Terraprobe
Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing

PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
PROPOSED RESIDENTIAL HIGH-RISE
55 PORT STREET EAST,
MISSISSAUGA, ONTARIO

Prepared for: **Brown Maple Investment Ltd**
c/o FRAM + Slokker
141 Lakeshore Road East
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Attention: Mr. Bennet MacNeil
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File No. 1-18-0012-42
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1.0 EXECUTIVE SUMMARY

Terraprobe Inc. (Terraprobe) was retained by FRAM + Slokker on behalf of Brown Maple Investment Limited, to complete a Phase Two Environmental Assessment (ESA) at a property located at 55 Port Street East, Mississauga, Ontario (herein reference as 'Property' or 'Site').

The Property is located in the southeast quadrant of the intersection of Port Street East and Helene Street South, in the City of Mississauga, Ontario. The municipal address for the Property is 55 Port Street East, Mississauga, Ontario. The Property is comprised of a roughly rectangular shaped parcel of land, covering approximately 0.23 ha (0.57 acres) area. The Property is currently occupied by a two and half storey commercial/light industrial building, with associated asphalt paved parking areas, driveways/access routes, and landscaping areas. The general location of the site is presented on Figure 1.

It is proposed to demolish the existing building to facilitate the redevelopment of the Property to include a ten-storey building with one level of underground parking garage across the project site. The development would be serviced by municipal water and sewers.

In accordance with the applicable environmental regulation (Ontario Regulation 153/04), the current use of the Property is considered to be commercial/ light industrial land use. Under the Ontario Regulation 153/04, there is a mandatory requirement for the filing of a Record of Site Condition (RSC) for the proposed change from commercial use to residential use.

A Record of Site Condition (RSC) will be required to permit for the residential purposes. Filing of a RSC is a mandatory requirement of Ontario Regulation 153/04, and also a requirement of the City of Mississauga as part of the planning process.

Terraprobe recently completed a Phase One ESA for the Property. The findings are provided in a report entitled "*Phase One Environmental Site Assessment, 55 Port Street East, Mississauga, Ontario*", dated March 5, 2018.

The Phase One ESA recommended that prior to the preparation and submission of a Record of Site Condition, a Phase Two Environmental Site Assessment must be completed to investigate the Areas of Potential Environmental Concern for the Contaminants of Concern that have been identified on the Property. To support the filing of an RSC, a Phase Two ESA was completed in compliance of amended O.Reg.153/04.

The scope and results of the Phase Two ESA are summarized below:

- The Phase Two ESA consisted of drilling a total of five (5) boreholes to a maximum depth of 12.3 m below ground level (bgl) to investigate the soil and ground water condition at the Property. A monitoring well was installed at four (4) borehole locations.

- The stratigraphy of the Property generally consisted of a layer of topsoil or asphalt over aggregate. An asphalt pavement structure was encountered in Boreholes 1 to 3 and consisted of 80 to 90 mm thick asphaltic concrete underlain by 120 to 670 mm thick granular base. A topsoil layer approximately 100mm thick was encountered at the ground surface in Boreholes 4 and 5. Underlying the topsoil or asphalt, the boreholes were advanced through a layer of earth fill that extends to depths of 0.1 to 2.3 m below ground level at the location of borehole 3 to 5. The earth fill generally consisting of clayey silt to sand/silty sand with trace organic inclusions, underlain by undisturbed native soil deposit of 0.2 to 10.7 m below ground level. The native soil deposit predominately consists of sandy silt to silty sand soils, overlying silt and clayey silt till deposits. Bedrock was encountered at all borehole locations underlying the glacial till deposit at the depth of approximately 9 m below ground level.
- The results of the samples submitted for chemical analysis were compared to the full depth generic site condition standards in a potable ground water condition for all soil textures as contained in Table 8 of the Ministry of Environment and Climate Change (MOECC) publication "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*" for potable groundwater condition residential/parkland/institutional Property Use, April 15, 2011. According to the grain size analysis, the soil at the Property is medium to fine textured soil (over 50% silt and clay).
- Soil and ground water samples were tested for the contaminants of potential concern (COPC) that were identified in the Phase One ESA. The chemical analyses included: Metals, Other Regulated Parameters (ORPs) including Electrical Conductivity (EC), Sodium Absorption Ratio (SAR), boron, hot water soluble, cyanide, mercury, hexavalent chromium, and pH, and Hydride Forming Metals, Petroleum Hydrocarbons (PHCs), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), and Polychlorinated Bi-Phenyls (PCBs).
- A total of twenty (20) soil samples from borehole locations including quality control (QC) duplicates were submitted for chemical analysis of Petroleum Hydrocarbons PHCs (F1-F4), benzene, toluene, ethylbenzene and xylene (BTEX), Volatile Organic Compounds (VOCs), Polychlorinated Biphenyls (PCBs), Polycyclic Aromatic Hydrocarbons (PAHs), Metals, Other Regulated Parameters (ORPs) including Electrical Conductivity (EC), Sodium Absorption Ratio (SAR), boron, hot water soluble, cyanide, mercury, hexavalent chromium, and pH, and Hydride Forming Metals parameters.
- A total of six (6) ground water samples from four (4) monitoring wells installed (BH/MW1, BH/MW2, BH/MW4, and BH/MW5) including duplicated samples were analysed for of Petroleum Hydrocarbons PHCs (F1-F4), benzene, toluene, ethylbenzene and xylene (BTEX), Volatile Organic Compounds (VOCs), Polychlorinated Biphenyls (PCBs), Polycyclic Aromatic Hydrocarbons (PAHs), and Metals, Other Regulated Parameters (ORPs), and Hydride Forming Metals parameters.
- No exceedances of the applicable Site Condition Standards (Table 8 SCS) for parameters analysed were found in any of the ground water samples analysed.
- No exceedances of the applicable Standards (Table 8 SCS) for parameters analysed in soil were found in any of the soil samples analysed with the exception of sodium adsorption ratio (SAR) and electrical conductivity (EC) at the northern portion of the Property.

Soil quality exceedances were noted in the fill materials and upper native at three (3) boreholes locations.

- Other Regulated Parameters (Electrical Conductivity EC, Sodium Adsorption Ratio, SAR) at three locations (BH/MW1 and BH/MW2 at 0.6 m depth) and (BH/MW3 at 0.6 m to 2.9 m depth).

The exceedances at the Property appear to be minor and likely associated the use of de-icing salts at the Property and adjacent public road to the east and north of the Property during the winter season. SAR and EC have no risk associated with human health; rather they are linked with vegetation growth. It is believed that the application of de-icing salt to the adjacent roadways resulted in salt-laden snowmelt migrating and infiltrating the fill layer that caused elevated levels of EC and SAR at the Property.

In order to obtain a Record of Site Condition, it will be necessary to remove the salt impacted soils from the Property. The remaining soils must meet the applicable MOECC Table 8 Site Condition Standards prior to the submission of the RSC for the Property.

It is expected that there will be significant removal of soil materials from the Property to facilitate the construction of underground parking during the future construction for proposed residential building. The future construction will result in the removal of the mixed fill and impacted fill noted at the Property.

Based on the available information, the Property area is approximately 2300 m^2. The site building has a basement level extended into the native soil and the soil beneath the basement floor is not expected to be impacted. The preliminary estimates, the aerial extent of the EC and SAR impact at the Property as shown in (Figure 5) is estimated to be approximately 1200 m^2. The approximate volume of impacted soil is estimated to be about 1,200 to 3,600 m^3. However, these estimates are preliminary and conservative; and will need to be refined. Given that measured exceedances of EC and SAR are relatively minor and lateral sampling locations are significantly spread apart, it is anticipated that actual volume of impacted soil would likely be lower than the preliminary estimates.

Terraprobe recommends that a soil management plan should be developed and implemented to manage the EC and SAR impacted soil at the Property. The soil management plan would include sampling and analysis for EC and SAR in a grid pattern across the zone of impact to determine the volume of impacted soil and remediation options. The soil management plan could be implemented at the time of earthworks for the proposed development.

All wells installed during the subsurface soil and groundwater investigation are required to be decommissioned in accordance with O.Reg.903 when they are no longer needed for ground water observation.

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2.0 INTRODUCTION

Terraprobe was retained by FRAM + Slokker on behalf of Brown Maple Investment Limited, to complete a Phase Two Environmental Assessment (ESA) at a property located at 55 Port Street East, Mississauga, Ontario (herein reference as 'Property' or 'Site').

Terraprobe recently completed a Phase One ESA for the Property. The Phase One ESA recommended that prior to the preparation and submission of a Record of Site Condition, a Phase Two Environmental Site Assessment must be completed to investigate the Areas of Potential Environmental Concern for the Contaminants of Concern that have been identified on the Property. The Phase Two ESA was completed in compliance with Ontario Regulation 153/04 (O.Reg.153/04) and in accordance with generally accepted professional practices.

2.1 Site Description

The Property is located in the southeast quadrant of the intersection of Port Street East and Helene Street South, in the City of Mississauga, Ontario. The municipal address for the Property is 55 Port Street East, Mississauga, Ontario. The Property is comprised of a roughly rectangular shaped parcel of land, covering approximately 0.23 ha (0.57 acres) area. The Property is currently occupied by a two and half storey commercial/light industrial building, with associated asphalt paved parking areas, driveways/access routes, and landscaping areas. The general location of the site is presented on Figure 1.

2.2 Phase Two Property Information

The Property information is provided in the table below.

Municipal Address	55 Port Street East, Mississauga, Ontario
Legal Description	Block 9 & 10, Plan 43M1463
PIN	13486-0847(LT) and 13486-0848(LT)
Zoning	RA2 – Apartment Dwelling Residential Zone
Area	0.23 ha (0.57 acres)

The ownership information for the Phase Two Property is as below.

Property Owner Information	Brown Maple Investments Ltd.
Persons, other than Property Owner, who engaged the Qualified Person to conduct the Phase One ESA	Bennet MacNeil, Development Coordinator FRAM + Slokker 141 Lakeshore Road East Mississuaga, Ontario L5G 1E8

2.3 Current and Proposed Future Uses

2.3.1 Current Land Use

The Property is currently occupied with a two and a half storey commercial building with one (1) basement level with associated landscaped grass areas and asphalt paved driveways/parking areas. Under O.Reg.153/04 the current land use of the Property would be considered commercial land use.

2.3.2 Future Land Use

The future land use for the Property will include a ten-story residential apartment building with one (1) level of underground parking. The development will be fully serviced with municipal water, sewage, and roads. Under O.Reg.153/04 the future land use of the Property would be considered residential land use.

2.4 Applicable Site Condition Standard

The applicable Site Condition Standards for the Property were considered to be those contained in Table 8 of the April 15, 2011 Ontario Ministry of Environment and Climate Change (MOECC) "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*" for Residential/Parkland/Institutional types of property uses in a potable ground water condition for medium/ fine soil textures (Table 8 Standards). These are considered to be the applicable Standards for the property based on the following reasons:

- The proposed use for the Property is for residential land use.
- Soil at the Property was found to be medium/fine textured based on a review of the soil samples collected from the boreholes and grain size analysis curve. The texture of the soils encountered on site considered as medium to fine textured for the purpose of this report.
- Bedrock across the subject site is found at depths of greater than 2 m.
- The site is located in the City of Mississauga and serviced by municipal piped water, however, it is possible that surrounding properties may rely on private water wells.
- The Property is located within 30 m of a surface water body.
- The Property is not within an area of natural significance and does not include land within 30 m of an area of natural significance.

3.0 BACKGROUND INFORMATION

3.1 Physical Setting

3.1.1 Water Bodies and Areas of Natural Significance

The Phase Two Property and Study Area are located in a developed area of the City of Mississauga. According to the Ontario Base Map from 1982, which covers the Property, the ground surface at the Property is relatively flat and slopes towards the south.

Mapping from the Ontario Ministry of Natural Resources and Forestry (MNRF) was reviewed to determine if water bodies were present on the Property and within 250 m of the Property. The Ontario Ministry of Natural Resources National Heritage Information Centre database for listings of Areas of Natural or Scientific Interest (ANSIs) was reviewed. The information is summarized below.

Water Bodies (Property)	• No water bodies were identified on the Property
Water Bodies (Study Area)	• Lake Ontario – located approximately 30 m to the southeast of the Property. • Credit River – located approximately 450 m to the west.
Wetland (Property)	Provincially Significant • No Provincially Significant wetlands are present on the Property. Non- Provincially Significant • No Non- Provincially Significant wetlands are present on the Property. Unevaluated • No Unevaluated wetlands are present on the Property.
Wetland (Study Area)	Provincially Significant • No Provincially Significant wetlands are present in the Study Area. Non- Provincially Significant • No Non- Provincially Significant wetlands are present in the Study Area. Unevaluated • No Unevaluated wetlands are present in the Study Area.
ANSIs (Property)	Provincially Significant Life Science ANSI • No Life Science ANSIs were identified on the Property. Provincially Significant Earth Science ANSI • No Earth Science ANSIs were identified on the Property.

ANSIs (Study Area)	Provincially Significant Life Science ANSI • No Life Science ANSIs were identified in the Study Area. Provincially Significant Earth Science ANSI • No Earth Science ANSIs were identified in the Study Area.

3.1.2 Topography and Surface Water Drainage

A topographic map from the Ontario Ministry of Natural Resources (MNR) and the geological mapping produced by the Ontario Ministry of Northern Development and Mines - Ontario Geological Survey was reviewed. The information gleaned from the mapping is summarized below. It should be noted that the subsurface soil, rock and groundwater conditions described above represent generalized conditions only, and should not be considered site specific.

Topography	Based on topographic information from the 1982 Ontario Base Map, the subject property ground surface elevation is approximately 78 m above mean sea level and about 4 m above the level of Lake Ontario. The ground surface slopes gradually to the southeast towards Lake Ontario.
Hydrogeology	The nearest water body is Lake Ontario located approximately 30 m to the southeast of the Property. The Credit River is located approximately 450 m to the west. Regional ground water flow in this area is expected to be in a southerly direction, towards Lake Ontario. Locally, near-surface ground water flow may be influenced by underground structures (e.g., service trenches).
Geology (overburden)	Based on published geological information for the area, the near-surface overburden on the Property is mainly comprised of modern alluvial deposits consisting of clay, silt, sand, and gravel (19) and coarse-textured glaciolacustrine deposits consisting of sand, gravel, minor silt and clay foreshore and basinal deposits (9c).
Geology (bedrock)	The bedrock on the Property is of the Georgian Bay Formation, which is comprised of shale and limestone (55b).
Geology (depth to bedrock)	Based on the published information, depth to bedrock in the vicinity is approximately 12 m below ground surface.

3.2 Past Investigations

A Phase One was completed for the Property in March 2018 by Terraprobe, the findings of which are summarized below.

Report Title	Phase One Environmental Site Assessment, 55 Port Street East, Mississauga, Ontario
Report Date	March 5, 2018
Prepared By	Terraprobe Inc.
Prepared For	FRAM + Slokker

The Phase One ESA identified the following Areas of Potential Environmental Concerns (APECs) at the Property:

Area of Potential Environmental Concern[1]	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity[2]	Location of PCA (on-site or off-site)	Contaminants of Potential Concern[3]	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC 1	Entire Phase One Property (Excluding the Site Building Area)	#30 – Importation of Fill Material of Unknown Quality	On-Site	Metals, As, Sb, Se, Cr(VI), Hg, CN-, B-HWS, EC, SAR, PHCs, VOCs, PAHs	Soil and Groundwater
APEC 2	Northern portion of Phase One Property (North of Site Building Area)	#55 – Transformer Manufacturing, Processing and Use	On-Site	PCBs	Soil and Groundwater
APEC 3	Northern portion of Phase One Property (North of Site Building Area)	#28 – Gasoline and associated products storage in a fixed tank	Off-Site	PHCs, BTEX	Soil and Groundwater
APEC 4	Northern portion of Phase One Property (North of Site Building Area)	#37 – Operation of Dry Cleaning Equipment (where chemicals are used)	Off-Site	VOCs	Soil and Groundwater
APEC 5	Northern portion of Phase One Property (North of Site Building Area)	#46 – Rail Yards, Tracks, and Spurs	Off-Site	Metals, As, Sb, Se, Cr(VI), Hg, CN-, B-HWS, EC, SAR, PHCs, VOCs, PAHs	Soil and Groundwater
APEC 6	Northern portion of Phase One Property (North of Site Building Area)	#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	PHCs, VOCs	Soil and Groundwater
APEC 7	Northern portion of Phase One Property (North of Site Building Area)	#54 – Textile Manufacturing and Processing	Off-Site	VOCs	Soil and Groundwater

Note: 1: APEC 2: PCAs 3: COPC

Based on the finding of the Phase One ESA, Terraprobe recommended a Phase Two Environmental Site Assessment to investigate issues of potential environmental concern that have been identified on the Property and the Study Area, which may have resulted in adverse impact to the environmental condition of the Phase One Property.

4.0 SCOPE OF THE INVESTIGATION

4.1 Overview of Site Investigation

Terraprobe completed a Phase One Environmental Site Assessment (ESA) for the Site in March 2018. The sampling program of Phase Two investigation was developed with regards to the potentially contaminating activities in the area as identified in Phase One Conceptual Site Model.

The sampling program involved investigation of soil and ground water quality across the Phase Two Property. The sampling program was designed to address the APECs and Contaminants of Potential Concern (COPCs) identified in the Phase One Study.

Terraprobe conducted the following work at the Property as part of the Phase Two ESA:

- Drilling of five (5) boreholes to maximum depth of 12.3 m below ground level (bgl) in conjunction with the geotechnical investigation. The approximate locations of the boreholes are provided on Figure 3.
- Installation of ground water monitoring well in four (4) boreholes to investigate the groundwater condition at the Property.
- Submission of soil and ground water samples to AGAT Laboratories for chemical analysis of the contaminants of concern that had been identified for each area of potential environmental concern.
- A total of twenty (20) soil samples from five (5) borehole locations including quality control (QC) duplicate were analyzed for VOCs, PHCs F1-F4, PCBs, metals, ORPS, hydride forming metals, and PAHs.
- A total of six (6) ground water samples from installed four (4) monitoring wells including quality control duplicates and a trip blank were analyzed for VOCs, PHCs F1-F4, PAHs, PCBS, metals, ORPS, and hydride forming metals parameters.
- Submission of soil samples for grain size analyses.
- Measuring the groundwater levels from the newly installed at the Property for identification of the groundwater flow direction in one (1) event.
- Reviewing the analytical results and comparing with the MOECC Table 8 RPI/ICC Standards.
- Summarizing the result of investigation in a report format.

4.2 Media Investigated

4.2.1 Rationale for Inclusion or Exclusion of Media

Media	Included or Excluded	Rationale
Soil	Included	Based upon the Phase One ESA, soil sampling was required on the Property of the identified Potential Contaminants of Concern (PCoCs). Sample locations were selected to investigate all the identified Areas of Potential Environmental Concern (APECs).
Sediment	Excluded	Surface water bodies were not present on the Property. As such, sediment sampling was not conducted during the investigation.
Ground Water	Included	Based upon the Phase One ESA, ground water sampling was required on the Property of the identified Potential Contaminants of Concern (PCoCs). Sample locations were selected to investigate all the identified Areas of Potential Environmental Concern (APECs).
Surface Water	Excluded	Surface water bodies were not present on the Property. As such, surface water sampling was not conducted during the investigation.

