	04-SEP-19
1,2-Dichloroethane			<0.050		ug/g		0.05	04-SEP-19
1,2-Dichloropropane			<0.050		ug/g		0.05	04-SEP-19
1,3-Dichlorobenzene			<0.050		ug/g		0.05	04-SEP-19
1,4-Dichlorobenzene			<0.050		ug/g		0.05	04-SEP-19
Acetone			<0.50		ug/g		0.5	04-SEP-19
Benzene			<0.0068		ug/g		0.0068	04-SEP-19
Bromodichloromethane			<0.050		ug/g		0.05	04-SEP-19
Bromoform			<0.050		ug/g		0.05	04-SEP-19
Bromomethane			<0.050		ug/g		0.05	04-SEP-19



Quality Control Report

Workorder: L2338731

Report Date: 21-OCT-19

Page 5 of 7

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Soil						
Batch	R4782647							
WG3150058-1 MB								
Carbon tetrachloride			<0.050		ug/g		0.05	04-SEP-19
Chlorobenzene			<0.050		ug/g		0.05	04-SEP-19
Chloroform			<0.050		ug/g		0.05	04-SEP-19
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	04-SEP-19
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	04-SEP-19
Dibromochloromethane			<0.050		ug/g		0.05	04-SEP-19
Dichlorodifluoromethane			<0.050		ug/g		0.05	04-SEP-19
Ethylbenzene			<0.018		ug/g		0.018	04-SEP-19
n-Hexane			<0.050		ug/g		0.05	04-SEP-19
Methylene Chloride			<0.050		ug/g		0.05	04-SEP-19
MTBE			<0.050		ug/g		0.05	04-SEP-19
m+p-Xylenes			<0.030		ug/g		0.03	04-SEP-19
Methyl Ethyl Ketone			<0.50		ug/g		0.5	04-SEP-19
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	04-SEP-19
o-Xylene			<0.020		ug/g		0.02	04-SEP-19
Styrene			<0.050		ug/g		0.05	04-SEP-19
Tetrachloroethylene			<0.050		ug/g		0.05	04-SEP-19
Toluene			<0.080		ug/g		0.08	04-SEP-19
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	04-SEP-19
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	04-SEP-19
Trichloroethylene			<0.010		ug/g		0.01	04-SEP-19
Trichlorofluoromethane			<0.050		ug/g		0.05	04-SEP-19
Vinyl chloride			<0.020		ug/g		0.02	04-SEP-19
Surrogate: 1,4-Difluorobenzene			121.8		%		50-140	04-SEP-19
Surrogate: 4-Bromofluorobenzene			103.3		%		50-140	04-SEP-19
WG3150058-5 MS		L2336018-3						
1,1,1,2-Tetrachloroethane			105.8		%		50-140	04-SEP-19
1,1,2,2-Tetrachloroethane			92.3		%		50-140	04-SEP-19
1,1,1-Trichloroethane			110.5		%		50-140	04-SEP-19
1,1,2-Trichloroethane			97.9		%		50-140	04-SEP-19
1,1-Dichloroethane			91.7		%		50-140	04-SEP-19
1,1-Dichloroethylene			91.2		%		50-140	04-SEP-19
1,2-Dibromoethane			95.8		%		50-140	04-SEP-19
1,2-Dichlorobenzene			108.7		%		50-140	04-SEP-19



Quality Control Report

Workorder: L2338731

Report Date: 21-OCT-19

Page 6 of 7

Client:

GeoPro Consulting Limited (Richmond Hill)

40 Vogell Road Unit 22

Richmond Hill ON L4B 3N6

Contact:

Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	Soil							
Batch	R4782647							
WG3150058-5	MS	L2336018-3						
1,2-Dichloroethane			97.6		%		50-140	04-SEP-19
1,2-Dichloropropane			100.9		%		50-140	04-SEP-19
1,3-Dichlorobenzene			108.2		%		50-140	04-SEP-19
1,4-Dichlorobenzene			110.2		%		50-140	04-SEP-19
Acetone			83.9		%		50-140	04-SEP-19
Benzene			107.6		%		50-140	04-SEP-19
Bromodichloromethane			108.9		%		50-140	04-SEP-19
Bromoform			106.9		%		50-140	04-SEP-19
Bromomethane			82.5		%		50-140	04-SEP-19
Carbon tetrachloride			114.1		%		50-140	04-SEP-19
Chlorobenzene			107.7		%		50-140	04-SEP-19
Chloroform			108.8		%		50-140	04-SEP-19
cis-1,2-Dichloroethylene			103.9		%		50-140	04-SEP-19
cis-1,3-Dichloropropene			99.0		%		50-140	04-SEP-19
Dibromochloromethane			100.7		%		50-140	04-SEP-19
Dichlorodifluoromethane			71.8		%		50-140	04-SEP-19
Ethylbenzene			96.3		%		50-140	04-SEP-19
n-Hexane			72.8		%		50-140	04-SEP-19
Methylene Chloride			95.4		%		50-140	04-SEP-19
MTBE			107.0		%		50-140	04-SEP-19
m+p-Xylenes			100.1		%		50-140	04-SEP-19
Methyl Ethyl Ketone			87.0		%		50-140	04-SEP-19
Methyl Isobutyl Ketone			78.1		%		50-140	04-SEP-19
o-Xylene			96.3		%		50-140	04-SEP-19
Styrene			100.2		%		50-140	04-SEP-19
Tetrachloroethylene			107.1		%		50-140	04-SEP-19
Toluene			99.5		%		50-140	04-SEP-19
trans-1,2-Dichloroethylene			91.8		%		50-140	04-SEP-19
trans-1,3-Dichloropropene			88.3		%		50-140	04-SEP-19
Trichloroethylene			116.1		%		50-140	04-SEP-19
Trichlorofluoromethane			102.1		%		50-140	04-SEP-19
Vinyl chloride			90.1		%		50-140	04-SEP-19

Quality Control Report

Workorder: L2338731

Report Date: 21-OCT-19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6
Contact: Sarena Medina

Page 7 of 7

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
LCS-L	Lab Control Sample recovery was below ALS DQO. Reference Material and/or Matrix Spike results were acceptable. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
MBS	Surrogate recovery in Method Blank was outside ALS DQO. Moderately low-biased results in the MB do not significantly affect its purpose.
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.

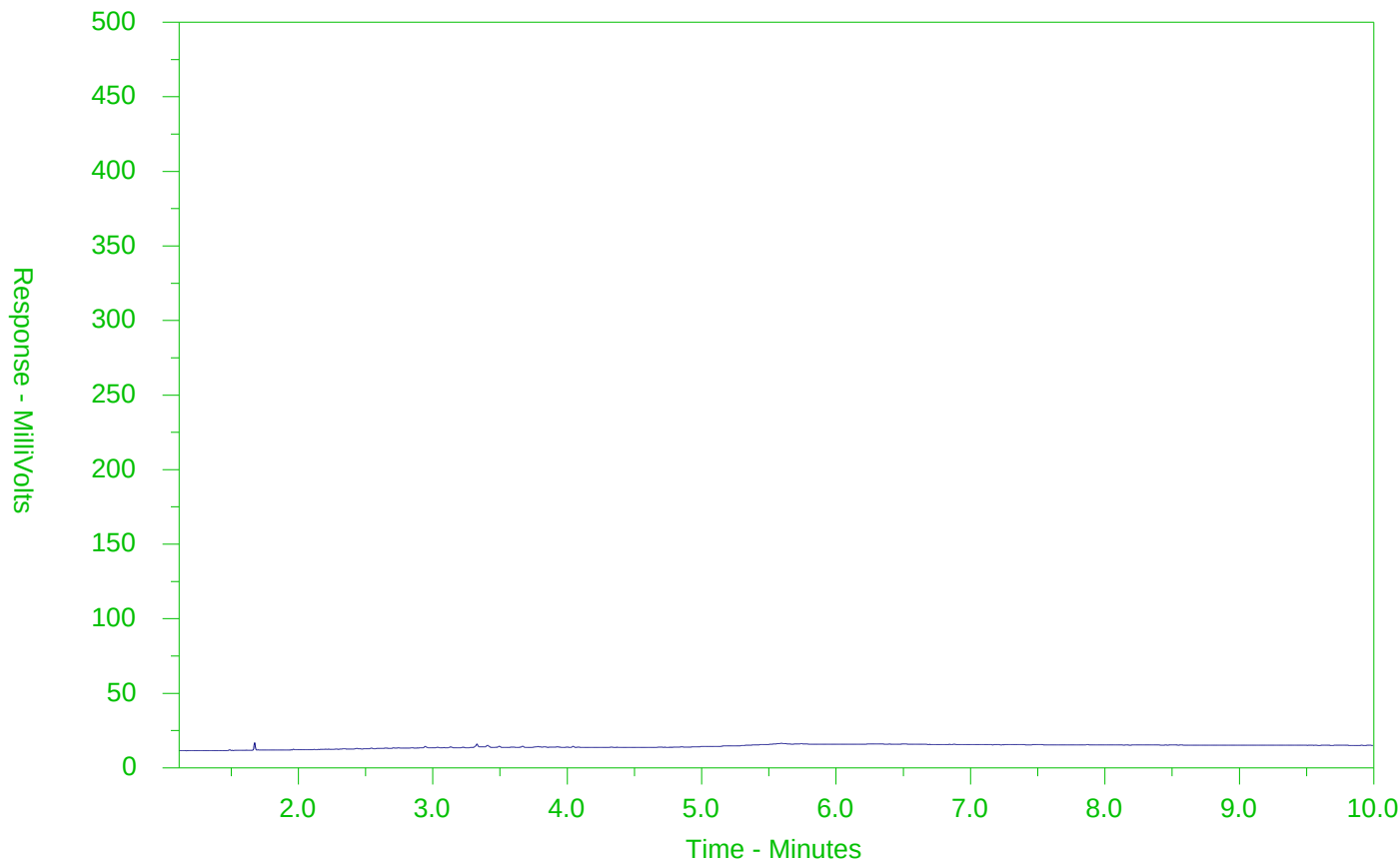
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2338731-1
Client Sample ID: C1 (SS2+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.



L2338731-COFC

COC Number: 17 - 732863

Page of

Report To Contact and company name below will appear on the final report Company: <u>Geopro Consulting Ltd</u> Contact: <u>Sarena Madina Sarenam@geoproconsulting.ca</u> Phone: <u>905-237-8336</u> Company address below will appear on the final report Street: <u>40 Vogell Rd</u> City/Province: <u>Richmond Hill, ON</u> Postal Code: <u>L4B 3N6</u> Invoice To: Same as Report To ☒ YES ☐ NO Copy of Invoice with Report ☐ YES ☒ NO Company: _____ Contact: _____ Project Information ALS Account # / Quote #: _____ Job #: <u>2099E</u> PO / AFE: _____ LSD: _____ ALS Lab Work Order # (lab use only): <u>L2338731 AUG 29C</u>			Report Format / Distribution Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL) Quality Control (QC) Report with Report ☐ YES ☐ NO ☒ Compare Results to Criteria on Report - provide details below if box checked Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX Email 1 or Fax: <u>Ka: @geoproconsulting.ca</u> Email 2: <u>Kyle.Lu@geoproconsulting.ca</u> Email 3: <u>akadia.buan@geoproconsulting.ca</u> Invoice Distribution Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX Email 1 or Fax: <u>off.ce@geoproconsulting.ca</u> Email 2: <u>Sarenam@geoproconsulting.ca</u> AFE/Cost Center: _____ PO#: _____ Major/Minor Code: _____ Routing Code: _____ Requisitioner: _____ Location: _____ ALS Contact: _____ Sampler: _____			Select Service Level below - Contact your AM to confirm all E&P TATs (surcharges may apply) Regular [R] ☐ 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: _____ For tests that cannot be performed according to the service level selected, you will be contacted.		
			Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below					
			PHC, VOC R					
			SAMPLES ON HOLD Sample is hazardous (please provide further details) NUMBER OF CONTAINERS: <u>3</u>					
ALS Sample # (lab use only) <u>1</u>			Sample Identification and/or Coordinates (This description will appear on the report) <u>C1 (SS2 + SS3) BH107 SS2+SS3</u>					
Date (dd-mmm-yy) <u>2019-08-25</u>			Time (hh:mm) <u>Soil</u>					
Sample Type <u>Soil</u>			<u>R</u>					
Drinking Water (DW) Samples¹ (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) <u>table 1</u>					
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 <u>4.9</u>			SHIPMENT RELEASE (client use) Released by: <u>Damen</u> Date: <u>2019-08-29</u> Time: _____ INITIAL SHIPMENT RECEPTION (lab use only) Received by: _____ Date: _____ Time: _____ FINAL SHIPMENT RECEPTION (lab use only) Received by: <u>K</u> Date: <u>08/29/19</u> Time: <u>18:40</u>					



GeoPro Consulting Limited (Richmond Hill)
ATTN: Sarena Medina
40 Vogell Road
Unit 22
Richmond Hill ON L4B 3N6

Date Received: 07-OCT-19
Report Date: 11-OCT-19 13:30 (MT)
Version: FINAL

Client Phone: 905-237-8336

Certificate of Analysis

Lab Work Order #: L2361158
Project P.O. #: NOT SUBMITTED
Job Reference: 17-2099E02
C of C Numbers: 17-2099e02-20191007
Legal Site Desc:

Rick Hawthorne
Account Manager

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

ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927
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L2361158 CONT'D....