4.2.2 Overview of Field Investigation of Media

Soil sampling was conducted during the drilling program by use of a split spoon sampling device pre-excavation. Ground water sampling was conducted from monitoring wells which were installed as part of the drilling program.

4.3 Phase One Conceptual Site Model

The Phase One Conceptual Site Model was developed as part of the Phase One ESA for the Property through a review of historical records and a reconnaissance of the area. The Phase One Conceptual Site Model from the Phase One ESA is presented in Appendix A. The Phase One Conceptual Site Model is summarized below.

Area of Potential Environmental Concern[1]	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity[2]	Location of PCA (on-site or off-site)	Contaminants of Potential Concern[3]	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC 1	Entire Phase One Property (Excluding the Site Building Area)	#30 – Importation of Fill Material of Unknown Quality	On-Site	Metals, As, Sb, Se, Cr(VI), Hg, CN-, B-HWS, EC, SAR, PHCs, VOCs, PAHs	Soil and Groundwater
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APEC 3	Northern portion of Phase One Property (North of Site Building Area)	#28 – Gasoline and associated products storage in a fixed tank	Off-Site	PHCs, BTEX	Soil and Groundwater
APEC 4	Northern portion of Phase One Property (North of Site Building Area)	#37 – Operation of Dry Cleaning Equipment (where chemicals are used)	Off-Site	VOCs	Soil and Groundwater
APEC 5	Northern portion of Phase One Property (North of Site Building Area)	#46 – Rail Yards, Tracks, and Spurs	Off-Site	Metals, As, Sb, Se, Cr(VI), Hg, CN-, B-HWS, EC, SAR, PHCs, VOCs, PAHs	Soil and Groundwater
APEC 6	Northern portion of Phase One Property (North of Site Building Area)	#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	PHCs, VOCs	Soil and Groundwater
APEC 7	Northern portion of Phase One Property (North of Site Building Area)	#54 – Textile Manufacturing and Processing	Off-Site	VOCs	Soil and Groundwater

Note: 1: APEC 2: PCAs 3: COPC

4.4 Borehole and Soil Sampling

The borehole locations were chosen to address areas of potential impact that were determined in the Phase One Environmental Site Assessments. The rationale for the location of each borehole is summarized in Sampling and Analysis Plan Appendix B.

4.5 Deviations from Sampling and Analysis Plan

There were no deviations from the sampling and analysis plan during the investigation. The sampling and analysis plan is provided in Appendix B.

4.6 Impediments

Borehole locations were required to remain clear of active services (gas and sewer). This did not significantly impact the locations of the boreholes. No denial of access occurred during the course of the site investigation.

5.0 INVESTIGATION METHOD

5.1 General

The Phase Two ESA followed the methods outlined in the following documents:

- Ontario Ministry of the Environment and Climate Change "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario" (December 1996)
- Ontario Ministry of the Environment and Climate Change "Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04" (June 2011)
- Ontario Ministry of the Environment and Climate Change "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" (July 2011)

The methods used in the Phase Two ESA investigation did not differ from the associated standard operating procedures. The Standard Operating Procedures is presented in Appendix C.

5.2 Utility Clearances

Various utility agencies were contracted to identify buried services on public land in the vicinity of the subject property. A private locator was retained to survey the proposed borehole locations for buried services. No conflicts between the proposed borehole locations and underground utilities were encountered.

5.3 Drilling

A total of five (5) boreholes denoted as BH/MW1, BH/MW2, BH3, BH/MW4 and BH/MW5 were advanced within the Property building exterior from March 21 to 23, 2018. The boreholes were advanced for environmental and geotechnical investigations at the Property. The boreholes were drilled to a maximum depth of 12.3 m (40 ft.) below ground level (bgl). The borehole locations are presented on Figure 3.

Soil drilling was performed with a track-mounted drill rig and solid stem augers. *In situ* Standard Penetration Testing (SPT) was conducted by driving a standard 2" diameter split spoon through a process of continuous sampling in areas of particular environmental concern. All drilling was monitored by a Terraprobe field technician, who examined samples for visual and olfactory evidence of adverse impacts or deleterious materials. Upon completion of the borehole, the depth to cave and the water level were measured. A survey of the elevations of the boreholes was conducted upon completion of the drilling activities.

A ground water monitoring well was installed in four (4) of the boreholes. The wells consisted of a PVC screen and riser section, with flush mount casting. A sand pack was placed around the screen section to a height of approximately 600 mm above the top of the screen. A seal consisting of bentonite clay was then added on top of the sand pack, and a final seal of concrete was placed around the top of the well (ground surface). The monitoring well installation was conducted under the full-time supervision of a Terraprobe field technician as directed by a Qualified Person.

Groundwater sampling procedures followed current applicable standards and protocols, as outlined in the MOE document "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario (May 1996),"* and in the ASTM D 4750 "*Standard Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well (Observation Well*)".

The method of investigation did not differ significantly from standard operating procedures.

5.3.1 Drilling

The drilling information for the Phase Two ESA is provided below:

Borehole	BH/MW1, BH/MW2, BH3, BH/MW4, and BH/MW5
Monitoring Wells	BH/MW1, BH/MW2, BH/MW4, and BH/MW5
Water Well Record	Cluster Well Record A241874
Date of Work	March 21-23, 2018
Name of Contractor	Kodiak Drilling
Equipment Used	Geoprobe track-mounted drill rig, solid stem augers, 2 inch split spoon sampling device
Decontamination Measures	The split spoon sampling device was washed between each sample to minimize the potential for cross-contamination.
Sampling Frequency	Please refer to the borehole logs in Appendix D for the sampling frequency.

5.4 Soil Sampling

Soil samples from borings for submission for analytical testing were collected from the undisturbed split spoon sample during the investigation. Samples that were collected for analysis of BTEX and the F1 fraction of petroleum hydrocarbons were collected directly from the split spoon. Representative soil samples were collected from borehole locations and immediately jarred for laboratory submission. Terraprobe personnel carried out all sampling of the materials. A clean pair of disposable latex gloves was worn for each sample to prevent any potential for cross-contamination associated with this sampling method.

5.4.1 Equipment Used

- Laboratory supplied sampling containers
- Nitrile gloves
- Cooler with loose ice
- RKI Instruments EAGLE 2 Monitor

5.4.2 Geological Description of Soil

The stratigraphy of the Property generally consisted of a layer of topsoil or asphalt over aggregate. An asphalt pavement structure was encountered in Boreholes 1 to 3 and consisted of 80 to 90 mm thick asphaltic concrete underlain by 120 to 670 mm thick granular base. A topsoil layer approximately 100mm thick was encountered at the ground surface in Boreholes 4 and 5. Underlying the topsoil or asphalt, the boreholes were advanced through a layer of earth fill that extends to depths of 0.1 to 2.3 m below ground level at the location of borehole 3 to 5. The earth fill generally consisting of clayey silt to sand/silty sand with trace organic inclusions, underlain by undisturbed native soil deposit of 0.2 to 10.7 m below ground level. The native soil deposit predominately consists of sandy silt to silty sand soils, overlying silt and clayey silt till deposits. Bedrock was encountered at all borehole locations underlying the glacial till deposit at the depth of approximately 8.8 m below ground level. Please refer to the borehole logs in Appendix D for the geological description of each soil sample collected.

5.5 Field Screening Measurements

All retrieved soil samples were screened in the field for visual and olfactory observations. The soil sample headspace vapour concentrations for all soil samples recovered during the field investigation were screened using portable hydrocarbon vapour testing equipment in accordance with the procedure outlined in the MOECC's *'Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario'*.

The samples were screened using a RKI Instruments, Eagle Portable Multi-gas detector (with Methane Elimination Switch), S/N E095077, operated in the methane elimination mode. The instrument measures combustible gases in the atmosphere. The monitor has a range of 0 PPM to 50,000 PPM and an accuracy of ± 5%. The monitor was calibrated with hexane prior to field screening as per the calibration procedure outlined by RKI Instruments in "*Instruction Manual Eagle Series Portable Multi-Gas Detector 71-0028RK*" released August 8, 2010.

The instrument was calibrated to hexane standards for both ppm and LEL prior to each use in accordance with the calibration procedure outline in the instruction manual for the instrument. Terraprobe has received in-house training from the supplier on the proper calibration of the instrument. The calibration

procedure involves introducing a known concentration (span gas) into the instrument and adjusting the readings accordingly to ensure that the measurements are accurate.

Field screening measurements were used to help select samples for petroleum hydrocarbon and volatile organic compounds laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix D.

5.6 Ground Water Monitoring Well Installation

Terraprobe	
Monitoring Wells	**BH/MW1, BH/MW2, BH/MW4 and BH/MW5**
Date of Drilling/ Installation	March 21 to 23 , 2018
Name of Contractor	Drill Tech Soil
Equipment Used	Truck-mounted drill rig, solid stem augers, 2 inch split spoon sampling device.
Decontamination Measures	The split spoon sampling device was washed between each sample to minimize the potential for cross-contamination.
Well Construction	The wells were constructed of 50-mm (2-in) ID PVC screens and risers. Filter sand was placed around the well screen to approximately 0.6 m above the top of the screen. The wells were then backfilled with bentonite to the ground surface. The wells were finished with protective casings.
Well Elevations	Monitoring well elevations and depths are presented in Section 6.2

The subsurface soil and ground water investigation included the advancing of monitoring wells in four (4) borehole locations. All four (4) monitoring wells denoted as (BH/MW1, BH/MW2, BH/MW4, and BH/MW5) were installed by Kodiak Drilling, Oakville, Ontario, a licensed well contractor. This was performed under the full-time supervision of a Terraprobe field technician. The drilling was completed with a truck mounted CME 55 drill rig.

The well construction materials consisted of 2" (50 mm) diameter PVC well materials (bottom caps, 3 m long well screen and appropriate lengths of riser pipe). The PVC well construction materials were received on-site in individually wrapped and sealed plastic sleeves. Filter sand was placed around the well screen to approximately 600 mm above the top of the screen. The remainder of the well was backfilled with bentonite, to a point approximately 300 mm below ground level. The monitoring wells were completed with a flush mount protector at ground surface. As previously noted, continuous split spoon sampling was completed through the soil profile.

Upon completion the wells were tagged and filed with the Ontario Ministry of the Environment and Climate Change.

5.7 Field Measurement of Water Quality Parameters Groundwater: Sampling

YSI Model 63 Handheld System was used to measure pH, conductivity, salinity and temperature of the ground water. During the purging of the monitoring wells prior to sampling readings were collected every half casing volume. Purging continued until the parameters had stabilized, indicating that formation water

was being drawing through the monitoring well. YSI instrument measurements comply with the following EPA approved test methods:

- Temperature Standard Method 2550 B-2000
- Specific Conductance EPA Method 120.1 and Standard Method2 2510 B-1997
- pH Standard Method 4500-H+ B-2000 and USGS Method I-1586-85

5.8 Groundwater Sampling

Ground water was sampled using Mega Masson Submersible pump. Dedicated pumps were installed in each of the four (4) monitoring wells installed on the Phase Two Property. Prior to sampling, the wells were purged until the pH, conductivity, salinity and temperature had stabilized. The pH, conductivity, salinity and temperature were measured using an YSI 63 Handheld System. The sampling of the monitoring wells was conducted on April 2, 2018.

Sampling methodology from the MOECC "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", MOECC "Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04" and MOECC "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" were followed in, the collection of the ground water samples.

5.9 Sediment Sampling

No sediment sampling was conducted as part of this investigation. No requirement for sediment sampling was identified as there was no surface water bodies (creeks, ponds, lakes) found on the subject Property.

5.10 Analytical Testing

The soil and ground water analyses were completed by AGAT Laboratories, located at 5835 Coopers Avenue in Mississauga, Ontario. AGAT Laboratories is accredited and approved for specific analyses by the following national or provincial (Ontario) agencies:

- The Canadian Association for Laboratory Accreditation (CALA)
- The Standards Council of Canada (SCC)
- Canadian Council of Ministers of the Environment (CCME)
- Ontario Ministry of the Environment
- Ontario Ministry of Environment Drinking Water Testing License Laboratories Limited

5.11 Residue Management Procedures

5.11.1 Soil Cuttings

Soil cuttings from the drilling were placed in 45 gallon drums (205 L drums) on the Property for appropriate disposal by the Property Owner.

5.11.2 Ground Water

Purge water from well development and fluids from equipment cleaning were also placed in the drums on the Property and disposed of at an appropriate facility by the Property owner.

5.12 Elevation Surveying

The monitoring well and borehole locations were surveyed using a Trimble R10 GNSS System. The Trimble R10 system uses the Global Navigation Satellite System and cellular data to determine borehole and/or monitoring well's locations with GPS coordinates and their respective elevations. The Trimble R10 system has a precision of 0.5m with respect to the GNSS and a precision of 5 mm with respect to elevation surveying.

The geodetic ground surface elevations at the borehole locations were surveyed by Terraprobe and are provided in borehole logs in Appendix D and summarized below:

BH/MW1 TO BH/MW5					
Borehole	**BH/MW1**	**BH/MW2**	**BH3**	**BH/MW4**	**BH/MW5**
Elevation (masl)	**78.2**	**78.2**	**78.2**	**77.7**	**77.6**

5.13 Quality Assurance and Quality Control Measures

5.13.1 Containers, Labelling, Handling and Chain of Custody

Containers

The following laboratory supplied sample containers were used for all sampling conducted on the Property.

Soil Parameters	Container
Chloride, electrical conductivity	250 mL glass jar, Teflon lined lid
Cyanide (CN−)	250 mL glass jar, Teflon lined lid
Fraction organic carbon (FOC)	250 mL glass jar, Teflon lined lid
Hexavalent chromium	250 mL glass jar, Teflon lined lid
Metals (includes hydride-forming metals, SAR, HWS boron, calcium, magnesium, sodium)	250 mL glass jar, Teflon lined lid
Mercury, methyl mercury	250 mL glass jar, Teflon lined lid
pH	250 mL glass jar, Teflon lined lid

Soil Parameters	Container
BTEX, PHCs (F1), THMs, VOCs	40–60 mL glass vial (charged with methanol preservative, pre- weighed) and glass jar (for moisture content)
PHCs (F2–F4)	120 mL glass jar, Teflon lined lid
ABNs, CPs, OCs, PAHs	120 mL glass jar, Teflon lined lid
Dioxins, Furans, PCBs, Pesticides	120 mL glass jar, Teflon lined lid

Labelling

All sampling containers were identified with laboratory supplied labels. The labels included the following information:

- Unique Sample ID
- Company Name
- Date and Time
- Project Number

Handling

Samples were placed in coolers with loose ice after collection for transportation to the laboratory. Sample hold times were met for all submitted soil samples.

Chain of Custody

Laboratory supplied Chain of Custody forms were completed for all samples submitted for analysis.

During soil sampling, the split spoon sampling device was washed between samples to minimize cross-contamination. While handling all samples Terraprobe staff used nitrile gloves. Fresh gloves were used for each sample to avoid cross contamination.

No deviations from the sampling and analysis plan occurred. Field duplicates were obtained for both soil and groundwater samples at a rate of at least 10%. A trip blank was submitted for the VOC analysis of the ground water samples.

5.13.2 Equipment Cleaning Procedures

All non-dedicated sampling and monitoring equipment must be cleaned following each use. During soil sampling the split spoon sampling device and excavator bucket were washed between samples to minimize cross-contamination.

During ground water level measurements, any part of the interface meter which came into contact with the ground water was cleaned between monitoring wells.

Dedicated equipment (nitrile gloves, terracore samplers, tubing) were changed between each sample to avoid cross contamination.

5.13.3 Field Quality Control Measures

- All non-dedicated sampling and monitoring equipment must be cleaned following each use.
- Sufficient field duplicate samples were collected in each medium being sampled, so that at least one field duplicate sample can be submitted for laboratory analysis for every ten samples submitted for laboratory analysis
- Calibration checks on field instruments occurred daily prior to the commencement of sampling

5.13.4 Deviations in the Quality Assurance and Quality Control Measures

No deviations from the sampling and analysis plan occurred.

6.0 REVIEW AND EVALUATION

6.1 Geology

The detailed soil profiles encountered in each borehole are provided on the attached borehole logs (Appendix D). Boundaries of soil indicated on the log sheets are intended to reflect transition zones for the purpose of environmental assessment and should not be interpreted as exact planes of geological change.

The stratigraphy conditions at the Site have been assessed on the basis of sampled boreholes and grain-size analysis. Approximate borehole and monitoring well locations are identified on Figure 3. Stratigraphy cross sections prepared for the Phase Two Property are shown on Figure 6. The geological unit is presented in the attached Table 1. The stratigraphy encountered at the Property is described below:

The stratigraphy generally consisted of a surficial layer of topsoil or asphalt over aggregate overlying a maximum of 2.3 m of fill consisting of clayey silt to sand/silty sand with trace organic inclusions, underlain by native soil. The native soil deposit predominately consists of sandy silt to silty sand soils, overlying silt and clayey silt till deposits. Bedrock was encountered at all borehole locations underlying the glacial till deposit.

6.1.1 Geological Unit Thickness (Estimate)

The geological unit thicknesses are presented in Table 1.

6.1.2 Elevations of Geological Units

The geological unit elevations are presented in Table 1.

6.1.3 Material in Geological Units

Pavement Structure
An asphalt pavement structure was encountered in Boreholes 1 to 3 and consisted of 80 to 90 mm thick asphaltic concrete underlain by 120 to 670 mm thick granular base. A topsoil layer approximately 100mm thick was encountered at the ground surface in Boreholes 4 and 5.

Earth Fill
A zone of earth fill material was encountered in Boreholes 3 to 5 beneath the topsoil layer or pavement structure and extended to depths varying from about 0.8 m (Borehole 3) to 2.3 m (Boreholes 4 and 5) below existing grade. The earth fill material predominantly consisted of clayey silt to sand/silty sand with trace amounts of organic matters.

Native Soil

Cohesionless soil deposits, consisting of sandy silt to silt and sand/sand/sandy gravel encountered beneath the pavement structure or the earth fill zone in each borehole and extended to approximately 2.3 m (Boreholes 2 and 3) to 4.6 m (Borehole 5) depth below grade.

A silt deposit, with some clay and trace to some sand was encountered beneath the cohesionless soil deposits in Boreholes 1 to 4 and extended to approximately 3.0 m (Borehole 3) to 4.6 m (Boreholes 1 and 2) depth below grade.

A clayey silt till deposit, with varying amounts of sand (some sand to sandy) and trace to some gravel was encountered beneath the silt deposit at depths of 3.0 to 4.6 m below grade in Boreholes 1 to 4 and the sandy gravel deposit at 4.6 m depth below grade in Borehole 5 and extended to 8.8 m (Borehole 4) to 10.7 m (Boreholes 1 to 3 and 5) depth below grade.

Bedrock

The glacial till deposits graded into inferred weathered shale (Bedrock of Georgian Bay Formation) at 8.8 m (Borehole 4) to 10.7 m (Boreholes 1 to 3 and 5) depth below grade and extended about 1m or less into inferred shale. Complete borehole logs are presented in Appendix D.

6.1.4 Properties of Aquifers and Aquitards

Earth Fill and Native Soil Aquifer

The earth fill and the native soil on the Property are considered to be an unconfined and drained aquifer. They are considered to be hydraulically interconnected and of similar conductivity.