PAGE 2 of 5

11-OCT-19 13:30 (MT)

Summary of Guideline Exceedances

Guideline						
ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use (No parameter exceedances)						



ANALYTICAL REPORT

Environmental

Physical Tests - SOIL

Analyte	Unit	Physical Tests - 2012						
		Lab ID	L2361158-1	L2361158-2	L2361158-3	L2361158-4	L2361158-5	
		Sample Date	30-SEP-19	30-SEP-19	30-SEP-19	30-SEP-19	30-SEP-19	
		Sample ID	TP1	TP2	TP3	TP4	TP6	
		Guide Limits						
		#1	#2					
% Moisture	%	-	-	3.86	4.24	5.30	5.13	5.03

Guide Limit #1: T1-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

Analyte	Unit	Guide Limits		Lab ID	L2361158-1	L2361158-2	L2361158-3	L2361158-4	L2361158-5
		#1	#2	Sample Date	30-SEP-19	30-SEP-19	30-SEP-19	30-SEP-19	30-SEP-19
				Sample ID	TP1	TP2	TP3	TP4	TP6
Aldrin	ug/g	0.05	-		<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
a-chlordane	ug/g	-	-		<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
g-chlordane	ug/g	-	-		<0.020	<0.020	<0.020	<0.020	<0.020
op-DDD	ug/g	-	-		<0.020	<0.020	<0.020	<0.020	<0.020
pp-DDD	ug/g	-	-		<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
o,p-DDE	ug/g	-	-		<0.020	<0.020	<0.020	<0.020	<0.020
pp-DDE	ug/g	-	-		<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
op-DDT	ug/g	-	-		<0.020	<0.020	<0.020	<0.020	<0.020
pp-DDT	ug/g	-	-		<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
Dieldrin	ug/g	0.05	-		<0.020	<0.020	<0.020	<0.020	<0.020
Endosulfan I	ug/g	-	-		<0.020	<0.020	<0.020	<0.020	<0.020
Endosulfan II	ug/g	-	-		<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
Endrin	ug/g	0.04	-		<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
Heptachlor Epoxide	ug/g	0.05	-		<0.020	<0.020	<0.020	<0.020	<0.020
Hexachlorobenzene	ug/g	0.01	-		<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
Hexachloroethane	ug/g	0.01	-		<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
Surrogate: 2-Fluorobiphenyl	%	-	-		97.6	99.1	93.7	97.9	95.5
Surrogate: d14-Terphenyl	%	-	-		99.1	86.7	88.8	93.7	84.2

Guide Limit #1: T1-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

L2361158 CONT'D....
 Job Reference: 17-2099E02
 PAGE 5 of 5
 11-OCT-19 13:30 (MT)

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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.			
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.			
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.			
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).			

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

Chain of Custody Numbers:

17-2099e02-20191007

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: L2361158

Report Date: 11-OCT-19

Page 1 of 4

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WT		Soil						
Batch	R4861656							
WG3184790-3	DUP	L2361041-4						
% Moisture		14.2	14.1		%	0.9	20	08-OCT-19
WG3184790-2	LCS							
% Moisture			104.9		%		90-110	08-OCT-19
WG3184790-1	MB							
% Moisture			<0.25		%		0.25	08-OCT-19
PEST-OC-511-WT		Soil						
Batch	R4867409							
WG3185198-3	DUP	WG3185198-5						
Aldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
a-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
g-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
op-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
pp-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
o,p-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
pp-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
op-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
pp-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
Dieldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
Endosulfan I		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
Endosulfan II		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
Endrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
gamma-hexachlorocyclohexane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	11-OCT-19
Heptachlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
Heptachlor Epoxide		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
Hexachlorobenzene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	11-OCT-19
Hexachlorobutadiene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	11-OCT-19
Hexachloroethane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	11-OCT-19
Methoxychlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	11-OCT-19
WG3185198-2	LCS							
Aldrin			137.2		%		50-140	11-OCT-19
a-chlordane			86.3		%		50-140	11-OCT-19
g-chlordane			90.9		%		50-140	11-OCT-19
op-DDD			92.2		%		50-140	11-OCT-19
pp-DDD			86.9		%		50-140	11-OCT-19



Quality Control Report

Workorder: L2361158

Report Date: 11-OCT-19

Page 2 of 4

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT		Soil						
Batch	R4867409							
WG3185198-2	LCS							
o,p-DDE			90.4		%		50-140	11-OCT-19
pp-DDE			83.3		%		50-140	11-OCT-19
op-DDT			99.4		%		50-140	11-OCT-19
pp-DDT			82.8		%		50-140	11-OCT-19
Dieldrin			94.3		%		50-140	11-OCT-19
Endosulfan I			89.9		%		50-140	11-OCT-19
Endosulfan II			87.5		%		50-140	11-OCT-19
Endrin			116.1		%		50-140	11-OCT-19
gamma-hexachlorocyclohexane			92.3		%		50-140	11-OCT-19
Heptachlor			103.8		%		50-140	11-OCT-19
Heptachlor Epoxide			87.5		%		50-140	11-OCT-19
Hexachlorobenzene			96.8		%		50-140	11-OCT-19
Hexachlorobutadiene			88.7		%		50-140	11-OCT-19
Hexachloroethane			102.4		%		50-140	11-OCT-19
Methoxychlor			88.1		%		50-140	11-OCT-19
WG3185198-1	MB							
Aldrin			<0.020		ug/g		0.02	11-OCT-19
a-chlordane			<0.020		ug/g		0.02	11-OCT-19
g-chlordane			<0.020		ug/g		0.02	11-OCT-19
op-DDD			<0.020		ug/g		0.02	11-OCT-19
pp-DDD			<0.020		ug/g		0.02	11-OCT-19
o,p-DDE			<0.020		ug/g		0.02	11-OCT-19
pp-DDE			<0.020		ug/g		0.02	11-OCT-19
op-DDT			<0.020		ug/g		0.02	11-OCT-19
pp-DDT			<0.020		ug/g		0.02	11-OCT-19
Dieldrin			<0.020		ug/g		0.02	11-OCT-19
Endosulfan I			<0.020		ug/g		0.02	11-OCT-19
Endosulfan II			<0.020		ug/g		0.02	11-OCT-19
Endrin			<0.020		ug/g		0.02	11-OCT-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	11-OCT-19
Heptachlor			<0.020		ug/g		0.02	11-OCT-19
Heptachlor Epoxide			<0.020		ug/g		0.02	11-OCT-19
Hexachlorobenzene			<0.010		ug/g		0.01	11-OCT-19
Hexachlorobutadiene			<0.010		ug/g		0.01	11-OCT-19



Environmental

Quality Control Report

Workorder: L2361158

Report Date: 11-OCT-19

Page 3 of 4

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT		Soil						
Batch	R4867409							
WG3185198-1	MB							
Hexachloroethane			<0.010		ug/g		0.01	11-OCT-19
Methoxychlor			<0.020		ug/g		0.02	11-OCT-19
Surrogate: 2-Fluorobiphenyl			103.3		%		50-140	11-OCT-19
Surrogate: d14-Terphenyl			93.7		%		50-140	11-OCT-19
WG3185198-4	MS	WG3185198-5						
Aldrin			139.1		%		50-140	11-OCT-19
a-chlordane			93.9		%		50-140	11-OCT-19
g-chlordane			99.8		%		50-140	11-OCT-19
op-DDD			99.7		%		50-140	11-OCT-19
pp-DDD			95.7		%		50-140	11-OCT-19
o,p-DDE			99.4		%		50-140	11-OCT-19
pp-DDE			90.4		%		50-140	11-OCT-19
op-DDT			105.3		%		50-140	11-OCT-19
pp-DDT			85.0		%		50-140	11-OCT-19
Dieldrin			101.9		%		50-140	11-OCT-19
Endosulfan I			97.6		%		50-140	11-OCT-19
Endosulfan II			95.8		%		50-140	11-OCT-19
Endrin			131.2		%		50-140	11-OCT-19
gamma-hexachlorocyclohexane			92.1		%		50-140	11-OCT-19
Heptachlor			106.1		%		50-140	11-OCT-19
Heptachlor Epoxide			95.3		%		50-140	11-OCT-19
Hexachlorobenzene			96.7		%		50-140	11-OCT-19
Hexachlorobutadiene			86.8		%		50-140	11-OCT-19
Hexachloroethane			100.9		%		50-140	11-OCT-19
Methoxychlor			95.7		%		50-140	11-OCT-19

Quality Control Report

Workorder: L2361158

Report Date: 11-OCT-19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6
Contact: Sarena Medina

Page 4 of 4

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.

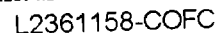
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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



Canada Toll Free: 1 800 668 9878



COC Number: 17-2099E02-20191007

Page 1 of 1

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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**.

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NOV 2018 ERO



GeoPro Consulting Limited

Geotechnical-Hydrogeology-Environmental-Materials-Inspection

APPENDIX D



GeoPro Consulting Limited (Richmond Hill)
ATTN: Sarena Medina
40 Vogell Road
Unit 22
Richmond Hill ON L4B 3N6

Date Received: 20-SEP-19
Report Date: 21-OCT-19 12:23 (MT)
Version: FINAL REV. 2

Client Phone: 905-237-8336

Certificate of Analysis

Lab Work Order #: L2351402
Project P.O. #: NOT SUBMITTED
Job Reference: 17-2099E
C of C Numbers:
Legal Site Desc: TORONTO, ONTARIO

Comments:

21-OCT-2019 Sample ID revised as per client correspondence.

Rick Hawthorne
Account Manager

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ANALYTICAL REPORT

Summary of Guideline Exceedances

Guideline							
ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit	
Ontario Regulation 153/04 - April 15, 2011 Standards - T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use							
(No parameter exceedances)							

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



Environmental

ANALYTICAL REPORT

Physical Tests - WATER

					Lab ID	L2351402-1
					Sample Date	20-SEP-19
					Sample ID	BH103
					Guide Limits	
Analyte	Unit	#1	#2			
Conductivity	mS/cm	0.57	-	0.266		
pH	pH units	-	-	8.03		

Guide Limit #1: T1-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.