Bedrock

The bedrock is considered to be an aquitard of low hydraulic conductivity. Recharge into this layer will be primarily through rain fall events and migration from the adjacent properties.

6.1.5 Rationale for Choice of Aquifers and Aquitards Investigate

The earth fill and native soil aquifer and bedrock aquitard were chosen for investigation. These strata were chosen for investigation because:

- The likelihood of vertical migration of water from the earth fill and native soil aquifer downward into the bedrock
- Possibility of ground water impact in both the aquifer and aquitard.

6.2 Approximate Depth to Bedrock

Bedrock was encountered at 8.8 m (Borehole 4) to 10.7 m (Boreholes 1 to 3 and 5). Bedrock in the area is consists of grey shale and limestone of the Georgian Bay Formation.

6.3 Groundwater Elevations and Flow Direction

6.3.1 Rationale for Monitoring Well Locations and Screen Intervals

Monitoring wells were located across the Property in order to provide full site coverage. Screen intervals were chosen within the native soil unit to allow for the collection of ground water samples within the water bearing aquifer.

A total of four (4) monitoring wells (BH/MW1, BH/MW2, BH/MW4, and BH/MW5) were installed within the Property building exterior to identify the general direction of the ground water flow and quality at the Property. The monitoring wells were screened below the ground water table at all monitoring well locations, however it was noted that the pressure of water in the monitoring wells naturally goes up higher than the top of screen to intersect the water table elevation.

Monitoring wells construction are presented in attached Table 2. A summary of the approximate depth of each monitoring well and screened interval is noted below:

#	Borehole/ Monitoring Well	Approximate Depth		Well Screen Interval		Investigation Zone
		(mbgl)	Elev. (masl)	(mbgl)	Elev. (masl)	
1	BH/MW1	12.3	65.9	9.3-12.3	65.9-68.9	Clayey Silt/Bedrock
2	BH/MW2	10.7	67.5	7.7-10.7	67.5-70.5	Clayey Silt
3	BH/MW4	8.9	69.3	5.9-8.9	69.3-72.3	Clayey Silt
4	BH/MW5	6.0	71.8	3.0-6.0	71.8-74.8	Sandy Gravel/Clayey Silt

6.3.2 Results of Interface Probe Measurements

Interface probe measurements indicated that only water was presented on the Property. No light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquids (DNAPL) were detected

6.3.3 Thickness of Free Flowing Product

No free flowing products were encountered on the Property.

6.3.4 Ground Water Elevations

Groundwater was measured at the completion of the drilling (March 21-23, 2018) and on April 2, 2018 as indicated in the following table below:

Borehole /Monitoring Well	Ground Elevation (masl)	Depth of borehole (mbgl)	Well Depth (mbgl)	Unstabilized Water Level (mbgl)	April 2, 2018	
					Water Level (mbgl)	Water Level (masl)
BH/MW1	78.2	12.3	12.3	10.4	6.5	71.7
BH/MW2	78.2	10.7	10.7	10.5	6.8	71.5
BH/MW4	77.8	8.9	8.9	3.0	3.2	74.6
BH/MW5	77.6	10.7	6.0	3.0	3.0	74.7

Note:
- Groundwater depth is meter below ground level (mbgs)
- Unstabilized water level measured upon completion of drilling
- The ground surface elevations and elevations are geodetic (NAD83)

6.3.5 Interpreted Direction of Ground Water Flow

Water levels were collected from all monitoring wells on the Property by using the top of the well as a reference point. Based on the monitoring well and ground water measurements the ground water flow is north, away from Lake Ontario. Lake Ontario is at higher elevation and located adjacent south of the Phase Two Property.

Ground water flow direction may be influenced by seasonal fluctuations and presence of underground structures (e.g., underground parking garages, deep foundations, etc.) found within the immediate surroundings.

6.3.6 Assessment of Temporal Variability

Temporal variability of the ground water elevations was not assessed.

6.3.7 Influence of Buried Utilities

The Phase One inspection of the Property found the following information regarding utilities and services at the Property. Single-level basement was observed in the building on the Property. The Property is serviced with underground utilities including water, storm and sanitary sewers, and natural gas. The shallowest ground water depth observed for wells installed at grade was 3.04 m/194.35 masl within the shallow native at BH/MW1. The potential for underground utility trenches to affect contaminant distribution and transport is conserved to be low.

6.4 Groundwater Hydraulic Gradients

6.4.1 Hydraulic Conductivity

According to Freeze and Cherry (1979), the typical hydraulic conductivity of the strata investigated at the Property are:

- Earth Fill (Clayey Silt to Silty Sand) 10^{-4} m/s to 10^{-6} m/s

- Native Soil (Gravelly Sand to Sandy Silt) 10^{-3} m/s to 10^{-6} m/s
- Native Soil (Silt) 10^{-6} m/s to 10^{-8} m/s
- Native Soil (Clayey silt) 10^{-6} m/s to 10^{-8} m/s
- Bedrock was encountered at the depths of approximately 9 mbgl.

6.4.2 Horizontal Hydraulic Gradients

The ground water table is within the native glacial till. Based on the current measured ground water levels, the horizontal hydraulic gradient of the ground water for the Property was determined to be approximately 0.01m/m.

6.4.3 Vertical hydraulic Gradients

The vertical hydraulic gradient was not determined as there was no ground water impacts determined.

6.5 Soil Texture

The results of laboratory grain size analyses were used to determine soil texture. Based on the consistency of the native soils that were encountered on the Property, eight (8) representative samples were selected for laboratory (sieve/hydrometer) analysis. The results of the sieve/hydrometer analyses are presented in Appendix E and provided below.

Borehole No. Sample No.	Sampling Depth Below Grade (m)	Percentage				Description (MIT System)
		Gravel	Sand	Silt	Clay	
Borehole 1 Sample 4B	2.9 m	0	7	75	18	SILT, some clay, trace sand
Borehole 1 Sample 6	4.9 m	12	28	39	21	SANDY CLAYEY SILT, some gravel
Borehole 2 Sample 2	1.1 m	0	43	53	4	SILT AND SAND, trace clay
Borehole 2 Sample 7	6.4 m	10	28	40	22	SANDY CLAYEY SILT, trace gravel
Borehole 3 Sample 3	1.8 m	0	46	52	2	SILT AND SAND, trace clay
Borehole 3 Sample 6	4.9 m	17	28	37	18	SANDY SILT, some clay, trace gravel
Borehole 4 Sample 4	2.6 m	0	99	1		SAND, trace silt
Borehole 5 Sample 7	6.4 m	10	26	41	23	SANDY CLAYEY SILT, trace gravel

Section 42(2) of O.Reg.153/04 defines soil texture as follows:

- "coarse textured soil" means soil that contains more than 50 per cent by mass of particles that are 75 micrometres or larger in mean diameter; and,

- "medium and fine textured soil" means soil that contains 50 per cent or more by mass of particles that are smaller than 75 micrometres in mean diameter.

Based on the laboratory results, the majority of the soils analyzed are considered medium to fine grain textured (7 of 8 samples have over 50% medium to fine grain), and thus for the purpose of determining the applicable MOECC Standards, the site is classified as medium to fine textured. The applicable MOECC Standards for the Property is Table 8 medium to fine grained texture.

6.6 Soil Field Screening

Soil vapour field screening was conducted on all soil samples from all boreholes. The MOECC procedure outlined in the "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*"

Field screening measurements were used to help select samples for petroleum hydrocarbon and volatile organic compounds laboratory analysis. Complete soil field screening results are presented on the borehole logs in Appendix D.

6.7 Soil Quality

6.7.1 Location and Depth of Samples

A total of twenty (20) soil samples and four (4) duplicate samples were analysed for potential Contaminants of Concern (PCoCs). PCoCs include metals, hydride-forming metals, other regulated parameters (ORPs), petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAH), and polychlorinated biphenyls (PCBs) The results of the analysis were compared to the applicable site condition standard for the Property (Table 8 RPI/ICC). The laboratory Certificates of Analysis are provided in Appendix F and the results of the soil chemical analysis are provided in Tables 4, 5, 6 and 7. The results of the chemical analysis are also presented in Figures 5 and 6 and provided below.

# of Samples Analyzed	Borehole, Sample Number	Sample Depth (mbgl)	Parameter Analyzed (O.Reg.153/04 as amended)						
			Metals	Hydride-Forming Metals	ORPs	PHCs + BTEX	VOCs	PAHs	PCBs
BH/MW1									
1	SS1 + Dup 2	0-0.6	✓	✓	X			✓	
2	SS2	0.8-1.4			✓				
3	SS6 + Dup 3	3.8-4.4	✓	✓	✓				
4	SS7 + Dup 1	6.1-6.7				✓	✓		
BH/MW2									
5	SS1	0-0.6	✓	✓	X	✓	✓		✓
6	SS2	0.8-1.4			✓				
7	SS5	3.0-3.6	✓	✓	✓				

# of Samples Analyzed	Borehole, Sample Number	Sample Depth (mbgl)	Parameter Analyzed (O.Reg.153/04 as amended)						
			Metals	Hydride-Forming Metals	ORPs	PHCs + BTEX	VOCs	PAHs	PCBs
BH/MW3									
8	SS1	0-0.6	✓	✓	X			✓	
9	SS2	0.8-1.4			X				
10	SS3	1.5-2.1			X				
11	SS4	2.3-2.9			X				
12	SS5	3.0-3.6				✓	✓		
13	SS7	6.1-6.7	✓	✓	✓				
BH/MW4									
14	SS1	0-0.6						✓	
15	SS2	0.8-1.4	✓	✓	✓				
16	SS3	1.5-2.1				✓	✓		
17	SS6	3.8-4.4	✓	✓	✓				
BH/MW5									
18	SS1+DUP4	0-0.6	✓	✓	✓				✓
19	SS4	2.3-2.9	✓	✓	✓				
20	SS5	3.0-3.6				✓	✓		

The acceptable pH range for surface soil is from 5.0 and 9.0. For subsurface soil, the acceptable range is from 5.0 to 11.0.

A total of ten (10) soil samples and one (1) duplicate sample were tested for pH. The measured pH for all soil samples were found to range between 7-9 with the exception of one (1) sample that measured 9.05 (sample BH/MW1 SS1 Depth 0-0.6 mbgl). This sample was collected from the fill layer at 0-0.6 m depth and the elevated level of pH is attributed to inclusions of crusher run limestone (used as subgrade material) in the poor quality soil. All other sampling locations, fill and native, met the permissible limit for pH. As such, the soil sample from BH/MW1 SS1 Depth 0-0.6 mbgl is not considered a representative sample for the site conditions. It is noted that, prior to the construction of proposed residential building and underground parking, all fill and impacted material will be removed from the Phase Two Property. Given that all fill material including the upper native soil from the isolated area of elevated pH will be removed from the Property and the pH levels across the Property will be within the permissible limits of 5-9, the MOECC Table 8 Residential /Parkland/ institutional standards will remain applicable site condition standards for the Property.

6.7.2 PHCs + BTEX

As illustrated in Figure 2, APEC 1 was due to presence of unknown quality of fill material located on the Property, APEC 3 was due to the historical presence of an underground storage tank (UST) approximately 160 m to the northwest of the Property, APEC 5 was due to the historical presence of a rail spur adjacent to the northeast of the Property, and APEC 6 was due to the historical presence of auto body shop located at a property approximately 160 m to the northwest of the Property. As such, PHCs + BTEX were identified as contaminants of potential concern in the soil and ground water at the Property.

A total of five (5) soil samples and one (1) duplicate sample were collected during the drilling program by Terraprobe to investigate APECs 1, 3, 5, and 6. The results are shown in the table below and in Figures 5 and 6.

Table.6.7.5-1: Soil Samples collected for PHCs Analysis

Sample Identification		Soil Type	Date Sampled	Soil
				PHCs + BTEX
1	BH/MW1-SS7 + DUP1 (6.1-6.7m)	Native	21-Mar-18	✓
2	BH/MW2-SS1 (0-0.6m)	Native	21-Mar-18	✓
3	BH/MW3-SS5 (3.0-3.6m)	Native	22-Mar-18	✓
4	BH/MW4-SS3 (1.5-2.1m)	Fill	23-Mar-18	✓
5	BH/MW5-SS5 (3.0-3.6m)	Native	22-Mar-18	✓

Note: ✓ - Meets MOECC Table 8 RPI

The chemical results indicated that all analyzed parameter in soil samples meet the applicable MOECC Table 8 Standards for PHCs. Based on the results; there are no PHCs or BTEX impacts within the soil at the Property.

6.7.3 VOCs

As illustrated in Figure 2, APEC 1 was due to presence of unknown quality of fill material located on the Property, APEC 4 was due to the historical presence of multiple dry cleaner's facilities located at properties approximately 90 to 160 m to the north/northwest/west of the Property, APEC 5 was due to the historical presence of a rail spur adjacent to the northeast of the Property, APEC 6 was due to the historical presence of auto body shop located at a property approximately 160 m to the northwest of the Property, and APEC 7 was due to the historical presence of textile manufacturing company located approximately 100 m to the northwest of the Property. As such, VOCs were identified as contaminants of potential concern in the soil and ground water at the Property.

A total of five (5) soil samples and one (1) duplicate sample were collected during the drilling program by Terraprobe to investigate APECs 1, 4, 5, 6, and 7. The results are shown in the table below and in Figures 5 and 6.

Table.6.7.6-1: Soil Samples collected for BTEX Analysis

Sample Identification		Soil Type	Date Sampled	Soil VOCs
1	BH/MW1-SS7 + DUP1 (6.1-6.7m)	Native	21-Mar-18	✓
2	BH/MW2-SS1 (0-0.6m)	Native	21-Mar-18	✓
3	BH/MW3-SS5 (3.0-3.6m)	Native	22-Mar-18	✓
4	BH/MW4-SS3 (1.5-2.1m)	Fill	23-Mar-18	✓
5	BH/MW5-SS5 (3.0-3.6m)	Native	22-Mar-18	✓

Note: ✓ - Meets MOECC Table 8 RPI

The chemical results indicated that all analyzed parameters in soil samples meet the applicable MOECC Table 8 Standards for VOCs. Based on the results, there are no VOC impacts within the soil at the Property.

6.7.4 PAHs

As illustrated in Figure 2, APEC 1 was due to presence of unknown quality of fill material located on the Property and APEC 5 was due to the historical presence of a rail spur adjacent to the northeast of the Property. As such, PAHs were identified as contaminants of potential concern in the soil and ground water at the Property.

A total of three (3) soil samples and one (1) duplicate sample were collected during the drilling program by Terraprobe to investigate APECs 1 and 5. The results are shown in the table below and in Figures 5 and 6.

Table.6.7.7-1: Soil Samples collected for PAHs Analysis

Sample Identification		Soil Type	Date Sampled	Soil PAHs
1	BH/MW1-SS1 + DUP2 (0-0.6m)	Fill	21-Mar-18	✓
2	BH/MW3-SS1 (0-0.6m)	Fill	22-Mar-18	✓
3	BH/MW4-SS1 (0-0.6m)	Fill	23-Mar-18	✓

Note: ✓ - Meets MOECC Table 8 RPI

The chemical results indicated that all analyzed parameters in soil samples meet the applicable MOECC Table 8 Standards for PAHs. Based on the results, there are no PAHs impacts within the soil at the Property.

6.7.5 PCBs

As illustrated in Figure 2, APEC 2 was due to presence of a transformer located on the north portion of the Property. As such, PCBs were identified as contaminants of potential concern in the soil and ground water at the Property.

A total of two (2) soil samples and one (1) duplicate sample were collected during the drilling program by Terraprobe to investigate APEC 2. The results are shown in the table below and in Figures 5 and 6.

Table.6.7.8-1: Soil Samples collected for PCBs Analysis

Sample Identification		Soil Type	Date Sampled	Soil
				PCBs
1	BH/MW2-SS1 (0-0.6m)	Native	21-Mar-18	✓
2	BH/MW5-SS1 + DUP4 (0-0.6m)	Fill	22-Mar-18	✓

Note: ✓ - Meets MOECC Table 8 RPI

The chemical results indicated that all analyzed parameters in soil samples meet the applicable MOECC Table 8 Standards for PCBs. Based on the results, there are no PCBs impacts within the soil at the Property.

6.7.6 Metals

As illustrated in Figure 2, APEC 1 was due to presence of unknown quality of fill material located on the Property and APEC 5 was due to the historical presence of a rail spur adjacent to the northeast of the Property. As such metals were identified as contaminants of potential concern in the soil and ground water at the Property.

A total of ten (10) soil samples and one (1) duplicate sample were collected during the drilling program by Terraprobe to investigate APEC 1 and 5. The results are shown in the table below and on Figures 5 and 6.

Table.6.7.2-1: Soil Samples collected for Metals Analysis

Sample Identification		Soil Type	Date Sampled	Soil
				Metals
1	BH/MW1-SS1 (0-0.6m)	Fill	21-Mar-18	✓
2	BH/MW1-SS6 + DUP3 (3.8-4.4m)	Native	21-Mar-18	✓
3	BH/MW2-SS1 (0-0.6m)	Native	21-Mar-18	✓
4	BH/MW2-SS5 (3.0-3.6m)	Native	21-Mar-18	✓
5	BH/MW3 -SS1 (0-0.6m)	Fill	22-Mar-18	✓
6	BH/MW3-SS7 (6.1-6.7m)	Native	22-Mar-18	✓
7	BH/MW4-SS2 (0.8-1.4m)	Fill	23-Mar-18	✓
8	BH/MW4-SS6 (3.8-4.4)	Native	23-Mar-18	✓
9	BH/MW5-SS1 (0-0.6m)	Fill	22-Mar-18	✓
10	BH/MW5-SS5 (3.0-3.6m)	Native	22-Mar-18	✓

Note: ✓ - Meets MOECC Table 8 RPI

The chemical results indicated that all analyzed parameters in soil samples meet the applicable MOECC Table 8 Standards for metals. Based on the results, there are no metals impacts within the soil at the Property.

6.7.7 Hydride-Forming Metals

As illustrated in Figure 2, APEC 1 was due to presence of unknown quality of fill material located on the Property and APEC 5 was due to the historical presence of a rail spur adjacent to the northeast of the Property. As such hydride forming metals were identified as contaminants of potential concern in the soil and ground water at the Property.

A total of ten (10) soil samples and one (1) duplicate sample were collected during the drilling program by Terraprobe to investigate APEC 1 and 5. The results are shown in the table below and on Figures 5 and 6.

Table.6.7.3-1: Soil Samples collected for Hydride-Forming Metals Analysis

Sample Identification		Soil Type	Date Sampled	Soil
				Hydride Forming Metals
1	BH/MW1-SS1 (0-0.6m)	Fill	21-Mar-18	✓
2	BH/MW1-SS6 + DUP3 (3.8-4.4m)	Native	21-Mar-18	✓
3	BH/MW2-SS1 (0-0.6m)	Native	21-Mar-18	✓
4	BH/MW2-SS5 (3.0-3.6m)	Native	21-Mar-18	✓
5	BH/MW3 -SS1 (0-0.6m)	Fill	22-Mar-18	✓
6	BH/MW3-SS7 (6.1-6.7m)	Native	22-Mar-18	✓
7	BH/MW4-SS2 (0.8-1.4m)	Fill	23-Mar-18	✓
8	BH/MW4-SS6 (3.8-4.4)	Native	23-Mar-18	✓
9	BH/MW5-SS1 (0-0.6m)	Fill	22-Mar-18	✓
10	BH/MW5-SS5 (3.0-3.6m)	Native	22-Mar-18	✓

Note: ✓ - Meets MOECC Table 8 RPI

The chemical results indicated that all analyzed parameters in soil samples meet the applicable MOECC Table 8 Standards for hydride-forming metals. Based on the results, there are no hydride-forming metals impacts within the soil at the Property.