Environmental

ANALYTICAL REPORT

Anions and Nutrients - WATER

Lab ID	L2351402-1
Sample Date	20-SEP-19
Sample ID	BH103

Analyte	Unit	Guide Limits		
		#1	#2	
Chloride (Cl)	mg/L	-	-	1.11

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Comm 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 L2351402-1
Sample Date 20-SEP-19
Sample ID BH103

Analyte	Unit	Guide Limits		
		#1	#2	
Cyanide, Weak Acid Diss	ug/L	-	-	<2.0

Guide Limit #1: T1-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

Total Metals - WATER

		Lab ID	L2351402-2	
		Sample Date	20-SEP-19	
		Sample ID	BH106	
		Guide Limits		
Analyte	Unit	#1	#2	
Aluminum (Al)-Total	ug/L	-	-	5850 ^{DLHC}
Antimony (Sb)-Total	ug/L	-	-	<1.0 ^{DLHC}
Arsenic (As)-Total	ug/L	-	-	1.1 ^{DLHC}
Barium (Ba)-Total	ug/L	-	-	160 ^{DLHC}
Beryllium (Be)-Total	ug/L	-	-	<1.0 ^{DLHC}
Bismuth (Bi)-Total	ug/L	-	-	<0.50 ^{DLHC}
Boron (B)-Total	ug/L	-	-	<100 ^{DLHC}
Cadmium (Cd)-Total	ug/L	-	-	<0.050 ^{DLHC}
Calcium (Ca)-Total	ug/L	-	-	161000 ^{DLHC}
Cesium (Cs)-Total	ug/L	-	-	0.33 ^{DLHC}
Chromium (Cr)-Total	ug/L	-	-	9.6 ^{DLHC}
Cobalt (Co)-Total	ug/L	-	-	3.0 ^{DLHC}
Copper (Cu)-Total	ug/L	-	-	14 ^{DLHC}
Iron (Fe)-Total	ug/L	-	-	6740 ^{DLHC}
Lead (Pb)-Total	ug/L	-	-	2.85 ^{DLHC}
Lithium (Li)-Total	ug/L	-	-	<10 ^{DLHC}
Magnesium (Mg)-Total	ug/L	-	-	9740 ^{DLHC}
Manganese (Mn)-Total	ug/L	-	-	262 ^{DLHC}
Molybdenum (Mo)-Total	ug/L	-	-	15.3 ^{DLHC}
Nickel (Ni)-Total	ug/L	-	-	6.6 ^{DLHC}
Phosphorus (P)-Total	ug/L	-	-	<500 ^{DLHC}
Potassium (K)-Total	ug/L	-	-	2940 ^{DLHC}
Rubidium (Rb)-Total	ug/L	-	-	9.1 ^{DLHC}
Selenium (Se)-Total	ug/L	-	-	<0.50 ^{DLHC}
Silicon (Si)-Total	ug/L	-	-	14700 ^{DLHC}
Silver (Ag)-Total	ug/L	-	-	<0.50 ^{DLHC}
Sodium (Na)-Total	ug/L	-	-	201000 ^{DLHC}
Strontium (Sr)-Total	ug/L	-	-	402 ^{DLHC}
Sulfur (S)-Total	ug/L	-	-	<5000 ^{DLHC}
Tellurium (Te)-Total	ug/L	-	-	<2.0 ^{DLHC}

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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



Environmental

ANALYTICAL REPORT

Total Metals - WATER

		Lab ID	L2351402-2	
		Sample Date	20-SEP-19	
		Sample ID	BH106	
		Guide Limits		
Analyte	Unit	#1	#2	
Thallium (Tl)-Total	ug/L	-	-	<0.10 ^{DLHC}
Thorium (Th)-Total	ug/L	-	-	1.3 ^{DLHC}
Tin (Sn)-Total	ug/L	-	-	<1.0 ^{DLHC}
Titanium (Ti)-Total	ug/L	-	-	285 ^{DLHC}
Tungsten (W)-Total	ug/L	-	-	<1.0 ^{DLHC}
Uranium (U)-Total	ug/L	-	-	9.29 ^{DLHC}
Vanadium (V)-Total	ug/L	-	-	15.2 ^{DLHC}
Zinc (Zn)-Total	ug/L	-	-	<30 ^{DLHC}
Zirconium (Zr)-Total	ug/L	-	-	<3.0 ^{DLHC}

Guide Limit #1: T1-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

Dissolved Metals - WATER

		Lab ID	L2351402-1	L2351402-2	
		Sample Date	20-SEP-19	20-SEP-19	
		Sample ID	BH103	BH106	
Analyte	Unit	Guide Limits			
		#1	#2		
Dissolved Mercury Filtration Location		-	-	FIELD	FIELD
Dissolved Metals Filtration Location		-	-	FIELD	
Antimony (Sb)-Dissolved	ug/L	-	-	<0.10	
Arsenic (As)-Dissolved	ug/L	-	-	0.13	
Barium (Ba)-Dissolved	ug/L	-	-	9.94	
Beryllium (Be)-Dissolved	ug/L	-	-	<0.10	
Boron (B)-Dissolved	ug/L	-	-	<10	
Cadmium (Cd)-Dissolved	ug/L	-	-	<0.010	
Chromium (Cr)-Dissolved	ug/L	-	-	<0.50	
Cobalt (Co)-Dissolved	ug/L	-	-	<0.10	
Copper (Cu)-Dissolved	ug/L	-	-	1.83	
Lead (Pb)-Dissolved	ug/L	-	-	<0.050	
Mercury (Hg)-Dissolved	ug/L	-	-	<0.0050	<0.0050
Molybdenum (Mo)-Dissolved	ug/L	-	-	0.208	
Nickel (Ni)-Dissolved	ug/L	-	-	<0.50	
Selenium (Se)-Dissolved	ug/L	-	-	0.148	
Silver (Ag)-Dissolved	ug/L	-	-	<0.050	
Sodium (Na)-Dissolved	ug/L	-	-	1400	
Thallium (Tl)-Dissolved	ug/L	-	-	<0.010	
Uranium (U)-Dissolved	ug/L	-	-	0.063	
Vanadium (V)-Dissolved	ug/L	-	-	<0.50	
Zinc (Zn)-Dissolved	ug/L	-	-	<1.0	

Guide Limit #1: T1-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.

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



ANALYTICAL REPORT

Speciated Metals - WATER

		Lab ID	L2351402-1	L2351402-2
		Sample Date	20-SEP-19	20-SEP-19
		Sample ID	BH103	BH106
		Guide Limits		
Analyte	Unit	#1	#2	
Chromium, Hexavalent	ug/L	-	-	<0.50 <0.50

Guide Limit #1: T1-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 - WATER

Analyte	Unit	Guide Limits			Lab ID		Sample Date		Sample ID	
		#1	#2		L2351402-1	L2351402-2	L2351402-3	L2351402-1	L2351402-2	L2351402-3
Acetone	ug/L	-	-	<30				20-SEP-19	20-SEP-19	20-SEP-19
Benzene	ug/L	-	-	<0.50		<0.50 ^{OWP}	<0.50 ^{OWP}	BH103	BH106	BH107
Bromodichloromethane	ug/L	-	-	<2.0						
Bromoform	ug/L	-	-	<5.0						
Bromomethane	ug/L	-	-	<0.50						
Carbon tetrachloride	ug/L	-	-	<0.20						
Chlorobenzene	ug/L	-	-	<0.50						
Dibromochloromethane	ug/L	-	-	<2.0						
Chloroform	ug/L	-	-	<1.0						
1,2-Dibromoethane	ug/L	-	-	<0.20						
1,2-Dichlorobenzene	ug/L	-	-	<0.50						
1,3-Dichlorobenzene	ug/L	-	-	<0.50						
1,4-Dichlorobenzene	ug/L	-	-	<0.50						
Dichlorodifluoromethane	ug/L	-	-	<2.0						
1,1-Dichloroethane	ug/L	-	-	<0.50						
1,2-Dichloroethane	ug/L	-	-	<0.50						
1,1-Dichloroethylene	ug/L	-	-	<0.50						
cis-1,2-Dichloroethylene	ug/L	-	-	<0.50						
trans-1,2-Dichloroethylene	ug/L	-	-	<0.50						
Methylene Chloride	ug/L	-	-	<5.0						
1,2-Dichloropropane	ug/L	-	-	<0.50						
cis-1,3-Dichloropropene	ug/L	-	-	<0.30						
trans-1,3-Dichloropropene	ug/L	-	-	<0.30						
1,3-Dichloropropene (cis & trans)	ug/L	-	-	<0.50						
Ethylbenzene	ug/L	-	-	<0.50		<0.50 ^{OWP}	<0.50 ^{OWP}			
n-Hexane	ug/L	-	-	<0.50						
Methyl Ethyl Ketone	ug/L	-	-	<20						
Methyl Isobutyl Ketone	ug/L	-	-	<20						
MTBE	ug/L	-	-	<2.0						
Styrene	ug/L	-	-	<0.50						

Guide Limit #1: T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

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



ANALYTICAL REPORT

Volatile Organic Compounds - WATER

Analyte	Unit	Lab ID			
		Sample Date			
		Sample ID			
		L2351402-1	L2351402-2	L2351402-3	
		20-SEP-19	20-SEP-19	20-SEP-19	
		BH103	BH106	BH107	
Analyte	Unit	Guide Limits			
		#1	#2		
1,1,1,2-Tetrachloroethane	ug/L	-	-	<0.50	
1,1,2,2-Tetrachloroethane	ug/L	-	-	<0.50	
Tetrachloroethylene	ug/L	-	-	<0.50	
Toluene	ug/L	-	-	<0.50	<0.50 ^{OWP}
1,1,1-Trichloroethane	ug/L	-	-	<0.50	
1,1,2-Trichloroethane	ug/L	-	-	<0.50	
Trichloroethylene	ug/L	-	-	<0.50	
Trichlorofluoromethane	ug/L	-	-	<5.0	
Vinyl chloride	ug/L	-	-	<0.50	
o-Xylene	ug/L	-	-	<0.30 ^{OWP}	<0.30 ^{OWP}
m+p-Xylenes	ug/L	-	-	<0.40 ^{OWP}	<0.40 ^{OWP}
Xylenes (Total)	ug/L	-	-	<0.50	<0.50
Surrogate: 4-Bromofluorobenzene	%	-	-	98.1	97.2
Surrogate: 1,4-Difluorobenzene	%	-	-	100.2	97.6

Guide Limit #1: T1-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.

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



ANALYTICAL REPORT

Hydrocarbons - WATER

Analyte	Unit	Guide Limits		Lab ID	L2351402-1	L2351402-2	L2351402-3
		#1	#2	Sample Date	20-SEP-19	20-SEP-19	20-SEP-19
				Sample ID	BH103	BH106	BH107
F1 (C6-C10)	ug/L	-	-		<25 ^{VOCH S}	<25 ^{OWP}	<25 ^{OWP}
F1-BTEX	ug/L	-	-		<25	<25	<25
F2 (C10-C16)	ug/L	-	-		<100	<100 ^{OWP}	<100
F2-Naphth	ug/L	-	-		<100	<100	<100
F3 (C16-C34)	ug/L	-	-		<250	750 ^{OWP}	<250
F3-PAH	ug/L	-	-		<250	750	<250
F4 (C34-C50)	ug/L	-	-		<250	330 ^{OWP}	<250
Total Hydrocarbons (C6-C50)	ug/L	-	-		<370	1080	<370
Chrom. to baseline at nC50		-	-		YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-		90.0	85.6	89.6
Surrogate: 3,4-Dichlorotoluene	%	-	-		100.2	73.6	87.6

Guide Limit #1: T1-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.