6.7.8 Other Regulated Parameters (ORPs)

As illustrated in Figure 2, APEC 1 was due to presence of unknown quality of fill material located on the Property and APEC 5 was due to the historical presence of a rail spur adjacent to the northeast of the

Property. As such ORPs were identified as contaminants of potential concern in the soil and ground water at the Property.

A total of fifteen (15) soil samples and one (1) duplicate sample were collected during the drilling program by Terraprobe to investigate APEC 1 and 5. The results are shown in the table below and on Figures 5 and 6.

Table 6.7.4-1: Soil Samples collected for ORPs Analysis

Sample Identification		Soil Type	Date Sampled	Soil ORPs
1	BH/MW1-SS1 (0-0.6m)	Fill	21-Mar-18	X
2	BH/MW1-SS2 (0.8-1.4m)	Native	21-Mar-18	✓
3	BH/MW1-SS6 + DUP3 (3.8-4.4m)	Native	21-Mar-18	✓
4	BH/MW2-SS1 (0-0.6m)	Native	21-Mar-18	X
5	BH/MW2-SS2 (0.8-1.4m)	Native	21-Mar-18	✓
6	BH/MW2-SS5 (3.0-3.6m)	Native	21-Mar-18	✓
7	BH/MW3 -SS1 (0-0.6m)	Fill	22-Mar-18	X
8	BH/MW3 –SS2 (0.8-1.4m)	Native	22-Mar-18	X
9	BH/MW3 –SS3 (1.5-2.1m)	Native	22-Mar-18	X
10	BH/MW3 –SS4 (2.3-2.9m)	Native	22-Mar-18	X
11	BH/MW3-SS7 (6.1-6.7m)	Native	22-Mar-18	✓
12	BH/MW4-SS2 (0.8-1.4m)	Fill	23-Mar-18	✓
13	BH/MW4-SS6 (3.8-4.4)	Native	23-Mar-18	✓
14	BH/MW5-SS1 (0-0.6m)	Fill	22-Mar-18	✓
15	BH/MW5-SS5 (3.0-3.6m)	Native	22-Mar-18	✓

Note: ✓ - Meets MOECC Table 8 RPI
X – Exceeds MOECC Table 8 RPI

The chemical results indicated that all analyzed parameters in soil samples meet the applicable MOECC Table 8 Standards for ORPs with the exception of sodium adsorption ratio (SAR) and electrical conductivity (EC) at three (3) boreholes locations as summarized below.

Table.6.7.4-2: ORPs (EC and SAR) Results

Parameters	MOECC 2011 Table 8 RPI/ICC (mS/cm)	BH/ MW1-SS1 (0-0.6m)	BH/ MW1-SS2 (0.8-1.4m)	BH/ MW1-SS6 (3.8-4.4m)	Dup 3 [BH/ MW1-SS6] (3.8-4.4m)	BH/ MW2-SS1 (0-0.6m)	BH/ MW2-SS2 (0.8-1.4m)	BH/ MW2-SS5 (3.0-3.6)
EC	0.7	**1.27**	0.694	0.237	0.213	**1.72**	0.672	0.199
SAR	5	**9.76**	2.19	0.861	0.854	**43.8**	1.76	0.582

Note: Bold and Underline - Exceeds MOECC Table 8 RPI/ICC

Parameters	MOECC 2011 Table 8 RPI/ICC (mS/cm)	BH/ MW3-SS1 (0-0.6m)	BH/ MW3-SS2 (0.8-1.4m)	BH/ MW3-SS3 (1.5-2.1m)	BH/ MW3-SS4 (2.3-2.9m)	BH/ MW3-SS7 (6.1-6.7m)	BH/ MW4-SS2 (0.8-1.4m)	BH/ MW4-SS6 (3.8-4.4m)	BH/ MW5-SS1 (0-0.6m)	BH/ MW5-SS4 (2.3-2.9m)
EC	0.7	**1.80**	**2.02**	**1.65**	**1.06**	0.437	0.274	0.195	0.285	0.206
SAR	5	**30.1**	**26.1**	**17.4**	4.62	1.83	0.508	0.727	0.611	0.480

6.7.9 Contaminants of Concern (Soil)

The Contaminants of Concern associated with the earth fill and upper native on the Property are:

- ORPs:
    - Electrical Conductivity (EC)
    - Sodium Adsorption Ratio (SAR)

6.7.10 Chemical or Biological Transformations

No chemical or biological transformations are likely to occur with the Contaminants of Concern which exceeded the applicable site condition standards remaining on the Property.

6.7.11 Contamination Impact on Other Media

The Contaminants of Concern exceeding the applicable site conditions are unlikely to impact other media.

6.7.12 Presence of Light or Dense Non-Aqueous Phase Liquids (In Soil)

Light non-aqueous phase liquids (LNAPL) and dense non-aqueous phase liquids (DNAPL) were not detected in the soil on the Property.

6.8 Groundwater Quality

6.8.1 Location and Depth of Samples

Ground water sampling was completed for all the four (4) monitoring wells (BH/MW1, BH/MW2, BH/MW4, BH/MW5) installed on the Property on April 02, 2018. Ground water samples from the monitoring wells were analysed for parameters including PHCs, BTEX, VOCs, PAHs, metals, hydride-forming metals, selected ORPs (EC, SAR, B-HWS, CN-, Hg, Cr(VI), and pH, and PCBs. The following ground water samples were submitted for chemical analysis: The laboratory certificates of analysis are provided in Appendix G.

Sample ID	Screen Intervals (mbgs)	Parameter Analyzed (O.Reg.153/04 (as was amended)						
		Metals	Hydride-Forming Metals	ORPs	PHCs+ BTEX	VOCs	PAHs	PCBs
April 2, 2018								
BH/MW1	9.3-12.3	✓	✓	✓	✓	✓	✓	
BH/MW2	7.7-10.7	✓	✓	✓	✓	✓		✓
BH/MW4	5.9-8.9				✓	✓		
BH/MW5	3.0-6.0	✓	✓	✓	✓	✓	✓	
Dup 1 (BH/MW1)	9.3-12.3	✓	✓	✓	✓	✓	✓	
Dup 2 (BH/MW2)	7.7-10.7							✓

Note: ✓= Meet Table 8 RPI/ICC Standard

6.8.1 Metals

Three (3) ground water samples and one (1) duplicate were collected from three (3) monitoring wells (BH/MW1, BH/MW2, and BH/MW5). The results indicated that all ground water samples meet the applicable MOECC Table 8 Standards for metals.

Based on the results, there are no metals impacts within the ground water at the Property.

6.8.2 Hydride- Forming Metals

Three (3) ground water samples and one (1) duplicate were collected from three (3) monitoring wells (BH/MW1, BH/MW2, and BH/MW5). The results indicated that all ground water samples meet the applicable MOECC Table 8 Standards for hydride-forming metals.

Based on the results, there are no hydride-forming metals impacts within the ground water at the Property.

6.8.3 Other Regulated Parameters (ORPs)

Three (3) ground water samples and one (1) duplicate were collected from three (3) monitoring wells (BH/MW1, BH/MW2, and BH/MW5). The results indicated that all ground water samples meet the applicable MOECC Table 8 Standards for ORPs.

Based on the results, there are no ORPs impacts within the ground water at the Property.

6.8.4 PHCs + BTEX

Four (4) ground water samples and one (1) duplicate sample were collected from four (4) monitoring wells (BH/MW1, BH/MW2, BH/MW4, and BH/MW5). The results indicated that all ground water samples meet the applicable MOECC Table 8 Standards for PHCs + BTEX.

Based on the results; there are no PHCs + BTEX impacts within the ground water at the Property.

6.8.5 VOCs

Four (4) ground water samples and one (1) duplicate sample were collected from four (4) monitoring wells (BH/MW1, BH/MW2, BH/MW4, and BH/MW5). The results indicated that all ground water samples meet the applicable MOECC Table 8 Standards for VOCs.

Based on the results; there are no VOC impacts within the ground water at the Property.

6.8.6 PAHs

Two (2) ground water samples and one (1) duplicate sample were collected from two (2) monitoring wells (BH/MW1 and BH/MW5). The results indicated that all ground water samples meet the applicable MOECC Table 8 Standards for PAHs.

Based on the results; there are no PAH impacts within the ground water at the Property.

6.8.7 PCBs

One (1) ground water samples and one (1) duplicate sample were collected from one (1) monitoring well (BH/MW2). The results indicated that all ground water samples meet the applicable MOECC Table 8 Standards for PCBs.

Based on the results; there are no PCB impacts within the ground water at the Property.

6.8.8 Field Filtering

Ground water samples for metals were field filtered using a filter unit per monitoring well location.

6.8.9 Comparison to Applicable Standards (Ground Water)

Based on the results of chemical analyses, all analysed parameters in ground water samples met the MOECC Table 8 Standards.

6.8.10 Contaminants of Concern (Ground Water)

There are no Contaminants of Concern associated with the ground water on the Property.

6.8.11 Chemical or Biological Transformations

There are no Contaminants of Concern associated with the ground water on the Property.

6.8.12 Contamination Impact on Other Media

There are no Contaminants of Concern associated with the ground water on the Property.

6.8.13 Presence of Light or Dense Non-Aqueous Phase Liquids (Ground Water)

No light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquids (DNAPL) were detected in the ground water on the Property.

6.9 Sediment Quality

No sediment sampling was conducted as part of this investigation.

6.10 Quality Assurance and Quality Control Results

6.10.1 Types of Quality Control Samples Collected and Results

In general, samples were handled in accordance with the Analytical Protocol with respect to holding time, preservation method, storage requirement and sample container type. Laboratory results were compared to MOECC standards for quality control under Ontario Regulation 153/04 which require laboratory results to meet specific method detection limit (MDL) requirements. The sampling and analyses performed conformed with the following:

- Ministry of the Environment Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario.
- Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.I of the Environmental Protection Act of Ontario.

Duplicate samples were submitted at a rate of 10% for both soil and ground water samples.

6.10.2 Samples Not Handled in Accordance with the Analytical Methods

Holding Time

All samples met the holding times as specified in Ontario Ministry of the Environment and Climate Change – Laboratory Services Branch *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act"* July 1, 2011.

Preservation Method

All samples met the preservation methods as specified in Ontario Ministry of the Environment and Climate Change – Laboratory Service Branch *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act"* July 1, 2011.

Storage Requirement

All samples met the storage requirements as specified in Ontario Ministry of the Environment and Climate Change – Laboratory Service Branch *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act"* July 1, 2011.

Container Type

All samples met the container type as specified in Ontario Ministry of the Environment and Climate Change – Laboratory Services Branch *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act"* July 1, 2011.

6.10.3 Subsection 47 (3) of the Regulation

All certificates of analysis or analytical reports received pursuant to clause 47 (2) (b) of the regulation comply with subsection 47 (3). A certificate of analysis or analytical report has been received for each sample submitted for analysis. All certificates of analysis or analytical reports received have been included and are presented in Appendix F and G.

6.10.4 Results Qualified by Laboratory

The laboratory did not qualify any results or made any remarks in a certificate of analysis or analytical report about a sample.

6.10.5 Overall Quality of Field Data

Decision making regarding the environmental condition of the Property was not affected by the overall quality of the field data. The overall quality of the field data was considered by the Qualified Person to meet the objectives of the investigation and assessment.

7.0 CONCLUSIONS

7.1 Location and Concentration of Contamination

7.1.1 Land

Exceedances of the applicable Site Condition Standards were found in the fill and upper native soil samples (transition zone) tested for other regulated parameters (ORPs) including electrical conductivity (EC) and sodium absorption ratio (SAR).

No Exceedances of the applicable Site Condition Standards were found in the soil samples tested for all parameters with the exception of three of the fill and upper native soil sample (transition zone) collected from borehole locations BH/MW1 to BH/MW3. The samples exceeded the applicable Standards for electrical conductivity (EC), and sodium adsorption ratio (SAR).

Soil quality exceedances were noted in the fill and upper native materials at three (3) boreholes locations.

- Other Regulated Parameters (Electrical Conductivity EC, Sodium Adsorption Ratio, SAR) at three locations (BH/MW1 and BH/MW2 at 0.6 m depth) and (BH/MW3 at 0.6 m to 2.9 m depth).

7.1.2 Ground Water

No Exceedances of the applicable Site Condition Standards were found in the ground water sample tested for all parameters.

7.2 Whether Applicable Site Condition Standards Where Met

Soil – Earth Fill and Native Soil

The applicable site condition standards were not met in the earth fill materials and upper native soils at the boreholes located on the northern portion of the Property. All analysed soil samples met the MOECC Table 8 RPI Standards for all parameters measured with the exception of Electrical Conductivity (EC), and Sodium Adsorption Ratio (SAR) which exceeded the allowable limits for fill and upper native samples collected from borehole locations BH/MW1 to BH/MW3. The exceedances at the Property appear to be minor and likely associated the use of de-icing salts at the Property and adjacent public road to the west and north of the Property during the winter season.

All impacted soil must be excavated and removed from the Property and confirmatory sampling should be completed for the purpose of obtaining a Record of Site Condition (RSC). Full delineation of the soil impact has not been achieved.

Ground Water

The applicable site condition standards were met in the ground water on the Property.

Sediment

Sediment was not present on the Property and was not sampled as part of this investigation.

7.3 Conclusion & Recommendations

Based on the results of the Phase Two ESA, the following conclusions are presented:

- The Phase Two ESA consisted of drilling a total of five (5) boreholes to a maximum depth of 12.3 m below ground level (bgl) to investigate the soil and ground water condition at the Property. A monitoring well was installed at four (4) borehole locations.
- The stratigraphy of the Property is generally consisted of a layer of topsoil or asphalt over aggregate. An asphalt pavement structure was encountered in Boreholes 1 to 3 and consisted of 80 to 90 mm thick asphaltic concrete underlain by 120 to 670 mm thick granular base. A topsoil layer approximately 100mm thick was encountered at the ground surface in Boreholes 4 and 5. Underlying the topsoil or asphalt, the boreholes were advanced through a layer of earth fill that extends to depths of 0.1 to 2.3 m below ground level at the location of borehole 3 to 5. The earth fill generally consisting of clayey silt to sand/silty sand with trace organic inclusions, underlain by undisturbed native soil deposit of 0.2 to 10.8 m below ground level. The native soil deposit predominately consists of sandy silt to silty sand soils, overlying silt and clayey silt till deposits. Bedrock was encountered at all borehole locations underlying the glacial till deposit at the depth of approximately 10.7 m below ground level.
- The results of the samples submitted for chemical analysis were compared to the full depth generic site condition standards in a potable ground water condition for all soil textures as contained in Table 8 of the Ministry of Environment and Climate Change (MOECC) publication "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*" for potable groundwater condition residential/parkland/institutional/Property Use, April 15, 2011. According to the grain size analysis, the soil at the Property is medium to fine textured soil (over 50% silt and clay).
- Soil and ground water samples were tested for the contaminants of potential concern (COPC) that were identified in the Phase One ESA. The chemical analyses included: Metals, Other Regulated Parameters (ORPs) including Electrical Conductivity (EC), Sodium Absorption Ratio (SAR), boron, hot water soluble, cyanide, mercury, hexavalent chromium, and pH, Hydride Forming Metals, Petroleum Hydrocarbons (PHCs), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), and Polychlorinated Bi-Phenyls (PCBs).
- A total of twenty (20) soil samples from borehole locations including quality control (QC) duplicates were submitted for chemical analysis of Petroleum Hydrocarbons PHCs (F1-F4), benzene, toluene, ethylbenzene and xylene (BTEX), Volatile Organic Compounds (VOCs), Polychlorinated Biphenyls (PCBs), Polycyclic Aromatic Hydrocarbons (PAHs), Metals, Other Regulated Parameters (ORPs) including Electrical Conductivity (EC), Sodium Absorption Ratio (SAR), boron, hot water soluble, cyanide, mercury, hexavalent chromium, and pH, and Hydride Forming Metals parameters.
- A total of six (6) ground water samples from four (4) monitoring wells installed (BH/MW1, BH/MW2, BH/MW4, and BH/MW5) including duplicated samples were analysed for of Petroleum Hydrocarbons PHCs (F1-F4), benzene, toluene, ethylbenzene and xylene (BTEX), Volatile Organic Compounds (VOCs), Polychlorinated Biphenyls (PCBs), Polycyclic Aromatic Hydrocarbons (PAHs), and Metals Other Regulated Parameters (ORPs), and Hydride Forming Metals parameters.

- No exceedances of the applicable Site Condition Standards (Table 8 SCS) for parameters analysed were found in any of the ground water samples analysed.
- No exceedances of the applicable Standards (Table 8 SCS) for parameters analysed in soil were found in any of the soil samples analysed with the exception of sodium adsorption ratio (SAR) and electrical conductivity (EC) at the northern portion of the Property.

Soil quality exceedances were noted in the fill materials ant upper native soil at three (3) boreholes locations.

- Other Regulated Parameters (Electrical Conductivity EC, Sodium Adsorption Ratio, SAR) at three locations (BH/MW1 and BH/MW2 at 0.6 m depth) and (BH/MW3 at 0.6 m to 2.9 m depth).

The exceedances at the Property appear to be minor and likely associated the use of de-icing salts at the Property and adjacent public road to the east and north of the Property during the winter season. SAR and EC have no risk associated with human health; rather they are linked with vegetation growth. It is believed that the application of de-icing salt to the adjacent roadways resulted in salt-laden snowmelt migrating and infiltrating the fill layer that caused elevated levels of EC and SAR at the Property.

In order to obtain a Record of Site Condition, it will be necessary to remove the salt impacted soils from the Property. The remaining soils must meet the applicable MOECC Table 8 Site Condition Standards prior to the submission of the RSC for the Property.

It is expected that there will be significant removal of soil materials from the Property to facilitate the construction of basement during the future construction for proposed residential building. The future construction will result in the removal of the mixed fill and impacted fill noted at the Property.

Based on the available information, the Property area is approximately 2300 m^2. The site building has a basement level extended into the native soil and the soil beneath the basement floor is not expected to be impacted. The preliminary estimates, the aerial extent of the EC and SAR impact at the Property as shown in (Figure 5) is estimated to be approximately 1200 m^2. The approximate volume of impacted soil is estimated to be about 1,200 to 3,600 m^3. However, these estimates are preliminary and conservative; and will need to be refined. Given that measured exceedances of EC and SAR are relatively minor and lateral sampling locations are significantly spread apart, it is anticipated that actual volume of impacted soil would likely be lower than the preliminary estimates.

Terraprobe recommends that a soil management plan should be developed and implemented to manage the EC and SAR impacted soil at the Property. The soil management plan would include sampling and analysis for EC and SAR in a grid pattern across the zone of impact to determine the volume of impacted soil and remediation options. The soil management plan could be implemented at the time of earthworks for the proposed development.