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

ANALYTICAL REPORT

Polycyclic Aromatic Hydrocarbons - WATER

Analyte	Unit	Guide Limits		Lab ID	L2351402-1	L2351402-2	L2351402-3
		#1	#2	Sample Date	20-SEP-19	20-SEP-19	20-SEP-19
				Sample ID	BH103	BH106	BH107
Acenaphthene	ug/L	-	-		<0.020	<0.020	<0.020
Acenaphthylene	ug/L	-	-		<0.020	<0.020	<0.020
Anthracene	ug/L	-	-		<0.020	<0.020	<0.020
Benzo(a)anthracene	ug/L	-	-		<0.020	0.023	<0.020
Benzo(a)pyrene	ug/L	-	-		<0.010	0.013	<0.010
Benzo(b)fluoranthene	ug/L	-	-		<0.020	0.021	<0.020
Benzo(g,h,i)perylene	ug/L	-	-		<0.020	<0.020	<0.020
Benzo(k)fluoranthene	ug/L	-	-		<0.020	<0.020	<0.020
Chrysene	ug/L	-	-		<0.020	0.022	<0.020
Dibenzo(ah)anthracene	ug/L	-	-		<0.020	<0.020	<0.020
Fluoranthene	ug/L	-	-		<0.020	0.063	<0.020
Fluorene	ug/L	-	-		<0.020	<0.020	<0.020
Indeno(1,2,3-cd)pyrene	ug/L	-	-		<0.020	<0.020	<0.020
1+2-Methylnaphthalenes	ug/L	-	-		<0.028	0.064	<0.028
1-Methylnaphthalene	ug/L	-	-		<0.020	0.029	<0.020
2-Methylnaphthalene	ug/L	-	-		<0.020	0.035	<0.020
Naphthalene	ug/L	-	-		<0.050	<0.050	<0.050
Phenanthrene	ug/L	-	-		<0.020	0.088	<0.020
Pyrene	ug/L	-	-		<0.020	0.077	<0.020
Surrogate: d10-Acenaphthene	%	-	-		90.4	90.2	95.9
Surrogate: d12-Chrysene	%	-	-		90.0	87.0	104.8
Surrogate: d8-Naphthalene	%	-	-		95.5	92.8	99.1
Surrogate: d10-Phenanthrene	%	-	-		101.5	96.3	110.2

Guide Limit #1: T1-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.

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



ANALYTICAL REPORT

Polychlorinated Biphenyls - WATER

		Lab ID	L2351402-1	
		Sample Date	20-SEP-19	
		Sample ID	BH103	
		Guide Limits		
Analyte	Unit	#1	#2	
Aroclor 1242	ug/L	-	-	<0.020
Aroclor 1248	ug/L	-	-	<0.020
Aroclor 1254	ug/L	-	-	<0.020
Aroclor 1260	ug/L	-	-	<0.020
Surrogate: Decachlorobiphenyl	%	-	-	78.7
Total PCBs	ug/L	-	-	<0.040
Surrogate: Tetrachloro-m-xylene	%	-	-	93.2

Guide Limit #1: T1-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

L2351402 CONT'D....
Job Reference: 17-2099E
PAGE 15 of 18
21-OCT-19 12:23 (MT)

Qualifiers for Individual Parameters Listed:

Qualifier	Description
VOCHS	VOC analysis was conducted for a water sample that contained > 5% headspace. Results may be biased low.
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

Reference Information

sediment.

DLHC Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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BTX-511-HS-WT Water BTEX by Headspace SW846 8260 (511)

BTX is determined by analyzing by headspace-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).

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).

EC-SCREEN-WT Water Conductivity Screen (Internal Use Only) APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

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 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:

Reference Information

L2351402 CONT'D....
Job Reference: 17-2099E
PAGE 17 of 18
21-OCT-19 12:23 (MT)

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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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
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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
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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)
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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
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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).

MET-T-UG/L-MS-WT	Water	Total Metals in Water by ICPMS (ug/L)	EPA 200.8
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The concentration of metals is determined on an unfiltered aqueous sample. The sample is digested with nitric acid and then analyzed directly by ICP-MS.

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

PCB-511-WT	Water	PCB-O. Reg 153/04 (July 2011)	SW846 3510/8082
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Aqueous samples are extracted, then concentrated, reconstituted, and analyzed by GC/MS.

Reference Information

L2351402 CONT'D....
 Job Reference: 17-2099E
 PAGE 18 of 18
 21-OCT-19 12:23 (MT)

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).			
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:

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: L2351402

Report Date: 21-OCT-19

Page 1 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-511-HS-WT		Water						
Batch	R4843228							
WG3172063-4	DUP	WG3172063-3						
Benzene		7.34	7.21		ug/L	1.8	30	26-SEP-19
Ethylbenzene		10.6	10.4		ug/L	2.0	30	26-SEP-19
m+p-Xylenes		50.2	49.2		ug/L	2.2	30	26-SEP-19
o-Xylene		64.1	63.3		ug/L	1.2	30	26-SEP-19
Toluene		6.25	6.17		ug/L	1.3	30	26-SEP-19
WG3172063-1	LCS							
Benzene			110.5		%		70-130	25-SEP-19
Ethylbenzene			101.0		%		70-130	25-SEP-19
m+p-Xylenes			105.5		%		70-130	25-SEP-19
o-Xylene			101.0		%		70-130	25-SEP-19
Toluene			102.1		%		70-130	25-SEP-19
WG3172063-2	MB							
Benzene			<0.50		ug/L		0.5	26-SEP-19
Ethylbenzene			<0.50		ug/L		0.5	26-SEP-19
m+p-Xylenes			<0.40		ug/L		0.4	26-SEP-19
o-Xylene			<0.30		ug/L		0.3	26-SEP-19
Toluene			<0.50		ug/L		0.5	26-SEP-19
Surrogate: 1,4-Difluorobenzene			95.9		%		70-130	26-SEP-19
Surrogate: 4-Bromofluorobenzene			97.1		%		70-130	26-SEP-19
WG3172063-5	MS	WG3172063-3						
Benzene			108.7		%		50-140	26-SEP-19
Ethylbenzene			106.9		%		50-140	26-SEP-19
m+p-Xylenes			116.2		%		50-140	26-SEP-19
o-Xylene			109.2		%		50-140	26-SEP-19
Toluene			104.1		%		50-140	26-SEP-19
CL-IC-N-WT		Water						
Batch	R4839390							
WG3171019-4	DUP	WG3171019-3						
Chloride (Cl)		54.3	54.4		mg/L	0.2	20	24-SEP-19
WG3171019-2	LCS							
Chloride (Cl)			101.7		%		90-110	24-SEP-19
WG3171019-1	MB							
Chloride (Cl)			<0.50		mg/L		0.5	24-SEP-19
WG3171019-5	MS	WG3171019-3						
Chloride (Cl)			101.2		%		75-125	24-SEP-19



Environmental

Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 3 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT		Water						
Batch	R4843228							
WG3172063-4	DUP	WG3172063-3						
F1 (C6-C10)		381	324		ug/L	16	30	26-SEP-19
WG3172063-1	LCS							
F1 (C6-C10)			99.4		%		80-120	25-SEP-19
WG3172063-2	MB							
F1 (C6-C10)			<25		ug/L		25	26-SEP-19
Surrogate: 3,4-Dichlorotoluene			98.8		%		60-140	26-SEP-19
WG3172063-5	MS	WG3172063-3						
F1 (C6-C10)			84.1		%		60-140	26-SEP-19
Batch	R4848969							
WG3174643-1	LCS							
F1 (C6-C10)			109.2		%		80-120	27-SEP-19
WG3174643-2	MB							
F1 (C6-C10)			<25		ug/L		25	27-SEP-19
Surrogate: 3,4-Dichlorotoluene			98.8		%		60-140	27-SEP-19
F2-F4-511-WT		Water						
Batch	R4839110							
WG3171395-2	LCS							
F2 (C10-C16)			93.6		%		70-130	24-SEP-19
F3 (C16-C34)			94.6		%		70-130	24-SEP-19
F4 (C34-C50)			111.8		%		70-130	24-SEP-19
WG3171395-1	MB							
F2 (C10-C16)			<100		ug/L		100	24-SEP-19
F3 (C16-C34)			<250		ug/L		250	24-SEP-19
F4 (C34-C50)			<250		ug/L		250	24-SEP-19
Surrogate: 2-Bromobenzotrifluoride			73.6		%		60-140	24-SEP-19
HG-D-UG/L-CVAA-WT		Water						
Batch	R4833235							
WG3169557-4	DUP	WG3169557-3						
Mercury (Hg)-Dissolved		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	23-SEP-19
WG3169557-2	LCS							
Mercury (Hg)-Dissolved			104.0		%		80-120	23-SEP-19
WG3169557-1	MB							
Mercury (Hg)-Dissolved			<0.0050		ug/L		0.005	23-SEP-19
WG3169557-6	MS	WG3169557-5						
Mercury (Hg)-Dissolved			88.2		%		70-130	23-SEP-19

Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 4 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-D-UG/L-CVAA-WT Water								
Batch	R4839795							
WG3172150-4 DUP		WG3172150-3						
Mercury (Hg)-Dissolved		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	25-SEP-19
WG3172150-2 LCS								
Mercury (Hg)-Dissolved			94.9		%		80-120	25-SEP-19
WG3172150-1 MB								
Mercury (Hg)-Dissolved			<0.0050		ug/L		0.005	25-SEP-19
WG3172150-6 MS		WG3172150-5						
Mercury (Hg)-Dissolved			91.8		%		70-130	25-SEP-19
MET-D-UG/L-MS-WT Water								
Batch	R4844535							
WG3173395-4 DUP		WG3173395-3						
Antimony (Sb)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	26-SEP-19
Arsenic (As)-Dissolved		0.13	0.12		ug/L	4.9	20	26-SEP-19
Barium (Ba)-Dissolved		9.94	10.1		ug/L	1.3	20	26-SEP-19
Beryllium (Be)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	26-SEP-19
Boron (B)-Dissolved		<10	<10	RPD-NA	ug/L	N/A	20	26-SEP-19
Cadmium (Cd)-Dissolved		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	26-SEP-19
Chromium (Cr)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	26-SEP-19
Cobalt (Co)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	26-SEP-19
Copper (Cu)-Dissolved		1.83	1.87		ug/L	2.1	20	26-SEP-19
Lead (Pb)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	26-SEP-19
Molybdenum (Mo)-Dissolved		0.208	0.206		ug/L	1.1	20	26-SEP-19
Nickel (Ni)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	26-SEP-19
Selenium (Se)-Dissolved		0.148	0.168		ug/L	13	20	26-SEP-19
Silver (Ag)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	26-SEP-19
Sodium (Na)-Dissolved		1400	1450		ug/L	3.9	20	26-SEP-19
Thallium (Tl)-Dissolved		<0.010	<0.010	RPD-NA	ug/L	N/A	20	26-SEP-19
Uranium (U)-Dissolved		0.063	0.064		ug/L	1.9	20	26-SEP-19
Vanadium (V)-Dissolved		<0.50	0.53	RPD-NA	ug/L	N/A	20	26-SEP-19
Zinc (Zn)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	26-SEP-19
WG3173395-2 LCS								
Antimony (Sb)-Dissolved			99.6		%		80-120	26-SEP-19
Arsenic (As)-Dissolved			98.2		%		80-120	26-SEP-19
Barium (Ba)-Dissolved			96.8		%		80-120	26-SEP-19
Beryllium (Be)-Dissolved			96.3		%		80-120	26-SEP-19



Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 5 of 19

Client:

GeoPro Consulting Limited (Richmond Hill)

40 Vogell Road Unit 22

Richmond Hill ON L4B 3N6

Contact:

Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT		Water						
Batch	R4844535							
WG3173395-2 LCS								
Boron (B)-Dissolved			99.2		%		80-120	26-SEP-19
Cadmium (Cd)-Dissolved			102.6		%		80-120	26-SEP-19
Chromium (Cr)-Dissolved			103.2		%		80-120	26-SEP-19
Cobalt (Co)-Dissolved			97.5		%		80-120	26-SEP-19
Copper (Cu)-Dissolved			98.8		%		80-120	26-SEP-19
Lead (Pb)-Dissolved			101.4		%		80-120	26-SEP-19
Molybdenum (Mo)-Dissolved			98.3		%		80-120	26-SEP-19
Nickel (Ni)-Dissolved			98.2		%		80-120	26-SEP-19
Selenium (Se)-Dissolved			101.3		%		80-120	26-SEP-19
Silver (Ag)-Dissolved			98.1		%		80-120	26-SEP-19
Sodium (Na)-Dissolved			104.3		%		80-120	26-SEP-19
Thallium (Tl)-Dissolved			100.2		%		80-120	26-SEP-19
Uranium (U)-Dissolved			99.5		%		80-120	26-SEP-19
Vanadium (V)-Dissolved			103.6		%		80-120	26-SEP-19
Zinc (Zn)-Dissolved			99.2		%		80-120	26-SEP-19
WG3173395-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	26-SEP-19
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	26-SEP-19
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	26-SEP-19
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	26-SEP-19
Boron (B)-Dissolved			<10		ug/L		10	26-SEP-19
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	26-SEP-19
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	26-SEP-19
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	26-SEP-19
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	26-SEP-19
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	26-SEP-19
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	26-SEP-19
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	26-SEP-19
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	26-SEP-19
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	26-SEP-19
Sodium (Na)-Dissolved			<50		ug/L		50	26-SEP-19
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	26-SEP-19
Uranium (U)-Dissolved			<0.010		ug/L		0.01	26-SEP-19
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	26-SEP-19



Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 6 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT		Water						
Batch	R4844535							
WG3173395-1 MB								
Zinc (Zn)-Dissolved			<1.0		ug/L		1	26-SEP-19
WG3173395-5 MS		WG3173395-6						
Antimony (Sb)-Dissolved			90.9		%		70-130	26-SEP-19
Arsenic (As)-Dissolved			N/A	MS-B	%		-	26-SEP-19
Barium (Ba)-Dissolved			N/A	MS-B	%		-	26-SEP-19
Beryllium (Be)-Dissolved			91.1		%		70-130	26-SEP-19
Boron (B)-Dissolved			N/A	MS-B	%		-	26-SEP-19
Cadmium (Cd)-Dissolved			96.1		%		70-130	26-SEP-19
Chromium (Cr)-Dissolved			83.9		%		70-130	26-SEP-19
Cobalt (Co)-Dissolved			91.5		%		70-130	26-SEP-19
Copper (Cu)-Dissolved			86.8		%		70-130	26-SEP-19
Lead (Pb)-Dissolved			95.4		%		70-130	26-SEP-19
Molybdenum (Mo)-Dissolved			N/A	MS-B	%		-	26-SEP-19
Nickel (Ni)-Dissolved			89.8		%		70-130	26-SEP-19
Silver (Ag)-Dissolved			91.6		%		70-130	26-SEP-19
Sodium (Na)-Dissolved			N/A	MS-B	%		-	26-SEP-19
Thallium (Tl)-Dissolved			92.2		%		70-130	26-SEP-19
Uranium (U)-Dissolved			N/A	MS-B	%		-	26-SEP-19
MET-T-UG/L-MS-WT		Water						
Batch	R4848050							
WG3174496-4 DUP		WG3174496-3						
Aluminum (Al)-Total		<10	<10	RPD-NA	ug/L	N/A	20	27-SEP-19
Antimony (Sb)-Total		<0.10	<0.10	RPD-NA	ug/L	N/A	20	27-SEP-19
Arsenic (As)-Total		0.14	0.15		ug/L	3.4	20	27-SEP-19
Barium (Ba)-Total		152	152		ug/L	0.2	20	27-SEP-19
Beryllium (Be)-Total		<0.10	<0.10	RPD-NA	ug/L	N/A	20	27-SEP-19
Bismuth (Bi)-Total		<0.050	<0.050	RPD-NA	ug/L	N/A	20	27-SEP-19
Boron (B)-Total		55	53		ug/L	2.7	20	27-SEP-19
Cadmium (Cd)-Total		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	27-SEP-19
Calcium (Ca)-Total		94900	94500		ug/L	0.4	20	27-SEP-19
Cesium (Cs)-Total		0.014	0.014		ug/L	0.7	20	27-SEP-19
Chromium (Cr)-Total		<0.50	<0.50	RPD-NA	ug/L	N/A	20	27-SEP-19
Cobalt (Co)-Total		0.14	0.13		ug/L	1.4	20	27-SEP-19

Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 7 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-UG/L-MS-WT		Water						
Batch	R4848050							
WG3174496-4	DUP	WG3174496-3						
Copper (Cu)-Total		2.8	2.4		ug/L	16	20	27-SEP-19
Iron (Fe)-Total		<10	<10	RPD-NA	ug/L	N/A	20	27-SEP-19
Lead (Pb)-Total		0.174	0.170		ug/L	2.2	20	27-SEP-19
Lithium (Li)-Total		14.2	13.9		ug/L	2.0	20	27-SEP-19
Magnesium (Mg)-Total		29800	29600		ug/L	0.6	20	27-SEP-19
Manganese (Mn)-Total		4.71	4.61		ug/L	2.2	20	27-SEP-19
Molybdenum (Mo)-Total		1.12	1.09		ug/L	2.5	20	27-SEP-19
Nickel (Ni)-Total		0.62	0.62		ug/L	0.7	20	27-SEP-19
Phosphorus (P)-Total		<50	<50	RPD-NA	ug/L	N/A	20	27-SEP-19
Potassium (K)-Total		2680	2650		ug/L	1.1	20	27-SEP-19
Rubidium (Rb)-Total		1.69	1.72		ug/L	2.1	20	27-SEP-19
Selenium (Se)-Total		<0.050	<0.050	RPD-NA	ug/L	N/A	20	27-SEP-19
Silicon (Si)-Total		7990	7860		ug/L	1.7	20	27-SEP-19
Silver (Ag)-Total		<0.050	<0.050	RPD-NA	ug/L	N/A	20	27-SEP-19
Sodium (Na)-Total		26700	26400		ug/L	1.0	20	27-SEP-19
Strontium (Sr)-Total		649	642		ug/L	1.1	20	27-SEP-19
Sulfur (S)-Total		14600	14300		ug/L	2.1	20	27-SEP-19
Tellurium (Te)-Total		<0.20	<0.20	RPD-NA	ug/L	N/A	20	27-SEP-19
Thallium (Tl)-Total		<0.010	<0.010	RPD-NA	ug/L	N/A	20	27-SEP-19
Thorium (Th)-Total		<0.10	<0.10	RPD-NA	ug/L	N/A	20	27-SEP-19
Tin (Sn)-Total		<0.10	<0.10	RPD-NA	ug/L	N/A	20	27-SEP-19
Titanium (Ti)-Total		<0.30	<0.30	RPD-NA	ug/L	N/A	20	27-SEP-19
Tungsten (W)-Total		<0.10	<0.10	RPD-NA	ug/L	N/A	20	27-SEP-19
Uranium (U)-Total		1.38	1.38		ug/L	0.2	20	27-SEP-19
Vanadium (V)-Total		<0.50	<0.50	RPD-NA	ug/L	N/A	20	27-SEP-19
Zinc (Zn)-Total		5.3	4.6		ug/L	14	20	27-SEP-19
Zirconium (Zr)-Total		<0.30	<0.30	RPD-NA	ug/L	N/A	20	27-SEP-19
WG3174496-2	LCS							
Aluminum (Al)-Total			99.0		%		80-120	27-SEP-19
Antimony (Sb)-Total			103.5		%		80-120	27-SEP-19
Arsenic (As)-Total			97.3		%		80-120	27-SEP-19
Barium (Ba)-Total			100.2		%		80-120	27-SEP-19
Beryllium (Be)-Total			96.3		%		80-120	27-SEP-19



Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 8 of 19

Client:

GeoPro Consulting Limited (Richmond Hill)
 40 Vogell Road Unit 22
 Richmond Hill ON L4B 3N6

Contact:

Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-UG/L-MS-WT		Water						
Batch	R4848050							
WG3174496-2	LCS							
Bismuth (Bi)-Total			98.5		%		80-120	27-SEP-19
Boron (B)-Total			93.3		%		80-120	27-SEP-19
Cadmium (Cd)-Total			99.2		%		80-120	27-SEP-19
Calcium (Ca)-Total			98.1		%		80-120	27-SEP-19
Cesium (Cs)-Total			98.8		%		80-120	27-SEP-19
Chromium (Cr)-Total			99.0		%		80-120	27-SEP-19
Cobalt (Co)-Total			99.4		%		80-120	27-SEP-19
Copper (Cu)-Total			105.9		%		80-120	27-SEP-19
Iron (Fe)-Total			100.5		%		80-120	27-SEP-19
Lead (Pb)-Total			100.9		%		80-120	27-SEP-19
Lithium (Li)-Total			91.2		%		80-120	27-SEP-19
Magnesium (Mg)-Total			98.5		%		80-120	27-SEP-19
Manganese (Mn)-Total			100.6		%		80-120	27-SEP-19
Molybdenum (Mo)-Total			102.6		%		80-120	27-SEP-19
Nickel (Ni)-Total			98.4		%		80-120	27-SEP-19
Phosphorus (P)-Total			99.2		%		80-120	27-SEP-19
Potassium (K)-Total			98.9		%		80-120	27-SEP-19
Rubidium (Rb)-Total			97.3		%		80-120	27-SEP-19
Selenium (Se)-Total			97.0		%		80-120	27-SEP-19
Silicon (Si)-Total			101.0		%		60-140	27-SEP-19
Silver (Ag)-Total			101.8		%		80-120	27-SEP-19
Sodium (Na)-Total			98.2		%		80-120	27-SEP-19
Strontium (Sr)-Total			100.8		%		80-120	27-SEP-19
Sulfur (S)-Total			96.9		%		80-120	27-SEP-19
Tellurium (Te)-Total			97.6		%		80-120	27-SEP-19
Thallium (Tl)-Total			99.5		%		80-120	27-SEP-19
Thorium (Th)-Total			97.4		%		80-120	27-SEP-19
Tin (Sn)-Total			100.3		%		80-120	27-SEP-19
Titanium (Ti)-Total			95.7		%		80-120	27-SEP-19
Tungsten (W)-Total			101.6		%		80-120	27-SEP-19
Uranium (U)-Total			99.4		%		80-120	27-SEP-19
Vanadium (V)-Total			98.7		%		80-120	27-SEP-19
Zinc (Zn)-Total			96.3		%		80-120	27-SEP-19



Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 9 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-UG/L-MS-WT		Water						
Batch	R4848050							
WG3174496-2	LCS							
Zirconium (Zr)-Total			97.9		%		80-120	27-SEP-19
WG3174496-1	MB							
Aluminum (Al)-Total			<10		ug/L		10	27-SEP-19
Antimony (Sb)-Total			<0.10		ug/L		0.1	27-SEP-19
Arsenic (As)-Total			<0.10		ug/L		0.1	27-SEP-19
Barium (Ba)-Total			<0.10		ug/L		0.1	27-SEP-19
Beryllium (Be)-Total			<0.10		ug/L		0.1	27-SEP-19
Bismuth (Bi)-Total			<0.050		ug/L		0.05	27-SEP-19
Boron (B)-Total			<10		ug/L		10	27-SEP-19
Cadmium (Cd)-Total			<0.0050		ug/L		0.005	27-SEP-19
Calcium (Ca)-Total			<50		ug/L		50	27-SEP-19
Cesium (Cs)-Total			<0.010		ug/L		0.01	27-SEP-19
Chromium (Cr)-Total			<0.50		ug/L		0.5	27-SEP-19
Cobalt (Co)-Total			<0.10		ug/L		0.1	27-SEP-19
Copper (Cu)-Total			<1.0		ug/L		1	27-SEP-19
Iron (Fe)-Total			<10		ug/L		10	27-SEP-19
Lead (Pb)-Total			<0.050		ug/L		0.05	27-SEP-19
Lithium (Li)-Total			<1.0		ug/L		1	27-SEP-19
Magnesium (Mg)-Total			<5.0		ug/L		5	27-SEP-19
Manganese (Mn)-Total			<0.50		ug/L		0.5	27-SEP-19
Molybdenum (Mo)-Total			<0.050		ug/L		0.05	27-SEP-19
Nickel (Ni)-Total			<0.50		ug/L		0.5	27-SEP-19
Phosphorus (P)-Total			<50		ug/L		50	27-SEP-19
Potassium (K)-Total			<50		ug/L		50	27-SEP-19
Rubidium (Rb)-Total			<0.20		ug/L		0.2	27-SEP-19
Selenium (Se)-Total			<0.050		ug/L		0.05	27-SEP-19
Silicon (Si)-Total			<50		ug/L		50	27-SEP-19
Silver (Ag)-Total			<0.050		ug/L		0.05	27-SEP-19
Sodium (Na)-Total			<50		ug/L		50	27-SEP-19
Strontium (Sr)-Total			<1.0		ug/L		1	27-SEP-19
Sulfur (S)-Total			<500		ug/L		500	27-SEP-19
Tellurium (Te)-Total			<0.20		ug/L		0.2	27-SEP-19
Thallium (Tl)-Total			<0.010		ug/L		0.01	27-SEP-19
Thorium (Th)-Total			<0.10		ug/L		0.1	27-SEP-19



Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 10 of 19

Client:

GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact:

Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-UG/L-MS-WT		Water						
Batch	R4848050							
WG3174496-1 MB								
Tin (Sn)-Total			<0.10		ug/L		0.1	27-SEP-19
Titanium (Ti)-Total			<0.30		ug/L		0.3	27-SEP-19
Tungsten (W)-Total			<0.10		ug/L		0.1	27-SEP-19
Uranium (U)-Total			<0.010		ug/L		0.01	27-SEP-19
Vanadium (V)-Total			<0.50		ug/L		0.5	27-SEP-19
Zinc (Zn)-Total			<3.0		ug/L		3	27-SEP-19
Zirconium (Zr)-Total			<0.30		ug/L		0.3	27-SEP-19
WG3174496-5 MS		WG3174496-3						
Aluminum (Al)-Total			103.3		%		70-130	27-SEP-19
Antimony (Sb)-Total			103.5		%		70-130	27-SEP-19
Arsenic (As)-Total			101.1		%		70-130	27-SEP-19
Barium (Ba)-Total			N/A	MS-B	%		-	27-SEP-19
Beryllium (Be)-Total			98.2		%		70-130	27-SEP-19
Bismuth (Bi)-Total			92.2		%		70-130	27-SEP-19
Boron (B)-Total			N/A	MS-B	%		-	27-SEP-19
Cadmium (Cd)-Total			96.4		%		70-130	27-SEP-19
Calcium (Ca)-Total			N/A	MS-B	%		-	27-SEP-19
Cesium (Cs)-Total			100.3		%		70-130	27-SEP-19
Chromium (Cr)-Total			103.0		%		70-130	27-SEP-19
Cobalt (Co)-Total			100.1		%		70-130	27-SEP-19
Copper (Cu)-Total			89.3		%		70-130	27-SEP-19
Iron (Fe)-Total			102.7		%		70-130	27-SEP-19
Lead (Pb)-Total			96.3		%		70-130	27-SEP-19
Lithium (Li)-Total			N/A	MS-B	%		-	27-SEP-19
Magnesium (Mg)-Total			N/A	MS-B	%		-	27-SEP-19
Manganese (Mn)-Total			99.5		%		70-130	27-SEP-19
Molybdenum (Mo)-Total			104.4		%		70-130	27-SEP-19
Nickel (Ni)-Total			96.6		%		70-130	27-SEP-19
Phosphorus (P)-Total			102.6		%		70-130	27-SEP-19
Potassium (K)-Total			N/A	MS-B	%		-	27-SEP-19
Rubidium (Rb)-Total			104.1		%		70-130	27-SEP-19
Selenium (Se)-Total			101.5		%		70-130	27-SEP-19
Silicon (Si)-Total			N/A	MS-B	%		-	27-SEP-19
Silver (Ag)-Total			95.9		%		70-130	27-SEP-19

Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 11 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-UG/L-MS-WT		Water						
Batch	R4848050							
WG3174496-5 MS		WG3174496-3						
Sodium (Na)-Total			N/A	MS-B	%	-		27-SEP-19
Strontium (Sr)-Total			N/A	MS-B	%	-		27-SEP-19
Sulfur (S)-Total			N/A	MS-B	%	-		27-SEP-19
Tellurium (Te)-Total			92.3		%		70-130	27-SEP-19
Thallium (Tl)-Total			96.0		%		70-130	27-SEP-19
Thorium (Th)-Total			97.1		%		70-130	27-SEP-19
Tin (Sn)-Total			100.3		%		70-130	27-SEP-19
Titanium (Ti)-Total			99.2		%		70-130	27-SEP-19
Tungsten (W)-Total			101.4		%		70-130	27-SEP-19
Uranium (U)-Total			N/A	MS-B	%	-		27-SEP-19
Vanadium (V)-Total			104.8		%		70-130	27-SEP-19
Zinc (Zn)-Total			86.5		%		70-130	27-SEP-19
Zirconium (Zr)-Total			100.5		%		70-130	27-SEP-19
PAH-511-WT		Water						
Batch	R4839170							
WG3171395-2 LCS								
1-Methylnaphthalene			93.7		%		50-140	25-SEP-19
2-Methylnaphthalene			90.1		%		50-140	25-SEP-19
Acenaphthene			97.4		%		50-140	25-SEP-19
Acenaphthylene			99.4		%		50-140	25-SEP-19
Anthracene			94.9		%		50-140	25-SEP-19
Benzo(a)anthracene			99.4		%		50-140	25-SEP-19
Benzo(a)pyrene			98.5		%		50-140	25-SEP-19
Benzo(b)fluoranthene			88.1		%		50-140	25-SEP-19
Benzo(g,h,i)perylene			114.4		%		50-140	25-SEP-19
Benzo(k)fluoranthene			112.0		%		50-140	25-SEP-19
Chrysene			115.0		%		50-140	25-SEP-19
Dibenzo(ah)anthracene			98.2		%		50-140	25-SEP-19
Fluoranthene			102.6		%		50-140	25-SEP-19
Fluorene			98.6		%		50-140	25-SEP-19
Indeno(1,2,3-cd)pyrene			112.8		%		50-140	25-SEP-19
Naphthalene			98.2		%		50-140	25-SEP-19
Phenanthrene			103.4		%		50-140	25-SEP-19
Pyrene			103.8		%		50-140	



Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 12 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT		Water						
Batch	R4839170							
WG3171395-2	LCS							
Pyrene			103.8		%		50-140	25-SEP-19
WG3171395-1	MB							
1-Methylnaphthalene			<0.020		ug/L		0.02	25-SEP-19
2-Methylnaphthalene			<0.020		ug/L		0.02	25-SEP-19
Acenaphthene			<0.020		ug/L		0.02	25-SEP-19
Acenaphthylene			<0.020		ug/L		0.02	25-SEP-19
Anthracene			<0.020		ug/L		0.02	25-SEP-19
Benzo(a)anthracene			<0.020		ug/L		0.02	25-SEP-19
Benzo(a)pyrene			<0.010		ug/L		0.01	25-SEP-19
Benzo(b)fluoranthene			<0.020		ug/L		0.02	25-SEP-19
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	25-SEP-19
Benzo(k)fluoranthene			<0.020		ug/L		0.02	25-SEP-19
Chrysene			<0.020		ug/L		0.02	25-SEP-19
Dibenzo(ah)anthracene			<0.020		ug/L		0.02	25-SEP-19
Fluoranthene			<0.020		ug/L		0.02	25-SEP-19
Fluorene			<0.020		ug/L		0.02	25-SEP-19
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	25-SEP-19
Naphthalene			<0.050		ug/L		0.05	25-SEP-19
Phenanthrene			<0.020		ug/L		0.02	25-SEP-19
Pyrene			<0.020		ug/L		0.02	25-SEP-19
Surrogate: d8-Naphthalene			93.0		%		60-140	25-SEP-19
Surrogate: d10-Phenanthrene			97.2		%		60-140	25-SEP-19
Surrogate: d12-Chrysene			77.0		%		60-140	25-SEP-19
Surrogate: d10-Acenaphthene			93.6		%		60-140	25-SEP-19
PCB-511-WT		Water						
Batch	R4843133							
WG3171338-2	LCS							
Aroclor 1242			86.1		%		60-140	24-SEP-19
Aroclor 1248			85.4		%		60-140	24-SEP-19
Aroclor 1254			85.3		%		60-140	24-SEP-19
Aroclor 1260			88.0		%		60-140	24-SEP-19
WG3171338-1	MB							
Aroclor 1242			<0.020		ug/L		0.02	24-SEP-19
Aroclor 1248			<0.020		ug/L		0.02	24-SEP-19

Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 13 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-511-WT								
Water								
Batch	R4843133							
WG3171338-1 MB								
Aroclor 1254			<0.020		ug/L		0.02	24-SEP-19
Aroclor 1260			<0.020		ug/L		0.02	24-SEP-19
Surrogate: Decachlorobiphenyl			112.1		%		50-150	24-SEP-19
Surrogate: Tetrachloro-m-xylene			99.1		%		50-150	24-SEP-19
PH-WT								
Water								
Batch	R4840110							
WG3170828-4 DUP		WG3170828-3						
pH		8.03	8.04	J	pH units	0.01	0.2	24-SEP-19
WG3170828-2 LCS								
pH			7.00		pH units		6.9-7.1	24-SEP-19
VOC-511-HS-WT								
Water								
Batch	R4844375							
WG3166501-4 DUP		WG3166501-3						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	26-SEP-19
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	26-SEP-19
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	26-SEP-19
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	26-SEP-19
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	26-SEP-19
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	26-SEP-19

Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 14 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Water						
Batch	R4844375							
WG3166501-4 DUP		WG3166501-3						
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	26-SEP-19
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	26-SEP-19
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	26-SEP-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	26-SEP-19
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	26-SEP-19
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	26-SEP-19
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	26-SEP-19
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	26-SEP-19
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	26-SEP-19
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	26-SEP-19
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	26-SEP-19
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	26-SEP-19
WG3166501-1 LCS								
1,1,1,2-Tetrachloroethane			99.9		%		70-130	26-SEP-19
1,1,1,2-Tetrachloroethane			103.4		%		70-130	26-SEP-19
1,1,1-Trichloroethane			96.3		%		70-130	26-SEP-19
1,1,2-Trichloroethane			95.4		%		70-130	26-SEP-19
1,1-Dichloroethane			91.3		%		70-130	26-SEP-19
1,1-Dichloroethylene			94.8		%		70-130	26-SEP-19
1,2-Dibromoethane			96.3		%		70-130	26-SEP-19
1,2-Dichlorobenzene			105.1		%		70-130	26-SEP-19
1,2-Dichloroethane			98.1		%		70-130	26-SEP-19
1,2-Dichloropropane			98.8		%		70-130	26-SEP-19
1,3-Dichlorobenzene			103.1		%		70-130	26-SEP-19
1,4-Dichlorobenzene			104.0		%		70-130	26-SEP-19



Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 15 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Water						
Batch	R4844375							
WG3166501-1	LCS							
Acetone			98.6		%		60-140	26-SEP-19
Benzene			100.9		%		70-130	26-SEP-19
Bromodichloromethane			101.3		%		70-130	26-SEP-19
Bromoform			96.0		%		70-130	26-SEP-19
Bromomethane			93.0		%		60-140	26-SEP-19
Carbon tetrachloride			97.3		%		70-130	26-SEP-19
Chlorobenzene			97.4		%		70-130	26-SEP-19
Chloroform			97.9		%		70-130	26-SEP-19
cis-1,2-Dichloroethylene			95.3		%		70-130	26-SEP-19
cis-1,3-Dichloropropene			98.2		%		70-130	26-SEP-19
Dibromochloromethane			100.1		%		70-130	26-SEP-19
Dichlorodifluoromethane			128.4		%		50-140	26-SEP-19
Ethylbenzene			94.7		%		70-130	26-SEP-19
n-Hexane			93.1		%		70-130	26-SEP-19
m+p-Xylenes			94.4		%		70-130	26-SEP-19
Methyl Ethyl Ketone			90.9		%		60-140	26-SEP-19
Methyl Isobutyl Ketone			100.0		%		60-140	26-SEP-19
Methylene Chloride			99.0		%		70-130	26-SEP-19
MTBE			99.7		%		70-130	26-SEP-19
o-Xylene			94.8		%		70-130	26-SEP-19
Styrene			93.4		%		70-130	26-SEP-19
Tetrachloroethylene			93.0		%		70-130	26-SEP-19
Toluene			98.6		%		70-130	26-SEP-19
trans-1,2-Dichloroethylene			93.8		%		70-130	26-SEP-19
trans-1,3-Dichloropropene			92.4		%		70-130	26-SEP-19
Trichloroethylene			96.1		%		70-130	26-SEP-19
Trichlorofluoromethane			98.7		%		60-140	26-SEP-19
Vinyl chloride			117.9		%		60-140	26-SEP-19
WG3166501-2	MB							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	26-SEP-19
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	26-SEP-19
1,1,1-Trichloroethane			<0.50		ug/L		0.5	26-SEP-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	26-SEP-19
1,1-Dichloroethane			<0.50		ug/L		0.5	26-SEP-19



Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 16 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Water						
Batch	R4844375							
WG3166501-2	MB							
1,1-Dichloroethylene			<0.50		ug/L		0.5	26-SEP-19
1,2-Dibromoethane			<0.20		ug/L		0.2	26-SEP-19
1,2-Dichlorobenzene			<0.50		ug/L		0.5	26-SEP-19
1,2-Dichloroethane			<0.50		ug/L		0.5	26-SEP-19
1,2-Dichloropropane			<0.50		ug/L		0.5	26-SEP-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	26-SEP-19
1,4-Dichlorobenzene			<0.50		ug/L		0.5	26-SEP-19
Acetone			<30		ug/L		30	26-SEP-19
Benzene			<0.50		ug/L		0.5	26-SEP-19
Bromodichloromethane			<2.0		ug/L		2	26-SEP-19
Bromoform			<5.0		ug/L		5	26-SEP-19
Bromomethane			<0.50		ug/L		0.5	26-SEP-19
Carbon tetrachloride			<0.20		ug/L		0.2	26-SEP-19
Chlorobenzene			<0.50		ug/L		0.5	26-SEP-19
Chloroform			<1.0		ug/L		1	26-SEP-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	26-SEP-19
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	26-SEP-19
Dibromochloromethane			<2.0		ug/L		2	26-SEP-19
Dichlorodifluoromethane			<2.0		ug/L		2	26-SEP-19
Ethylbenzene			<0.50		ug/L		0.5	26-SEP-19
n-Hexane			<0.50		ug/L		0.5	26-SEP-19
m+p-Xylenes			<0.40		ug/L		0.4	26-SEP-19
Methyl Ethyl Ketone			<20		ug/L		20	26-SEP-19
Methyl Isobutyl Ketone			<20		ug/L		20	26-SEP-19
Methylene Chloride			<5.0		ug/L		5	26-SEP-19
MTBE			<2.0		ug/L		2	26-SEP-19
o-Xylene			<0.30		ug/L		0.3	26-SEP-19
Styrene			<0.50		ug/L		0.5	26-SEP-19
Tetrachloroethylene			<0.50		ug/L		0.5	26-SEP-19
Toluene			<0.50		ug/L		0.5	26-SEP-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	26-SEP-19
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	26-SEP-19
Trichloroethylene			<0.50		ug/L		0.5	26-SEP-19



Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 17 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Water						
Batch	R4844375							
WG3166501-2 MB								
Trichlorofluoromethane			<5.0		ug/L		5	26-SEP-19
Vinyl chloride			<0.50		ug/L		0.5	26-SEP-19
Surrogate: 1,4-Difluorobenzene			101.3		%		70-130	26-SEP-19
Surrogate: 4-Bromofluorobenzene			101.6		%		70-130	26-SEP-19
WG3166501-5 MS		WG3166501-3						
1,1,1,2-Tetrachloroethane			98.9		%		50-140	26-SEP-19
1,1,2,2-Tetrachloroethane			90.8		%		50-140	26-SEP-19
1,1,1-Trichloroethane			100.6		%		50-140	26-SEP-19
1,1,2-Trichloroethane			87.4		%		50-140	26-SEP-19
1,1-Dichloroethane			90.5		%		50-140	26-SEP-19
1,1-Dichloroethylene			96.5		%		50-140	26-SEP-19
1,2-Dibromoethane			85.9		%		50-140	26-SEP-19
1,2-Dichlorobenzene			114.0		%		50-140	26-SEP-19
1,2-Dichloroethane			90.7		%		50-140	26-SEP-19
1,2-Dichloropropane			96.6		%		50-140	26-SEP-19
1,3-Dichlorobenzene			114.1		%		50-140	26-SEP-19
1,4-Dichlorobenzene			114.5		%		50-140	26-SEP-19
Acetone			90.2		%		50-140	26-SEP-19
Benzene			100.1		%		50-140	26-SEP-19
Bromodichloromethane			98.0		%		50-140	26-SEP-19
Bromoform			85.1		%		50-140	26-SEP-19
Bromomethane			84.5		%		50-140	26-SEP-19
Carbon tetrachloride			100.4		%		50-140	26-SEP-19
Chlorobenzene			96.7		%		50-140	26-SEP-19
Chloroform			97.7		%		50-140	26-SEP-19
cis-1,2-Dichloroethylene			93.7		%		50-140	26-SEP-19
cis-1,3-Dichloropropene			87.5		%		50-140	26-SEP-19
Dibromochloromethane			93.5		%		50-140	26-SEP-19
Dichlorodifluoromethane			121.3		%		50-140	26-SEP-19
Ethylbenzene			98.0		%		50-140	26-SEP-19
n-Hexane			93.6		%		50-140	26-SEP-19
m+p-Xylenes			97.9		%		50-140	26-SEP-19
Methyl Ethyl Ketone			73.8		%		50-140	26-SEP-19
Methyl Isobutyl Ketone			85.7		%		50-140	26-SEP-19



Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Page 18 of 19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6

Contact: Sarena Medina

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	Water							
Batch	R4844375							
WG3166501-5 MS		WG3166501-3						
Methylene Chloride			93.6		%		50-140	26-SEP-19
MTBE			98.4		%		50-140	26-SEP-19
o-Xylene			96.6		%		50-140	26-SEP-19
Styrene			92.2		%		50-140	26-SEP-19
Tetrachloroethylene			95.8		%		50-140	26-SEP-19
Toluene			99.98		%		50-140	26-SEP-19
trans-1,2-Dichloroethylene			95.1		%		50-140	26-SEP-19
trans-1,3-Dichloropropene			80.3		%		50-140	26-SEP-19
Trichloroethylene			97.6		%		50-140	26-SEP-19
Trichlorofluoromethane			98.0		%		50-140	26-SEP-19
Vinyl chloride			113.4		%		50-140	26-SEP-19

Quality Control Report

Workorder: L2351402

Report Date: 21-OCT-19

Client: GeoPro Consulting Limited (Richmond Hill)
40 Vogell Road Unit 22
Richmond Hill ON L4B 3N6
Contact: Sarena Medina

Page 19 of 19

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.
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.

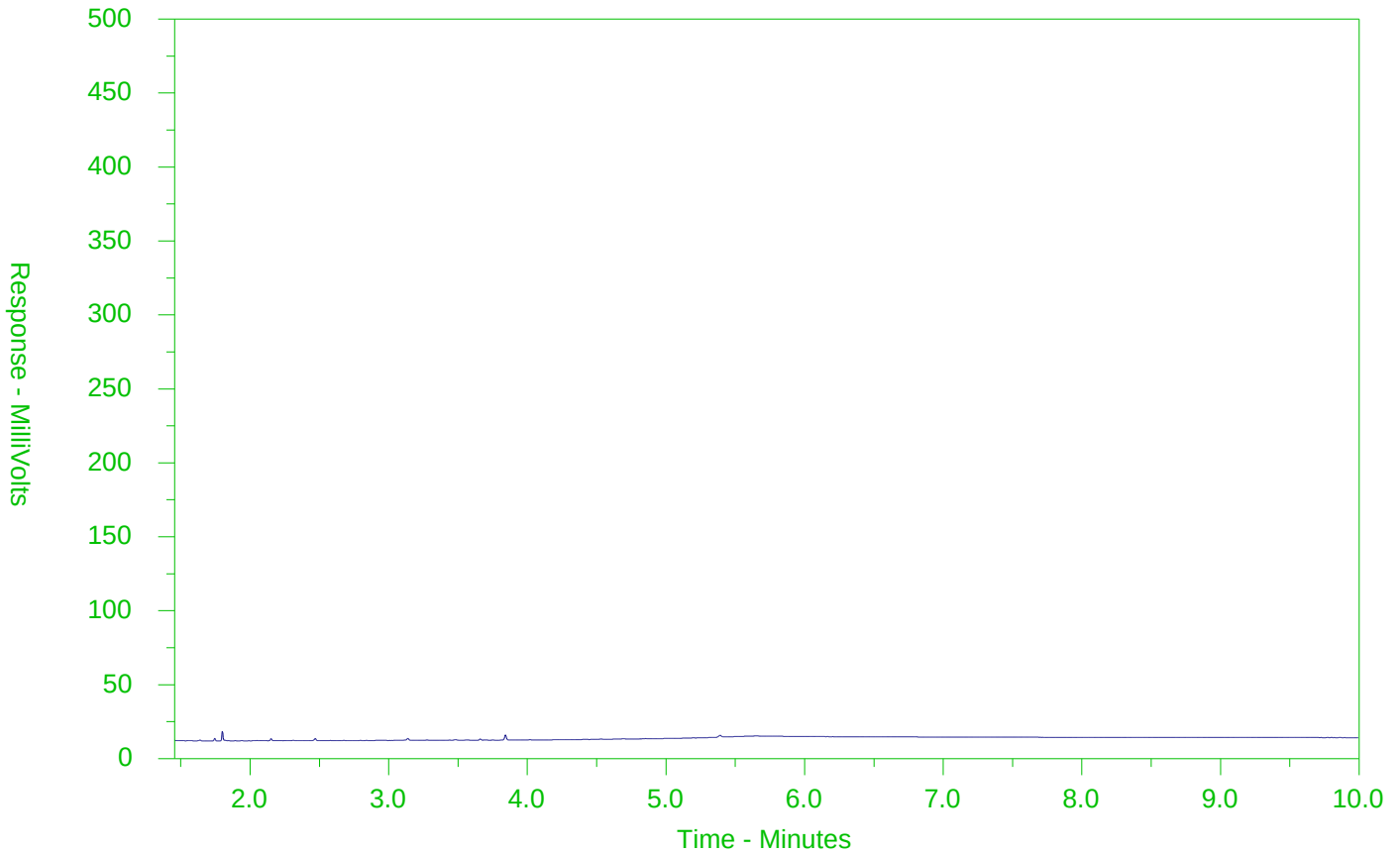
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2351402-1
Client Sample ID: BH3



← 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.