All wells installed during the subsurface soil and groundwater investigation are required to be decommissioned in accordance with O.Reg.903 when they are no longer needed for ground water observation.

7.4 Signatures

The Phase Two ESA Update has been completed by Alysson Johnson, B.Sc., EIT, under the direction and supervision of Samuel Oyedokun, P.Eng., QP_{ESA}. The findings and conclusions presented in this report have been determined on the basis of the information that was obtained and reviewed, and on an assessment of the existing conditions on the Property.

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

Yours truly,

Terraprobe Inc.

Alysson Johnson, B.Sc., EIT
Project Manager

Samuel Oyedokun, P.Eng., PMP., QP_{ESA}
Associate

8.0 REFERENCES

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9.0 LIMITATIONS

This report was prepared for the exclusive use of Brown Maple Investments Limited and is intended to provide an assessment of the environmental conditions on the Property identified as 55 Port Street East, Mississauga, Ontario. The report was prepared for the purpose of identifying potential environmental concerns, including an assessment of the likelihood that the environmental quality of the soil and ground water at the site may have been adversely affected by past and present practices at the site, and/or those of the surrounding properties prior to development of the Property. Any use 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 parties. Terraprobe accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report, including consequential financial effects on transactions or Property values, or requirements for follow-up actions and costs.

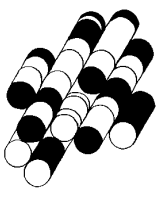
The assessment should not be considered a comprehensive audit that eliminates all risks of encountering environmental problems. The information presented in this report is based on information collected during the completion of the investigation conducted by Terraprobe Inc. It is based on conditions at the subject Property at the time of the site inspection. The subsurface conditions were assessed based on information collected at specific borehole and monitoring well locations. The actual subsurface conditions between the sampling points may vary.

There is no warranty expressed or implied by this report regarding the environmental status of the subject Property. Professional judgment was exercised in gathering and analyzing information collected by our staff, as well as that submitted by others. The conclusions presented are the product of professional care and competence, and cannot be construed as an absolute guarantee.

In the event that during future work new information regarding the environmental condition of the subject Property is encountered, or in the event that the outstanding responses from the regulatory agencies indicate outstanding issues on file with respect to the subject Property, Terraprobe should be notified in order that we may re-evaluate the findings of this assessment and provide amendments, as required.

FIGURES

TERRAPROBE INC.



Terraprobe Inc.
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Reference:
Microsoft Streets & Trips Map

Notes:

Legend:
Phase Two Property Boundary

Project Title:
Phase Two Environmental Site Assessment

Site Location:
55 Port Street East, Mississauga, Ontario

Figure Title:
PHASE TWO PROPERTY LOCATION

Designed By: AJ	**File No.:** 1-18-0012-42
Drawn By: SK	**Scale:** As Shown
Reviewed By: SQ	**Figure No.:** 1
Date: April 2018	

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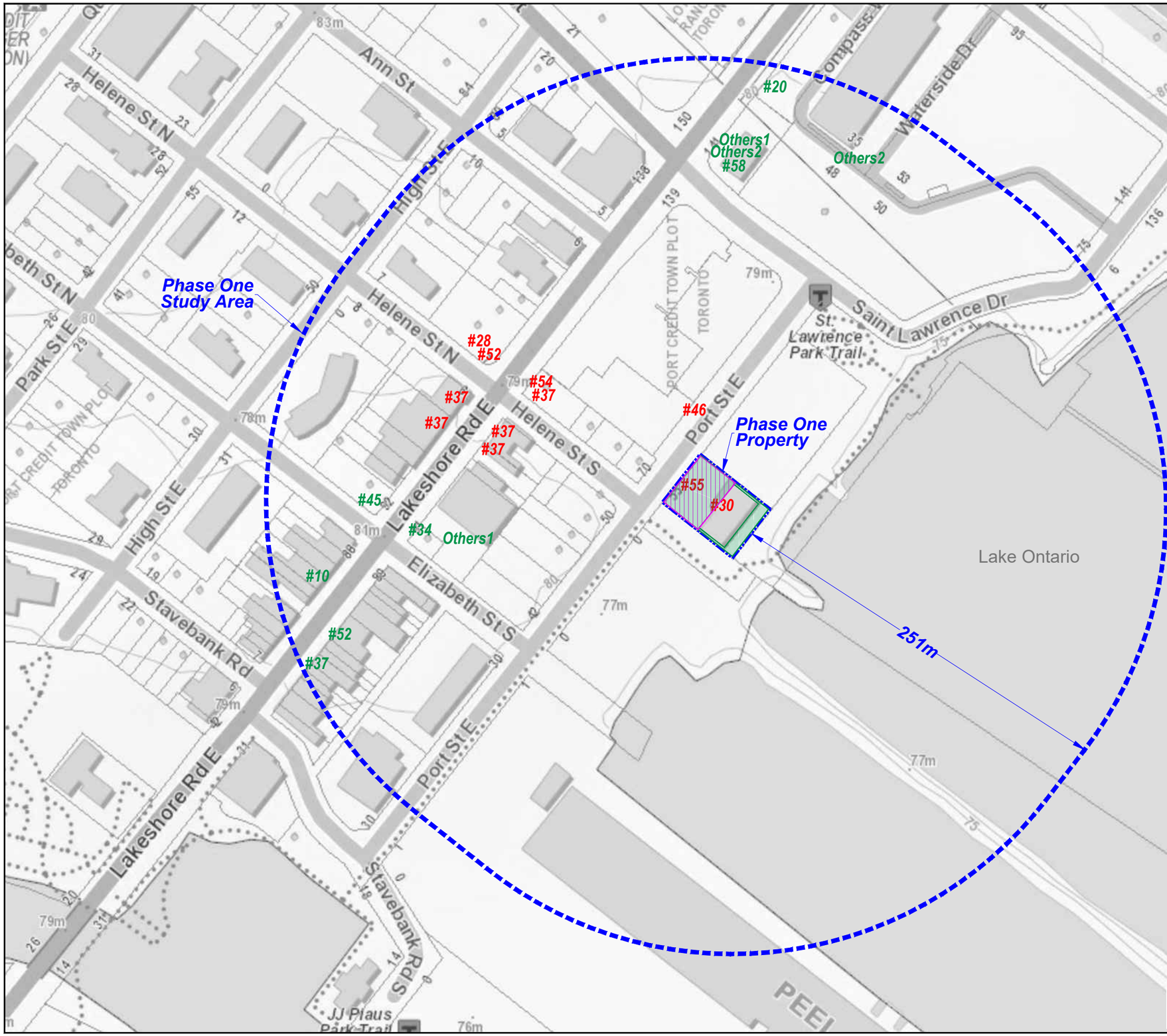

#10	Commercial Body Shops
#20	Explosives and Ammunition Manufacturing, Production and Bulk Storage
#28	Gasoline and Associated Products Storage in Fixed Tanks
#30	Importation of Fill Material of Unknown Quality
#34	Metal Fabrication
#37	Operation of Dry Cleaning Equipment (where chemicals are used)
#45	Pulp, Paper and Paperboard Manufacturing and Processing
#46	Rail Yards, Tracks and Spurs
#52	Storage, maintenace, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems
#54	Textile Manufacturing and Processing
#55	Transformer Manufacturing, Processing and Use
#58	Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners
Others1	Ontario Spills
Others2	O. Reg. 347 Waste Generator

SCALE 0 50 100m

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Reference:
Ministry of Natural Resources & Forestry
Interactive Topographic Map 2018

Notes:
PCA - Potentially Contaminating Activity
APEC - Area of Potential Environmental Concern
RED - PCA causing APEC on Property
GREEN - PCA unlikely to affect Property

Legend:

- Phase Two Property Boundary
- Phase Two Study Area, 250 m
- APEC 1 (Exterior of the Building of Phase One Property)
- APEC 2 - 7 (Northern Portion of the Property)

APEC 1	Possible presence of fill material of unknown quality within the exterior of the building on the Phase One Property
APEC 2	Presence of a transformer located on the north portion of the Phase One Property
APEC 3	Historical presence of underground storage tank (UST) approximately 160 m to the northwest of the Phase One Property
APEC 4	Historical presence of multiple dry cleaner's facilities located at properties approximately 90 to 160 m to the north/northwest/west of the Phase One Property
APEC 5	Historical presence of rail spur adjacent to the northeast of the Phase One Property
APEC 6	Historical presence of auto body shop located at a property approximately 160 m to the northwest of the Phase One Property
APEC 7	Historical presence of textile manufacturing company located approximately 100 m to the northwest of the Phase One Property

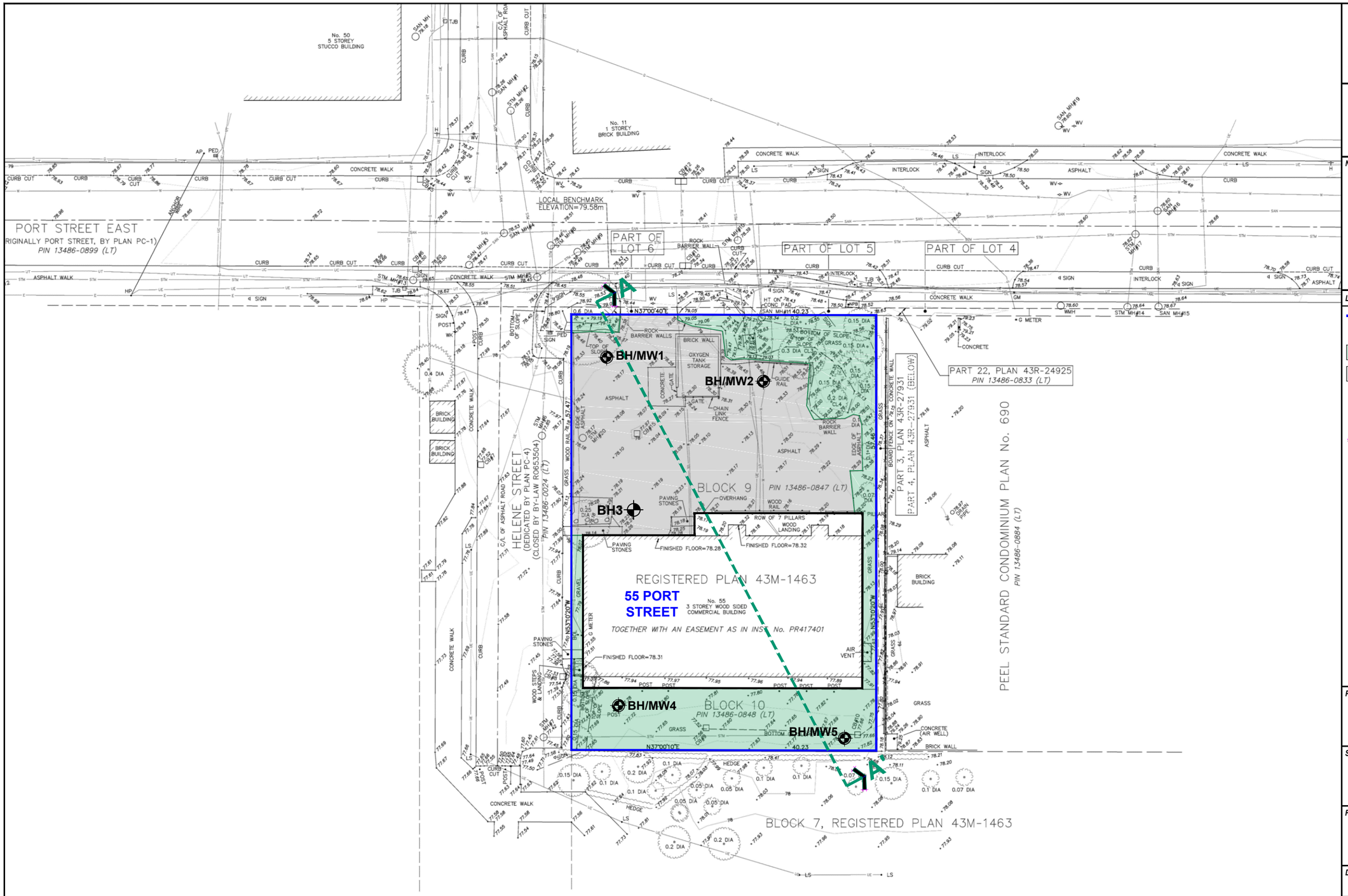
Project Title:
Phase Two Environmental Site Assessment

Site Location:
55 Port Street East, Mississauga, Ontario

Figure Title:
PCA LOCATIONS

Designed By: AJ	File No.: 1-18-0012-42
Drawn By: SK	Scale: As Shown
Reviewed By: SQ	Figure No.: 2
Date: April 2018	

T:\1-Project Files\2018\1-18-0012 - 55 Port Street, Mississauga\A2- Phase Two ESA\A. Dwgs\.log\AutoCAD\1-18-0012-42 FIG5.dwg, Sm-tti



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Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
SKETCH SHOWING TOPOGRAPHY OF
55 PORT STREET EAST
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

J.D. BARNES LIMITED
DATED: DECEMBER 1st, 2017
REFERENCE NO.: 17-30-182-00

Notes:

Legend:

- Phase Two Property Boundary
- Existing Building Footprint
- Landscaped Area
- Asphalt Parking Lot / Driveway
- BH/MW2 — Approximate Borehole With Monitoring Well Locations
- BH3 — Approximate Borehole Locations
- Cross Section Location

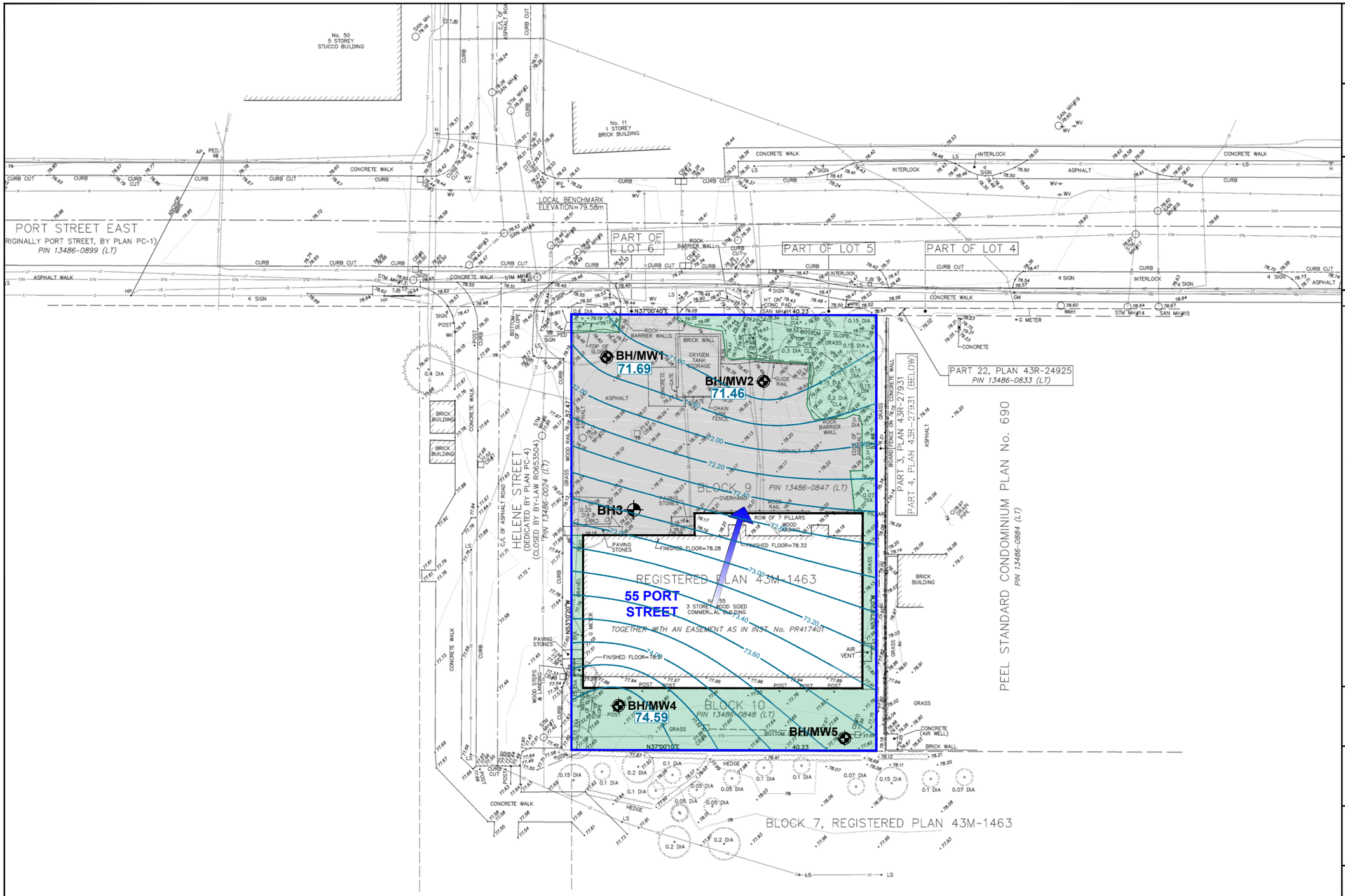
Project Title:
Phase Two Environmental Site Assessment

Site Location:
55 Port Street East, Mississauga, Ontario

Figure Title:
BOREHOLE/ MONITORING WELL LOCATION PLAN AND CROSS SECTION LOCATION

Designed By: AJ	***File No.:*** 1-18-0012-42
Drawn By: SK	***Scale:*** As Shown
Reviewed By: SQ	***Figure No.:*** 3
Date: April 2018	

T:\1-Project Files\2018\1-18-0012 - 55 Port Street, Mississauga\A3 - Phase Two ESA\A_Dwg\Layout\CAD\1-18-0012-42 FIG5.dwg, 5/4/18



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Reference:
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55 PORT STREET EAST
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

J.D. BARNES LIMITED
DATED: DECEMBER 1st, 2017
REFERENCE NO.: 17-30-182-00

Notes:

Legend:

- Phase Two Property Boundary
- Existing Building Footprint
- Landscaped Area
- Asphalt Parking Lot / Driveway
- BH/MW2 — Approximate Borehole With Monitoring Well Locations
- BH3 — Approximate Borehole Locations
- 74.59 — Ground Water Elevations(masl) ; April 2, 2018
- 74.60 — Ground Water Contours
- Ground Water Flow Direction