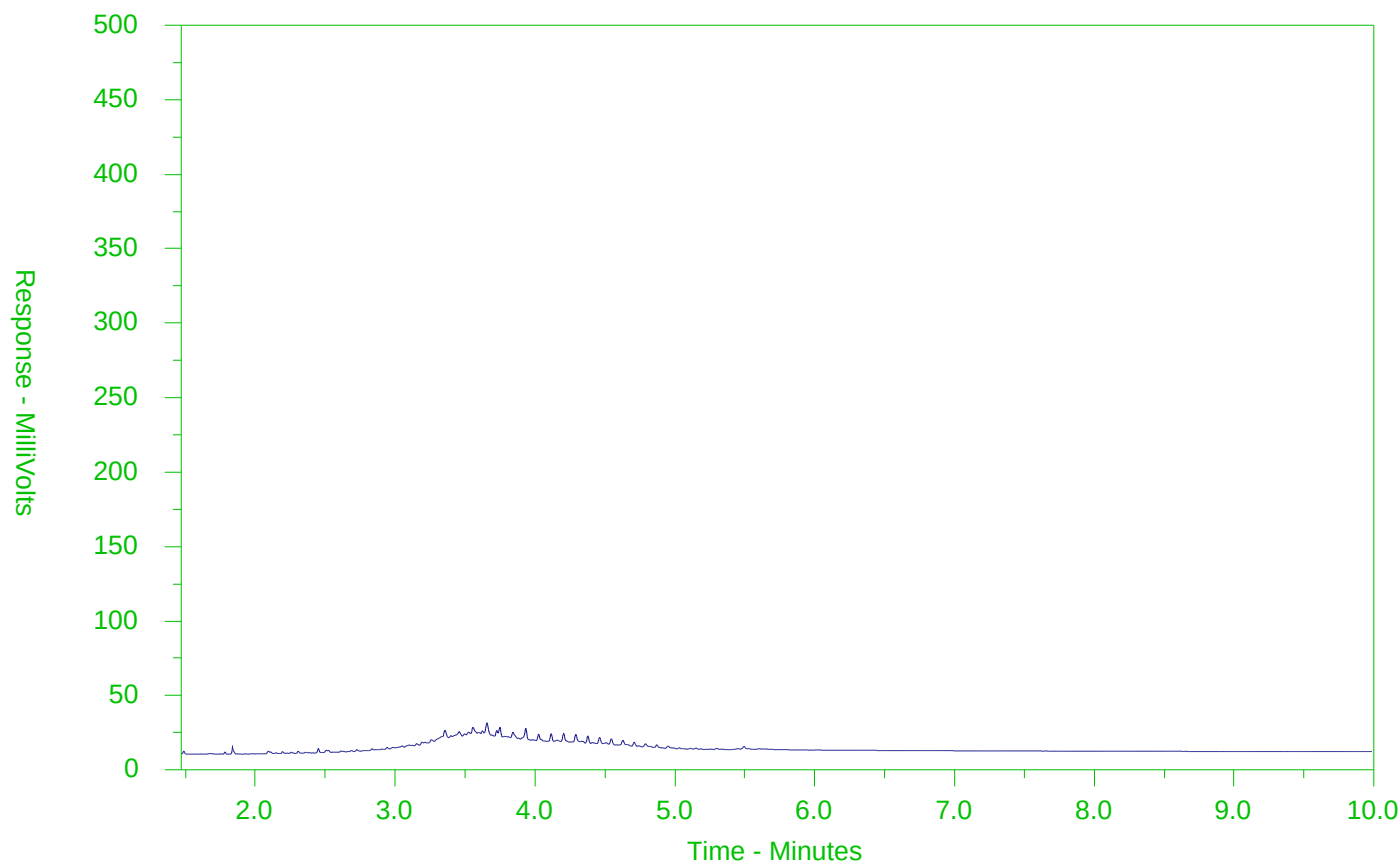
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

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: L2351402-2
Client Sample ID: BH6



← 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.

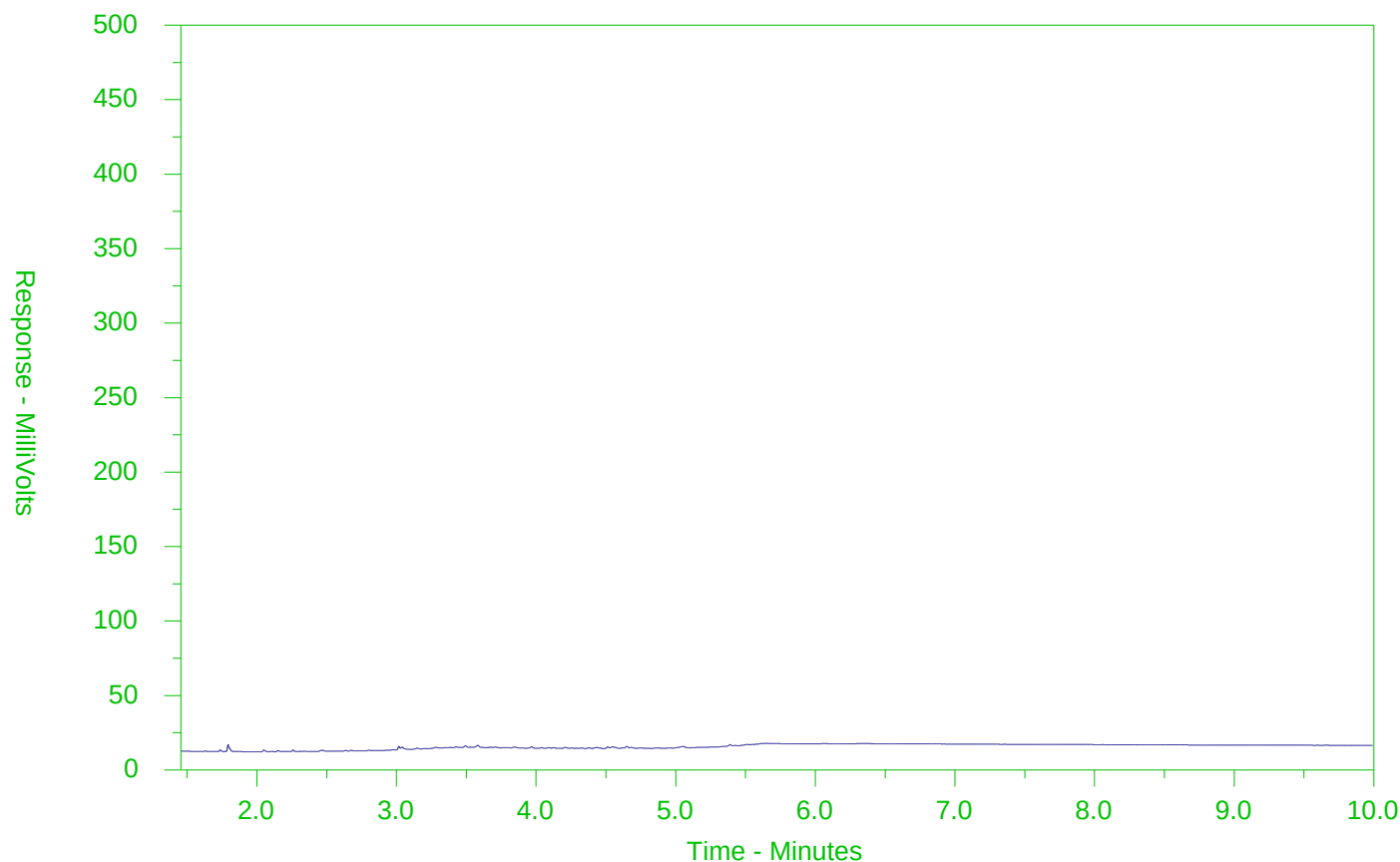
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

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: L2351402-3
Client Sample ID: BH7A



← 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.

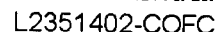
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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.



Canada Toll Free: 1 800 668 9878



COC Number: 17-2099E-20190920

Page 1 of 1

www.alsqglobal.com

www.alsglobal.com				
Report To Contact and company name below will appear on the final report				
Company:	GeoPro Consulting Ltd.			
Contact:	Sarena Medina sarenm@geoproconsulting.ca			
Phone:	(905) 237-8336			
Company address below will appear on the final report				
Street:	40 Vogell Road, Unit 57			
City/Province:	Richmond Hill, ON			
Postal Code:	L4B 3N6			
Invoice To	Same as Report To ☒ YES ☐ NO			
	Copy of Invoice with Report ☐ YES ☒ NO			
Company:				
Contact:				
Project Information				
ALS Account # / Quote #:	Q71931			
Job #:	17-2099E			
PO / AFE:				
LSD:	Toronto, Ontario			
ALS Lab Work Order # (lab use only)	L2351402 u			
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type
	BH3 BH103	20-Sep-19	AM	Water
	BH6 BH106	20-Sep-19	AM	Water
	BH7A BH107	20-Sep-19	AM	Water
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				
Are samples for human drinking water use? ☐ YES ☒ NO				
MOECC Table 1				
SHIPMENT RELEASE (client use)				
Released by:	Damen Nyland	Date:	2019/09/20	Time:
INITIAL SHIPMENT RECEPTION (lab use only)				
Received by:	DS	Date:	Sep 20/19	Time:
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				
22.1				
FINAL COOLER TEMPERATURES °C				
12.9				
FINAL SHIPMENT RECEPTION (lab use only)				
Received by:	DS	Date:	20 Sep 19	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY / YELLOW - CLIENT COPY

OCTOBER 2015 FROM

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**.

This report utilizes scientific principles, professional judgement and subjective interpretations. It has been prepared and is subject to the terms, conditions and limitations set out in our approved proposal prepared based on our understanding of the project.

The comments and recommendations given in this report are based on information obtained at the limited number of the test hole and test pit locations. The boundaries between the various strata as shown on the borehole logs are based on non-continuous sampling and represent an inferred transition between the various strata and their lateral continuation rather than a precise plane of geological change. Subsurface conditions and environmental conditions between and beyond the test holes and test pits may differ significantly from those encountered at the test hole and test pit locations.

The findings, comments and recommendations given in this report are based on information obtained by GeoPro at the sampling locations/depth expected to be representative of the area of investigation. It should be noted that the analytical results refer only to the sample analyzed which was obtained from specific sampling location and sampling depth, and the analytical results and soil/groundwater chemistry may vary between and beyond the location and depth of the sample taken. The findings in this report are limited to the environmental conditions on the Site at the time of investigation only.

Further, there can be no assurance that sampling techniques employed have necessarily disclosed all potential contaminants at the Site due, among other things and without limitation, to such factors as a practical and economic limitation on the number and location of samples, sample depth, drilling rig accessibility, lack of current definition of a particular material as hazardous, and the like. Moreover, in the event that GeoPro has been granted authorization to use data and/or information obtained from previous third party investigation reports prepared by other consultants we make no warranty as to its accuracy or completeness and understand it to be factual and correct. As such, GeoPro does not guarantee the accuracy of said data prepared by others.

The benchmark and elevations used in this report are primarily to establish relative elevation differences between the test hole and test pit locations and should not be used for other purposes, such as grading, excavating, planning, development, etc. The information provided in this report may not be sufficient to obtain approval for disposal of excess soil or materials generated during construction.

This report has been prepared for the exclusive use of the client and may not be relied upon by any third party without GeoPro's express written authorization. Unless otherwise agreed in writing by GeoPro Consulting Limited, it shall not be used to express or imply warranty as to any other purposes. No portion of this report shall be used as a separate entity, it is written to be read in its entirety.

The material in this report reflects our best judgment based on the information available to GeoPro Consulting Limited at the time of preparing this report. Any uses which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third party. GeoPro accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

The recommendations given in this report are applicable only to the project carried out completely in accordance with the details stated in this report. Otherwise, our responsibility is limited to interpreting the factual information at the borehole or test pit locations.

Should any comments and recommendations provided in this report be made on any construction related issues, they are intended only for the guidance of the designers. The number of test holes and test pits may not be sufficient to determine all the factors that may affect construction activities, methods and costs. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and make their own conclusions as to how the Site conditions may affect their work and determine the proper construction methods.