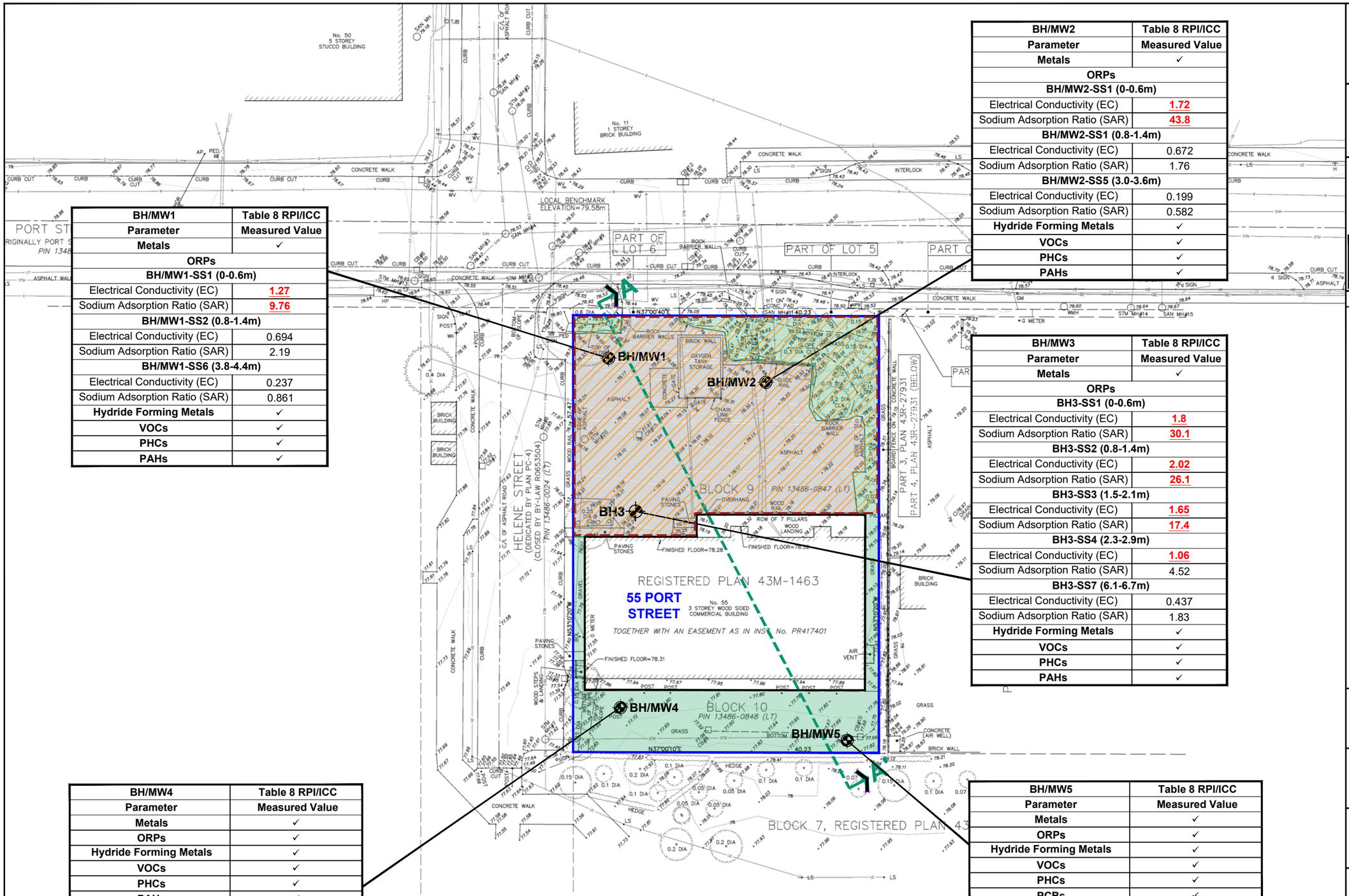
Project Title:
Phase Two Environmental Site Assessment

Site Location:
55 Port Street East, Mississauga, Ontario

Figure Title:
GROUND WATER CONTOURS

Designed By: AJ	***File No.:*** 1-18-0012-42
Drawn By: SK	***Scale:*** As Shown
Reviewed By: SQ	***Figure No.:*** 4
Date: April 2018	

T:\1-Project Files\2018\1-18-0012 - 55 Port Street, Mississauga\AS-Phase Two ESA\4- Dwg\-Lisp\AutoCAD\1-18-0012-42 FIG5.dwg, 5/4/18



BH/MW1	Table 8 RPI/ICC
Parameter	**Measured Value**
Metals	✓
ORPs	
BH/MW1-SS1 (0-0.6m)	
Electrical Conductivity (EC)	1.27
Sodium Adsorption Ratio (SAR)	9.76
BH/MW1-SS2 (0.8-1.4m)	
Electrical Conductivity (EC)	0.694
Sodium Adsorption Ratio (SAR)	2.19
BH/MW1-SS6 (3.8-4.4m)	
Electrical Conductivity (EC)	0.237
Sodium Adsorption Ratio (SAR)	0.861
Hydride Forming Metals	✓
VOCs	✓
PHCs	✓
PAHs	✓

BH/MW2	Table 8 RPI/ICC
Parameter	**Measured Value**
Metals	✓
ORPs	
BH/MW2-SS1 (0-0.6m)	
Electrical Conductivity (EC)	1.72
Sodium Adsorption Ratio (SAR)	43.8
BH/MW2-SS1 (0.8-1.4m)	
Electrical Conductivity (EC)	0.672
Sodium Adsorption Ratio (SAR)	1.76
BH/MW2-SS5 (3.0-3.6m)	
Electrical Conductivity (EC)	0.199
Sodium Adsorption Ratio (SAR)	0.582
Hydride Forming Metals	✓
VOCs	✓
PHCs	✓
PAHs	✓

BH/MW3	Table 8 RPI/ICC
Parameter	**Measured Value**
Metals	✓
ORPs	
BH3-SS1 (0-0.6m)	
Electrical Conductivity (EC)	1.8
Sodium Adsorption Ratio (SAR)	30.1
BH3-SS2 (0.8-1.4m)	
Electrical Conductivity (EC)	2.02
Sodium Adsorption Ratio (SAR)	26.1
BH3-SS3 (1.5-2.1m)	
Electrical Conductivity (EC)	1.65
Sodium Adsorption Ratio (SAR)	17.4
BH3-SS4 (2.3-2.9m)	
Electrical Conductivity (EC)	1.06
Sodium Adsorption Ratio (SAR)	4.52
BH3-SS7 (6.1-6.7m)	
Electrical Conductivity (EC)	0.437
Sodium Adsorption Ratio (SAR)	1.83
Hydride Forming Metals	✓
VOCs	✓
PHCs	✓
PAHs	✓

BH/MW4	Table 8 RPI/ICC
Parameter	**Measured Value**
Metals	✓
ORPs	✓
Hydride Forming Metals	✓
VOCs	✓
PHCs	✓
PAHs	✓

BH/MW5	Table 8 RPI/ICC
Parameter	**Measured Value**
Metals	✓
ORPs	✓
Hydride Forming Metals	✓
VOCs	✓
PHCs	✓
PCBs	✓

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CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

J.D. BARNES LIMITED
DATED: DECEMBER 1st, 2017
REFERENCE NO.: 17-30-182-00

Notes:
1. Standard- MOECC Table 8 RPI/ICC
2. ***Red-*** Samples Exceeds Standards
3. ✓ - Samples Meets Standards

Parameter	Table 8 RPI/ICC Standards	Units
Electrical Conductivity (EC)	0.7	mS/cm
Sodium Adsorption Ratio (SAR)	5.0	NA

Legend:
- Phase Two Property Boundary
- Existing Building Footprint
- Landscaped Area
- Asphalt Parking Lot / Driveway
- BH/MW2 — Approximate Borehole With Monitoring Well Locations
- BH3 — Approximate Borehole Locations
- Extent of Impact

Project Title:
Phase Two Environmental Site Assessment

Site Location:
55 Port Street East, Mississauga, Ontario

Figure Title:
SOIL RESULTS- PLAN VIEW

Designed By: AJ	***File No.:*** 1-18-0012-42
Drawn By: SK	***Scale:*** As Shown
Reviewed By: SQ	***Figure No.:*** 5
Date: April 2018	

T:\1-Project Files\2018\1-18-0012 - 55 Port Street, Mississauga\A3 - Phase Two ESA\A_Dwgs_Logs\AutoCAD\1-18-0012-42 FIG5.dwg, Kevin

BH/MW1-SS1 (0-0.6m)	Table 8 RPI/ICC
Parameter	Measured Value
Metals	✓
ORPs	
Electrical Conductivity (EC)	1.27
Sodium Adsorption Ratio (SAR)	9.76
Hydride Forming Metals	✓
PAHs	✓

BH/MW2-SS1 (0-0.6m)	Table 8 RPI/ICC
Parameter	Measured Value
Metals	✓
ORPs	
Electrical Conductivity (EC)	1.72
Sodium Adsorption Ratio (SAR)	43.8
Hydride Forming Metals	✓
VOCs	✓
PHCs	✓
PCBs	✓

BH3-SS1 (0-0.6m)	Table 8 RPI/ICC
Parameter	Measured Value
Metals	✓
ORPs	
Electrical Conductivity (EC)	1.8
Sodium Adsorption Ratio (SAR)	30.1
Hydride Forming Metals	✓
PAHs	✓

BH3-SS2 (0.8-1.4m)	Table 8 RPI/ICC
Parameter	Measured Value
ORPs	
Electrical Conductivity (EC)	2.02
Sodium Adsorption Ratio (SAR)	26.1

BH3-SS3 (1.5-2.1m)	Table 8 RPI/ICC
Parameter	Measured Value
ORPs	
Electrical Conductivity (EC)	1.65
Sodium Adsorption Ratio (SAR)	17.4

BH/MW1-SS2 (0.8-1.4m)	Table 8 RPI/ICC
Parameter	Measured Value
ORPs	
Electrical Conductivity (EC)	0.694
Sodium Adsorption Ratio (SAR)	2.19

BH/MW2-SS5 (3.0-3.6m)	Table 8 RPI/ICC
Parameter	Measured Value
Metals	✓
ORPs	
Electrical Conductivity (EC)	0.199
Sodium Adsorption Ratio (SAR)	0.582
Hydride Forming Metals	✓

BH/MW4-SS1 (0-0.6m)	Table 8 RPI/ICC
Parameter	Measured Value
PAHs	✓

BH/MW5-SS1 (0-0.6m)	Table 8 RPI/ICC
Parameter	Measured Value
Metals	✓
ORPs	✓
Hydride Forming Metals	✓
PCBs	✓

BH/MW2-SS1 (0.8-1.4m)	Table 8 RPI/ICC
Parameter	Measured Value
ORPs	
Electrical Conductivity (EC)	0.672
Sodium Adsorption Ratio (SAR)	1.76

BH/MW4-SS2 (0.8-1.4m)	Table 8 RPI/ICC
Parameter	Measured Value
Metals	✓
ORPs	✓
Hydride Forming Metals	✓

BH/MW5-SS4 (2.3-2.9m)	Table 8 RPI/ICC
Parameter	Measured Value
Metals	✓
ORPs	✓
Hydride Forming Metals	✓

BH/MW5-SS5 (3.0-3.6m)	Table 8 RPI/ICC
Parameter	Measured Value
VOCs	✓
PHCs	✓

BH/MW1-SS6 (3.8-4.4m)	Table 8 RPI/ICC
Parameter	Measured Value
Metals	✓
ORPs	
Electrical Conductivity (EC)	0.237
Sodium Adsorption Ratio (SAR)	0.861
Hydride Forming Metals	✓

BH/MW4-SS3 (1.5-2.1m)	Table 8 RPI/ICC
Parameter	Measured Value
VOCs	✓
PHCs	✓

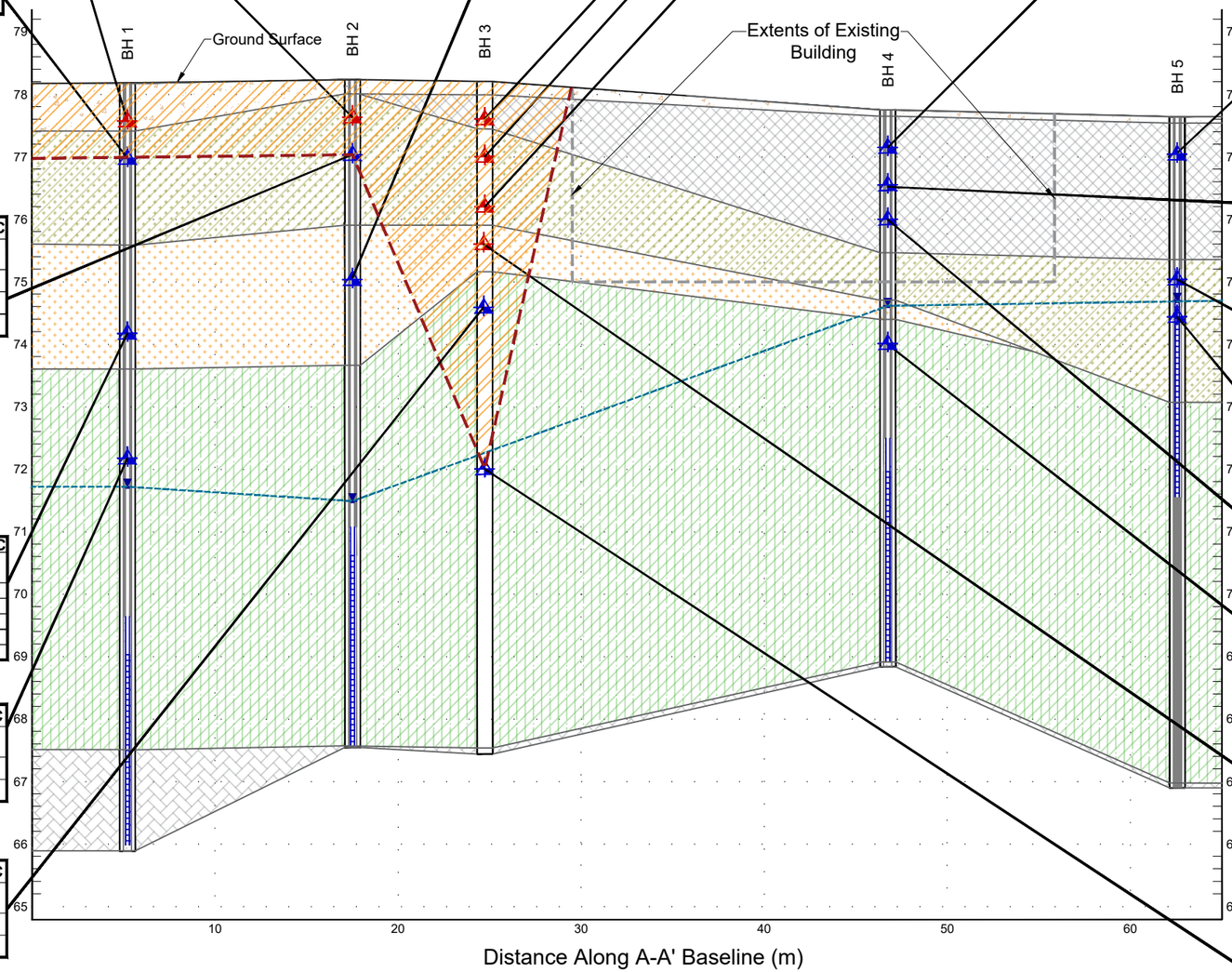
BH/MW4-SS6 (3.8-4.4m)	Table 8 RPI/ICC
Parameter	Measured Value
Metals	✓
ORPs	✓
Hydride Forming Metals	✓

BH/MW1 - SS7 (6.1-6.7m)	Table 8 RPI/ICC
Parameter	Measured Value
VOCs	✓
PHCs	✓

BH3-SS4 (2.3-2.9m)	Table 8 RPI/ICC
Parameter	Measured Value
ORPs	
Electrical Conductivity (EC)	1.06
Sodium Adsorption Ratio (SAR)	4.52

BH3-SS5 (3.0-3.6m)	Table 8 RPI/ICC
Parameter	Measured Value
VOCs	✓
PHCs	✓

BH3-SS7 (6.1-6.7m)	Table 8 RPI/ICC
Parameter	Measured Value
Metals	✓
ORPs	
Electrical Conductivity (EC)	0.437
Sodium Adsorption Ratio (SAR)	1.83
Hydride Forming Metals	✓



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REGIONAL MUNICIPALITY OF PEEL

J.D. BARNES LIMITED
DATED: DECEMBER 1st, 2017
REFERENCE NO.: 17-30-182-00

Notes:

1. Standard- MOECC Table 8 RPI/ICC
2. *Red-* Samples Exceeds Standards
3. ✓ - Samples Meets Standards

Parameter	Table 8 RPI/ICC Standards	Units
Electrical Conductivity (EC)	0.7	mS/cm
Sodium Adsorption Ratio (SAR)	5.0	NA

Legend:

- Surficial Layers
- Fill
- Sandy Silt to Silt and Sand/ Sand/ Sandy Gravel
- Silt
- Clayey Silt
- Bedrock
- Monitoring Well Screen
- Approximate Elevation of Ground Water Table (masl), Apr. 2, 2018
- Sample Meets Standard
- Sample Exceeds Standard
- Extent of Impact

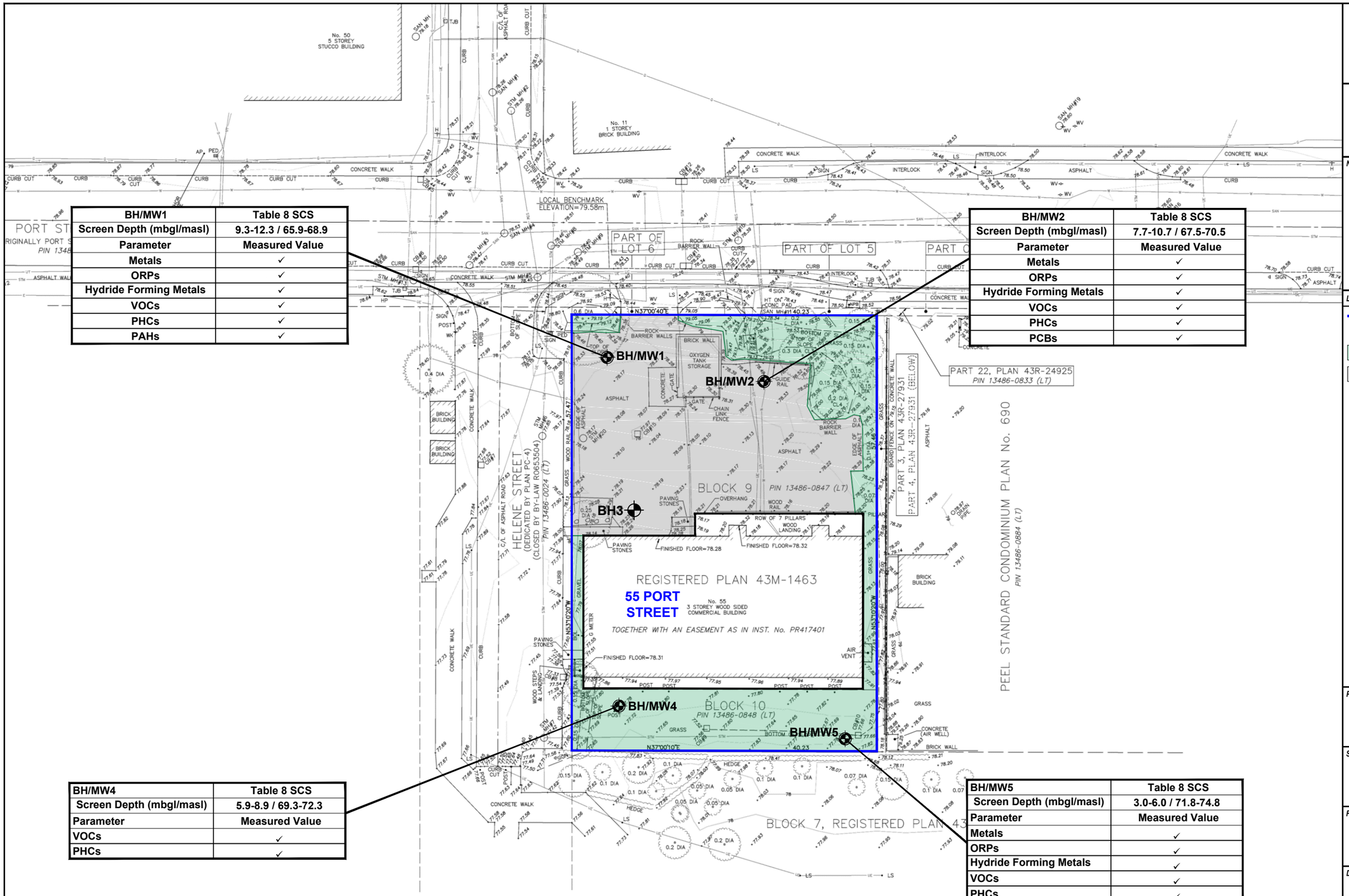
Project Title:
Phase Two Environmental Site Assessment

Site Location:
55 Port Street East, Mississauga, Ontario

Figure Title:
SOIL RESULTS-
CROSS SECTION A-A'

Designed By: AJ	*File No.:* 1-18-0012-42
Drawn By: SSK	*Scale:* As Shown
Reviewed By: SQ	*Figure No.:* 6
Date: April 2018	

T:\1-Project Files\2018\1-18-0012 - 55 Port Street, Mississauga\A2- Phase Two ESA\A. Dwgs.-Logs\AutoCAD\1-18-0012-42 FIGS.dwg, Smriti



BH/MW1	Table 8 SCS
Screen Depth (mbgl/masl)	9.3-12.3 / 65.9-68.9
Parameter	Measured Value
Metals	✓
ORPs	✓
Hydride Forming Metals	✓
VOCs	✓
PHCs	✓
PAHs	✓

BH/MW2	Table 8 SCS
Screen Depth (mbgl/masl)	7.7-10.7 / 67.5-70.5
Parameter	Measured Value
Metals	✓
ORPs	✓
Hydride Forming Metals	✓
VOCs	✓
PHCs	✓
PCBs	✓

BH/MW4	Table 8 SCS
Screen Depth (mbgl/masl)	5.9-8.9 / 69.3-72.3
Parameter	Measured Value
VOCs	✓
PHCs	✓

BH/MW5	Table 8 SCS
Screen Depth (mbgl/masl)	3.0-6.0 / 71.8-74.8
Parameter	Measured Value
Metals	✓
ORPs	✓
Hydride Forming Metals	✓
VOCs	✓
PHCs	✓
PAHs	✓

SCALE 0 10 20m

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REGIONAL MUNICIPALITY OF PEEL

J.D. BARNES LIMITED
DATED: DECEMBER 1st, 2017
REFERENCE NO.: 17-30-182-00

Notes:

Legend:

- Phase Two Property Boundary
- Existing Building Footprint
- Landscaped Area
- Asphalt Parking Lot / Driveway
- BH/MW2 — Approximate Borehole With Monitoring Well Locations
- BH3 — Approximate Borehole Locations

Project Title:
Phase Two Environmental Site Assessment

Site Location:
55 Port Street East, Mississauga, Ontario

Figure Title:
GROUND WATER RESULTS-
PLAN VIEW

Designed By: AJ	*File No.:* 1-18-0012-42
Drawn By: SK	*Scale:* As Shown
Reviewed By: SQ	*Figure No.:* 7
Date: April 2018	

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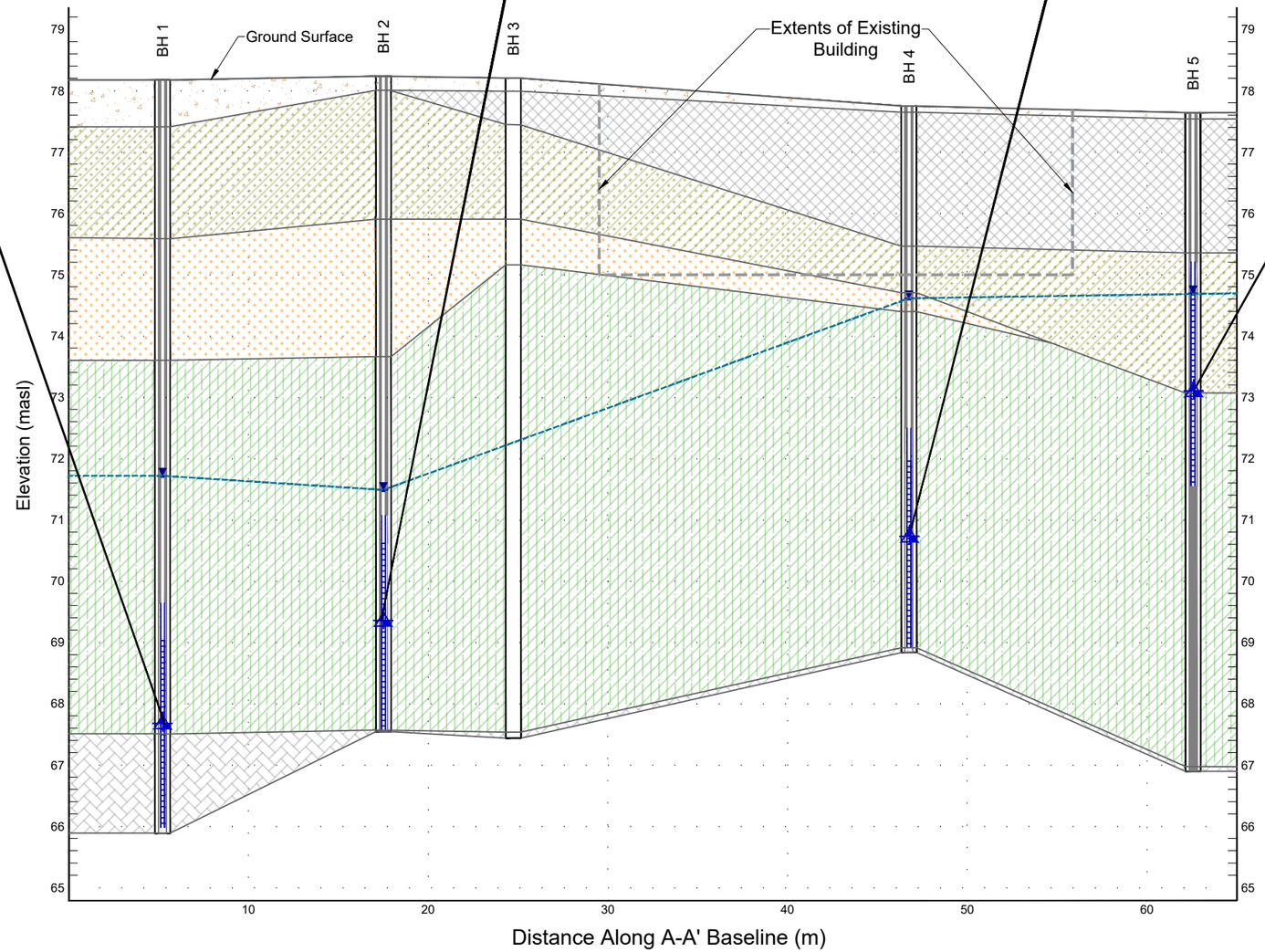
BH/MW1	Table 8 SCS
Screen Depth (mbgl/masl)	9.3-12.3 / 65.9-68.9
Parameter	Measured Value
Metals	✓
ORPs	✓
Hydride Forming Metals	✓
VOCs	✓
PHCs	✓
PAHs	✓

BH/MW2	Table 8 SCS
Screen Depth (mbgl/masl)	7.7-10.7 / 67.5-70.5
Parameter	Measured Value
Metals	✓
ORPs	✓
Hydride Forming Metals	✓
VOCs	✓
PHCs	✓
PCBs	✓

BH/MW4	Table 8 SCS
Screen Depth (mbgl/masl)	5.9-8.9 / 69.3-72.3
Parameter	Measured Value
VOCs	✓
PHCs	✓

BH/MW5	Table 8 SCS
Screen Depth (mbgl/masl)	3.0-6.0 / 71.8-74.8
Parameter	Measured Value
Metals	✓
ORPs	✓
Hydride Forming Metals	✓
VOCs	✓
PHCs	✓
PAHs	✓



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Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Notes:

Legend:

- Surficial Layers
- Fill
- Sandy Silt to Silt and Sand/ Sand/ Sandy Gravel
- Silt
- Clayey Silt
- Bedrock
- Monitoring Well Screen
- Approximate Elevation of Ground Water Table (masl), Apr. 2, 2018
- Sample Meets Standard

Project Title:
Phase Two Environmental Site Assessment

Site Location:
55 Port Street East, Mississauga, Ontario

Figure Title:
GROUND WATER RESULTS-
CROSS SECTION A-A'

Designed By: AJ	*File No.:* 1-18-0012-42
Drawn By: SSK	*Scale:* As Shown
Reviewed By: SQ	*Figure No.:* 8
Date: April 2018	

T:\1-Project Files\2018\1-18-0012 - 55 Port Street, Mississauga\A3- Phase Two ESA\A_Dwgs_Logs\AutoCAD\1-18-0012-42 FIG.dwg, Smith

TABLES

TERRAPROBE INC.

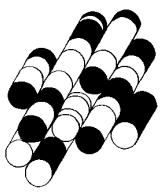


TABLE 1
Geological Units
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Borehole	BH 1			BH 2			BH 3			BH 4			BH 5		
	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)
Aggregate/asphaltic concrete	78.17	77.37	0.8	78.23	78.03	0.2	78.2	78	0.2	Not encountered			Not encountered		
Topsoil	Not encountered			Not encountered			Not encountered			77.75	77.65	0.1	77.64	77.54	0.1
Earth Fill	Not encountered			Not encountered			78	77.4	0.6	77.65	75.35	2.3	77.54	75.34	2.2
Native Soil	77.37	67.47	9.9	78.03	67.53	10.5	77.4	67.5	9.9	75.35	68.85	6.5	75.34	66.94	8.4
Bedrock	67.47	65.87	1.6	67.53	67.527	0.003	67.5	67.4	0.1	68.85	68.75	0.1	66.94	66.84	0.1

TABLE 2
Monitoring Well Construction
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Well ID	BH/MW 1		BH/MW 2		BH/MW 4		BH/MW 5	
Stick Up (m)	0.00		0.00		0.00		0.00	
Ground Elev. (masl)	78.17		78.23		78.2		77.8	
Well Componant	**Depth (m)**	**Elev. (masl)**	**Depth (m)**	**Elev. (masl)**	**Depth (m)**	**Elev. (masl)**	**Depth (m)**	**Elev. (masl)**
Concrete - Top								
Sand - Top	0.00	78.17	0.00	78.23	0.00	78.20	0.00	77.75
Bentonitie - Top	0.30	77.87	0.30	77.93	0.30	77.90	0.30	77.45
Bentonitie - Bottom	8.70	69.47	7.10	71.13	5.30	72.90	2.40	75.35
Sand - Top	8.70	69.47	7.10	71.13	5.30	72.90	2.40	75.35
Screen - Top	9.30	68.87	7.70	70.53	5.90	72.30	3.00	74.75
Screen - Bottom	12.30	65.87	10.70	67.53	8.90	69.30	6.00	71.75
Sand - Bottom	12.30	65.87	10.70	67.53	8.90	69.30	10.70	67.05

Note: N/A = Not available

TABLE 3
Ground Water Elevations
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Well ID	**BH/MW 1**		**BH/MW 2**		**BH/MW 4**		**BH/MW 5**	
Stick Up (m)	0.00		0.00		0.00		0.00	
Depth (mbgs)	12.30		10.70		8.90		6.00	
Ground Elev. (masl)	78.2		78.2		77.8		77.6	
Date	WL (m)	Elev. (masl)	WL (m)	Elev. (masl)	WL (m)	Elev. (masl)	WL (m)	Elev. (masl)
March 21-23, 2018	10.4	67.77	10.50	67.73	3.00	74.75	3.0	74.64
April 9, 2018	6.5	71.69	6.77	71.46	3.16	74.59	3.0	74.67

TABLE 4
Metals & Inorganics (Soil)
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Sample Name	Unit	Table 8 RPI/ ICC	BH1/SS1/0'-2'	BH1/SS2/ 2.5-4.5	BH1/SS6/15-17	BH2/SS1/0-2	BH2/SS2/2.5-4.5	BH2/SS5/10-12	BH3/SS1/0-2	BH3/SS2/2.5-4.5	BH3/SS3/5-7	BH3/SS4/7.5-9.5	BH3/SS7/20-22	BH4/SS2/2.5-4.5	BH4/SS6/15-17	BH5/SS1/0-2	BH5/SS4/7.5-9.5	DUP 3 [BH1/SS6]
AGAT ID#			9150071	9230241	9150073	9150080	9230242	9150084	9150089	9230243	9267755	9267753	9150116	9150118	9150129	9150219	9150220	9150229
Date			03/21/2018	03/21/2018	03/21/2018	03/21/2018	03/21/2018	03/21/2018	03/22/2018	03/22/2018	03/22/2018	03/22/2018	03/22/2018	03/23/2018	03/23/2018	03/22/2018	03/22/2018	03/21/2018
Parameter/Depth of Sample (mbgs)			0-0.6	0.8-1.4	3.8-4.4	0-0.6	0.8-1.4	3.0-3.6	0-0.6	0.8-1.4	1.5-2.1	2.3-2.9	6.1-6.7	0.8-1.4	3.8-4.4	0-0.6	2.3-2.9	3.8-4.4
Antimony	µg/g	1.3	<0.8	-	<0.8	<0.8	-	<0.8	<0.8	-	-	-	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	3	-	6	2	-	3	2	-	-	-	5	4	5	2	<1	5
Barium	µg/g	220	60	-	54	17	-	56	21	-	-	-	53	46	40	27	22	57
Beryllium	µg/g	2.5	<0.5	-	0.7	<0.5	-	<0.5	<0.5	-	-	-	0.7	<0.5	0.7	<0.5	<0.5	0.7
Boron	µg/g	36	<5	-	9	<5	-	7	<5	-	-	-	11	<5	8	<5	<5	10
Boron (Hot Water Soluble)	µg/g	1.5	0.27	-	0.82	0.16	-	0.33	<0.10	-	-	-	1.13	0.43	0.51	0.39	0.13	0.79
Cadmium	µg/g	1.2	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	12	-	23	10	-	17	7	-	-	-	27	14	22	10	5	23
Cobalt	µg/g	22	5.9	-	14.1	4.3	-	9.1	4.1	-	-	-	13	6.5	13.9	4.8	1.6	13.6
Copper	µg/g	92	15	-	26	11	-	19	10	-	-	-	26	24	28	19	14	26
Lead	µg/g	120	50	-	9	5	-	7	6	-	-	-	10	54	10	37	63	10
Molybdenum	µg/g	2	<0.5	-	<0.5	<0.5	-	<0.5	<0.5	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	82	12	-	31	8	-	19	8	-	-	-	29	22	30	10	4	30
Selenium	µg/g	1.5	0.4	-	<0.4	<0.4	-	<0.4	<0.4	-	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g	0.5	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	<0.4	-	<0.4	<0.4	-	<0.4	<0.4	-	-	-	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	<0.5	-	0.5	<0.5	-	0.6	<0.5	-	-	-	0.6	<0.5	0.5	<0.5	<0.5	0.5
Vanadium	µg/g	86	19	-	28	17	-	23	14	-	-	-	28	19	28	15	6	28
Zinc	µg/g	290	81	-	66	22	-	46	20	-	-	-	65	66	67	41	34	74
Chromium VI	µg/g	0.66	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	-	-	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	µg/g	0.051	<0.040	-	<0.040	<0.040	-	<0.040	<0.040	-	-	-	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	<0.10	-	<0.10	<0.10	-	<0.10	<0.10	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.7	1.27	0.694	0.237	1.72	0.672	0.199	1.8	2.02	1.65	1.06	0.437	0.274	0.195	0.285	0.206	0.213
Sodium Adsorption Ratio (2:1)	NV	5	9.76	2.19	0.861	43.8	1.76	0.582	30.1	26.1	17.4	4.62	1.83	0.508	0.727	0.611	0.48	0.854
pH, 2:1 CaCl2 Extraction	pH Units	NV	9.05	-	8.06	7.88	-	7.86	7.84	-	-	-	8.03	7.62	7.9	7.77	8.16	8.03

Comments:
Results compared to MOECC 2011 Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water
RDL - Reported Detection Limit; G / S - Guideline / Standard
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).
pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.
NV- No Value
NA-Not Analyzed

TABLE 5
PHCs F1 - F4 (+BTEX)
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Sample Name	Unit	Table 8 RPI/ ICC	BH1/SS7/20-22	BH2/SS1/0-2	BH3/SS5/10-12	BH4/SS3/5-7	BH5/SS5/10-12	DUP 1 [BH1/SS7]
AGAT ID#			**9150077**	**9150080**	**9150096**	**9150123**	**9150222**	**9150225**
Date			**03/21/2018**	**03/21/2018**	**03/22/2018**	**03/23/2018**	**03/22/2018**	**03/21/2018**
Parameter/Depth of Sample (mbgs)			**6.1-6.7**	**0-0.6**	**3.0-3.6**	**1.5-2.1**	**3.0-3.6**	**6.1-6.7**
Benzene	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	25	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	240	<50	<50	<50	110	<50	<50
F4 (C34 to C50)	µg/g	120	<50	<50	<50	91	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	NA	NA	NA	NA	NA	NA
Moisture Content	%	NV	8.9	15.9	16.5	9.7	14.8	9
Terphenyl	%	NV	110	120	98	120	112	100

Comments:
Results compared to MOECC 2011 Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water
RDL - Reported Detection Limit; G / S - Guideline / Standard
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
Total C6 - C50 results are corrected for BTEX contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.
NV- No Value
NA-Not Analyzed

TABLE 6
VOCs
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Sample Name	Unit	Table 8 RPI/ ICC	BH1/SS7/20-22	BH2/SS1/0-2	BH3/SS5/10-12	BH4/SS3/5-7	BH5/SS5/10-12	DUP 1 [BH1/SS7]
AGAT ID#			9150077	9150080	9150096	9150123	9150222	9150225
Date			03/21/2018	03/21/2018	03/22/2018	03/23/2018	03/22/2018	03/21/2018
Parameter/Depth of Sample (mbgs)			6.1-6.7	0-0.6	3.0-3.6	1.5-2.1	3.0-3.6	6.1-6.7
Dichlorodifluoromethane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acetone	ug/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroform	ug/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzene	ug/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.05	<0.03	<0.03	0.05	<0.03	<0.03	<0.03
Bromodichloromethane	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Toluene	ug/g	0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dibromochloromethane	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Chlorobenzene	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	ug/g		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene	µg/g	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene-d8	% Recovery		90	89	88	88	88	91
4-Bromofluorobenzene	% Recovery		95	97	95	93	96	96

Comments:
Results compared to MOECC 2011 Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water
RDL - Reported Detection Limit; G / S - Guideline / Standard

<150	Detection limit exceeded Standard
150	Sample result exceeded Standard

Results are based on sample dry weight.

TABLE 7
O. Reg. 153(511) - PAHs (Soil)
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Sample Name	Unit	Table 8 RPI/ICC	BH1/SS1/0'-2'	BH3/SS1/0-2	BH4/SS1/0-2	DUP 2 [BH1/SS1]
AGAT ID#			9150071	9150089	9150117	9150226
Date			03/21/2018	03/22/2018	03/23/2018	03/21/2018
Parameter/Depth of Sample (mbgs)			0-0.6	0-0.6	0-0.6	0-0.6
Naphthalene	µg/g	0.09	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	0.072	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.19	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.69	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.22	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	<0.05	<0.05	0.08	<0.05
Pyrene	µg/g	1	<0.05	<0.05	0.07	<0.05
Benz(a)anthracene	µg/g	0.36	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	2.8	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.47	<0.05	<0.05	0.07	<0.05
Benzo(k)fluoranthene	µg/g	0.48	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.23	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	<0.05	<0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	0.59	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		12.5	16.8	11.6	14.7
Chrysene-d12	%		100	108	102	99

Comments:
Results compared to MOECC 2011 Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water
RDL - Reported Detection Limit; G / S - Guideline / Standard
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
Note: The result for Benzo(b)Flouranthene is the total of the Benzo(b)&(j)Flouranthene isomers because the isomers co-elute on the GC column.
NV-No Value
NA-Not Analyzed

TABLE 8
PCBs (Soil)
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Sample Name	Unit	Table 8 RPI/ ICC	BH2/SS1/0-2	BH5/SS1/0-2	DUP 4
AGAT ID#			9150080	9150219	9150230
Date			03/21/2018	03/22/2018	03/22/2018
Parameter/Depth of Sample (mbgs)			0-0.6	0-0.6	0-0.6
Polychlorinated Biphenyls	µg/g	0.3	<0.1	<0.1	<0.1
Decachlorobiphenyl	%		104	80	104
Moisture Content	%		15.9	5.6	7.8

Comments:
Results compared to MOECC 2011 Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water
RDL - Reported Detection Limit; G / S - Guideline / Standard
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
The sample was analysed using the high level technique. The sample was
extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed.
Results are based on the dry weight of the soil.
NV- No Value
NA-Not Analyzed

TABLE 9
Metals and Inorganics (Groundwater)
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Sample Name	Unit	Table 8 SCS	MW1	MW2	MW5	Dup1 [MW1]
AGAT ID#			**9160121**	**9160144**	**9160168**	**9160169**
Date			**04/02/2018**	**04/02/2018**	**04/02/2018**	**04/02/2018**
Parameter/Depth of screen (mbgs)			**9.3-12.3**	**9.7-10.7**	**3.0-6.0**	**9.3-12.3**
Antimony	µg/L	6	<1.0	<1.0	<1.0	<1.0
Arsenic	µg/L	25	2.3	3	2.7	2.7
Barium	µg/L	1000	216	179	203	231
Beryllium	µg/L	4.0	<0.5	<0.5	<0.5	<0.5
Boron	µg/L	5000	1500	1950	192	1580
Cadmium	µg/L	2.7	<0.2	<0.2	<0.2	<0.2
Chromium	µg/L	50	<2.0	<2.0	3.9	<2.0
Cobalt	µg/L	3.8	<0.5	<0.5	0.9	<0.5
Copper	µg/L	87	<1.0	<1.0	<1.0	<1.0
Lead	µg/L	10	<0.5	<0.5	<0.5	<0.5
Molybdenum	µg/L	70	7.9	8.6	4.3	8.5
Nickel	µg/L	100	<1.0	<1.0	<1.0	<1.0
Selenium	µg/L	10	<1.0	1	<1.0	1
Silver	µg/L	1.5	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	2	<0.3	<0.3	<0.3	<0.3
Uranium	µg/L	20	<0.5	1.5	0.6	<0.5
Vanadium	µg/L	6.2	0.4	1.3	0.9	<0.4
Zinc	µg/L	1100	<5.0	<5.0	<5.0	<5.0
Mercury	µg/L	1	<0.02	<0.02	<0.02	<0.02
Chromium VI	µg/L	25	<5	<5	<5	<5
Cyanide	µg/L	66	<2	<2	<2	<2
Sodium	µg/L	490000	335000	294000	139000	350000
Chloride	µg/L	790000	445000	657000	277000	444000
Electrical Conductivity	uS/cm	NV	1790	2630	1720	1780
pH	pH Units	NV	7.93	7.73	7.54	7.94

Comments:
Results compared to MOECC 2011 Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Ground Water - All Types of Property Uses
RDL - Reported Detection Limit; G / S - Guideline / Standard
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).
pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.
NV- No Value
NA-Not Analyzed

TABLE 10
PHCs F1 - F4 (+BTEX) (Groundwater)
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Sample Name	Unit	Table 8 SCS	MW 1	MW 2	MW 4	MW5	Dup1 [MW1]
AGAT ID#			**9160121**	**9160144**	**9160146**	**9160168**	**9160169**
Date			**04/02/2018**	**04/02/2018**	**04/02/2018**	**04/02/2018**	**04/02/2018**
Parameter/Depth of screen (mbgs)			**9.3-12.3**	**7.7-10.7**	**5.9-8.9**	**3.0-3.0**	**9.3-12.3**
Benzene	µg/L	5	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	22	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	2.4	<0.10	<0.10	<0.10	<0.10	<0.10
Xylene Mixture	µg/L	300	<0.20	<0.20	<0.20	<0.20	<0.20
F1 (C6 to C10)	µg/L	420	<25	<25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	420	<25	<25	<25	<25	<25
F2 (C10 to C16)	µg/L	150	<100	<100	<100	<100	<100
F3 (C16 to C34)	µg/L	500	<100	<100	130	<100	<100
F4 (C34 to C50)	µg/L	500	<100	<100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	NA	NA	NA	NA	NA
Terphenyl	%		82	80	92	80	79

Comments:
Results compared to MOECC 2011 Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Ground Water - All Types of Property Uses
RDL - Reported Detection Limit; G / S - Guideline / Standard

<150	Detection limit exceeded Standard
150	Sample result exceeded Standard

The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
NV- No Value
NA-Not Analyzed

TABLE 11
VOCs (Groundwater)
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Sample Name	Unit	Table 8 SCS	MW 1	MW 2	MW 4	MW5	Dup1 [MW1]	Trip Blank
AGAT ID#			**9160121**	**9160144**	**9160146**	**9160168**	**9160169**	**9160185**
Date			**04/02/2018**	**04/02/2018**	**04/02/2018**	**04/02/2018**	**04/02/2018**	**04/02/2018**
Parameter/Depth of screen (mbgs)			**9.3-12.3**	**7.7-10.7**	**5.9-8.9**	**3.0-3.0**	**9.3-12.3**	**NA**
Dichlorodifluoromethane	µg/L	590	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	0.5	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Bromomethane	µg/L	0.89	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	150	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Acetone	µg/L	2700	<1.0	<1.0	15	<1.0	<1.0	<1.0
1,1-Dichloroethylene	µg/L	1.6	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Methylene Chloride	µg/L	50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl tert-butyl ether	µg/L	15	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	5	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Methyl Ethyl Ketone	µg/L	1800	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	µg/L	2.4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	200	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Carbon Tetrachloride	µg/L	0.79	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzene	µg/L	5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	µg/L	5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethylene	µg/L	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	µg/L	16	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl Isobutyl Ketone	µg/L	640	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	µg/L	4.7	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	22	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Ethylene Dibromide	µg/L	0.2	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	1.6	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	1.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chlorobenzene	µg/L	30	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Ethylbenzene	µg/L	2.4	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m & p-Xylene	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Styrene	µg/L	5.4	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	59	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	3	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichloropropene	µg/L	0.5	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Xylene Mixture	µg/L	300	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
n-Hexane	µg/L	51	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene-d8	% Recovery		115	99	102	106	100	111
4-Bromofluorobenzene	% Recovery		74	86	78	80	89	87

Comments:
Results compared to MOECC 2011 Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Ground Water - All Types of Property Uses
RDL - Reported Detection Limit; G / S - Guideline / Standard

<150	Detection limit exceeded Standard
150	Sample result exceeded Standard

NV- No Value
NA-Not Analyzed

TABLE 12
PAHs (Groundwater)
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Sample Name	Unit	Table 8 SCS	MW1	MW5	Dup1 [MW1]
AGAT ID#			**9160121**	**9160168**	**9160169**
Date			**04/02/2018**	**04/02/2018**	**04/02/2018**
Parameter/Depth of screen (mbgs)			**9.3-12.3**	**3.0-6.0**	**9.3-12.3**
Naphthalene	µg/L	11	<0.20	<0.20	<0.20
Acenaphthylene	µg/L	1	<0.20	<0.20	<0.20
Acenaphthene	µg/L	4.1	<0.20	<0.20	<0.20
Fluorene	µg/L	120	<0.20	<0.20	<0.20
Phenanthrene	µg/L	1	<0.10	<0.10	<0.10
Anthracene	µg/L	1	<0.10	<0.10	<0.10
Fluoranthene	µg/L	0.41	<0.20	<0.20	<0.20
Pyrene	µg/L	4.1	<0.20	<0.20	<0.20
Benz(a)anthracene	µg/L	1	<0.20	<0.20	<0.20
Chrysene	µg/L	0.1	<0.10	<0.10	<0.10
Benzo(b)fluoranthene	µg/L	0.1	<0.10	<0.10	<0.10
Benzo(k)fluoranthene	µg/L	0.1	<0.10	<0.10	<0.10
Benzo(a)pyrene	µg/L	0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	0.2	<0.20	<0.20	<0.20
Dibenz(a,h)anthracene	µg/L	0.2	<0.20	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L	0.2	<0.20	<0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	3.2	<0.20	<0.20	<0.20
Chrysene-d12	%		80.00	73	65

Comments:
Results compared to MOECC 2011 Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Ground Water - All Types of Property Uses
RDL - Reported Detection Limit; G / S - Guideline / Standard
<150 Detection limit exceeded Standard
150 Sample result exceeded Standard
NV- No Value
NA-Not Analyzed

TABLE 13
PCBs (Groundwater)
55 Port Street East, Mississauga, ON
Project #1-18-0012-42

Sample Name	Unit	Table 8 SCS	MW2	Dup2 [MW2]
AGAT ID#			**9160144**	**9160176**
Date			**04/02/2018**	**04/02/2018**
Parameter/Depth of screen (mbgs)			**7.7-10.7**	**7.7-10.7**
Polychlorinated Biphenyls	µg/L	0.2	<0.1	<0.1
Decachlorobiphenyl	%		74.00	61

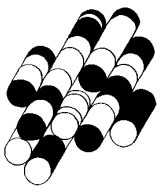
Comments:
Results compared to MOECC 2011 Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Ground Water - All Types of Property Uses
RDL - Reported Detection Limit; G / S - Guideline / Standard

<150	Detection limit exceeded Standard
150	Sample result exceeded Standard

NV- No Value
NA-Not Analyzed

APPENDIX A

TERRAPROBE INC.



55 PORT STREET EAST
MISSISSAUGA, ONTARIO
PHASE ONE CONCEPTUAL SITE MODEL

Phase One CSM		Information Pertaining to Property
Figures of the Phase One Study Area are provided that:		
i.	Show any existing buildings and structures,	There is currently developed with a two and a half storey, wood finished commercial building (see Figure 2).
ii.	Identify and locate water bodies located in whole or in part on the Phase One Study Area	A review of topographic mapping indicates that Lake Ontario located approximately 30 m to the southeast of the Property. The Credit River is located approximately 450 m to the west.
iii.	Identify and locate any Area of Natural Significance located in whole or in part on the Phase One Study Area	Terraprobe reviewed the Ontario Ministry of Natural Resources NHIC database for natural area listings. No Areas of Natural Significance are located in the Phase One Study Area.
iv.	Locate any drinking water wells at the Phase One Property	No well was identified on the Property during the site inspection and thirty-three (33) wells were found in the MOECC Water Well Information System (WWIS) as monitoring wells.
v.	Show roads, including names, within the Phase One Study Area	The Property is bounded to the north by Port Street East and to the west by Helene Street. Residential properties are located to the east and parkland and Lake Ontario to the south. Other roads and properties within the Study Area are presented on Figure 3.
vi.	Show use of properties adjacent to the Phase One Property	The land uses of the adjacent properties are shown in Figure 3. The neighboring properties to the Phase One Property are primarily in residential/commercial land use.
vii.	Identify and locate area where any potentially contaminating activity has occurred, and show tanks in such areas	Potentially Contaminating Activities (PCAs) located on the Property and within the Study Area are presented on Figure 4.
viii.	Identify and locate any areas of potential environmental concern	Seven (7) Areas of Potential Environmental Concern (APEC) were identified on the Property. The location of the APECs is presented on Figure 5 and the description of the APECs and Contaminants of Potential Concern (CoPCs) are described on the Table of Areas of Potential Concern.
The following is a description and assessment of:		
i.	Any areas where potentially contaminating activity on or potentially affecting the Phase One Property has occurred,	See above list of APECs and Figure 5.
ii.	Any contaminants of potential concern,	Contaminants of Potential Concern (CoPCs) were identified the Property include: • Metals • Hydride-forming metals • ORPs o EC, SAR, As, Sb, Se, Cr(VI), Na, Hg, B-HWS, CN-, pH • PHCs +BTEX • VOCs

		• PAHs • PCBs The CoPCs have the potential to be present in the soil and ground water.
iii.	The potential for underground utilities, if any present, to affect contaminant distribution and transport	There are several underground utilities (water, telephone, gas, storm and sanitary sewers etc.) located on and adjacent to the Property; however, the potential for contaminant distribution is low.
iv.	Available regional or site specific geological and hydrogeological information,	Topography • The approximate elevation of the Property is 78 masl and slopes to the southeast towards Lake Ontario. Hydrogeology • The nearest water body is Lake Ontario located approximately 30 m to the southeast of the Property. The Credit River is located approximately 450 m to the west. Ground water and surface water is expected to flow to the south/southeast towards Lake Ontario. Geology (overburden) • The overburden on the Property is mainly comprised of modern alluvial deposits consisting of clay, silt, sand, and gravel (19) and coarse-textured glaciolacustrine deposits consisting of sand, gravel, minor silt and clay foreshore and basinal deposits (9c). Geology (bedrock) • The bedrock on the Property is of the Georgian Bay Formation, which is comprised of shale and limestone (55b). Geology (depth to bedrock) • Based on the published information, bedrock in the vicinity is located approximately 12 m below ground surface.
v.	How any uncertainty or absence of information obtained in each of the components of the Phase One ESA could affect the validity of the model.	No uncertainty was encountered while conducting the Phase One ESA that could affect the validity of the model.

Figures:

Figure 1 – Phase One Property Location
Figure 2 – Phase One Property
Figure 3 – Phase One Study Area
Figure 4 – PCA Locations
Figure 5 – APEC Locations

Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
Microsoft Streets & Trips Map

Notes:

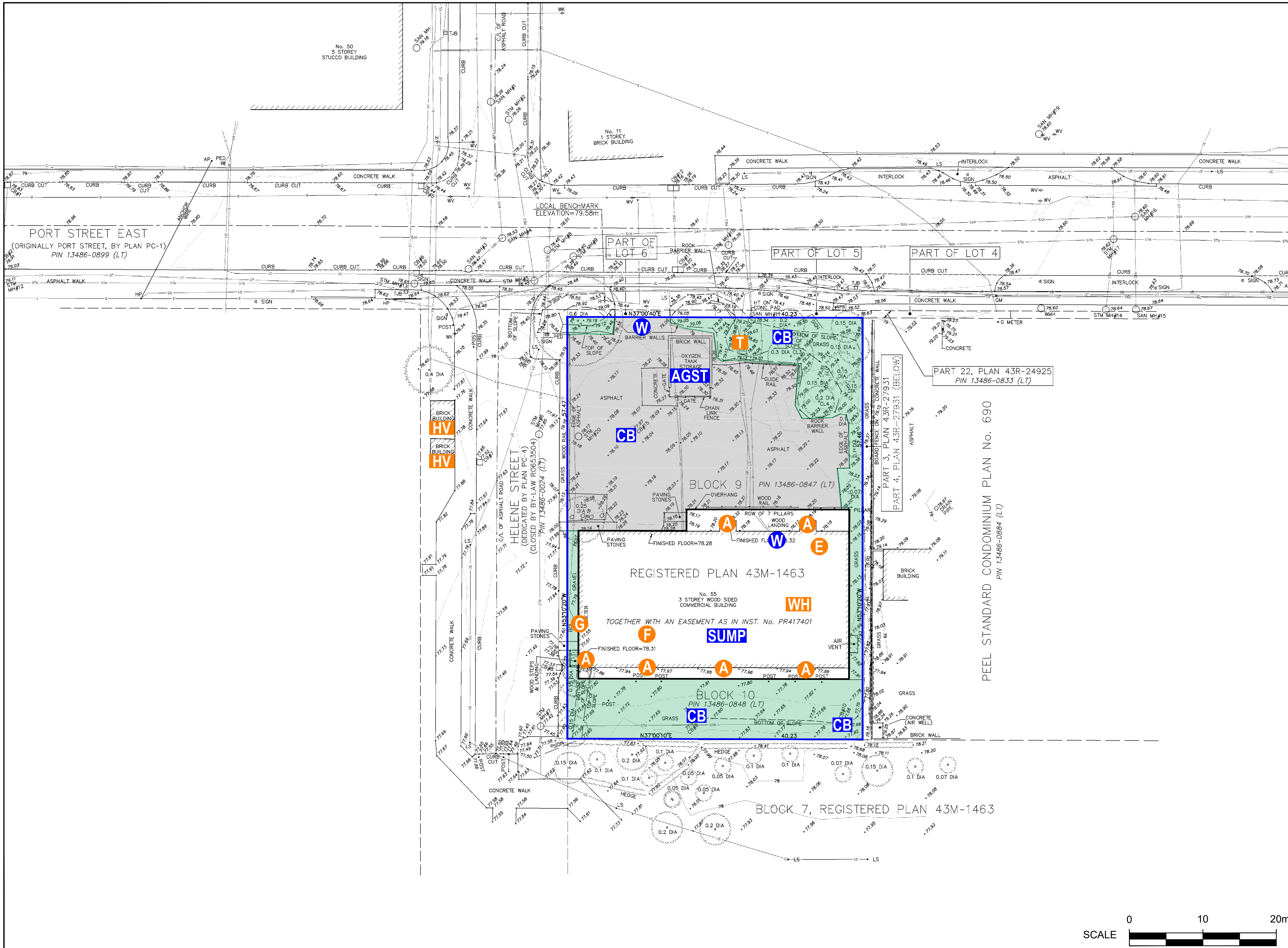
Legend:
Phase One Property Boundary

Project Title:
Phase One Environmental Site Assessment

Site Location:
55 Port Street East, Mississauga, Ontario

Figure Title:
PHASE ONE PROPERTY LOCATION

Designed By: AJ	***File No.:*** 1-18-0012-41
Drawn By: SK	***Scale:*** As Shown
Reviewed By: SQ	***Figure No.:*** 1
Date: February 2018	



Terraprobe Inc.

Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing

11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

SKETCH SHOWING TOPOGRAPHY OF
55 PORT STREET EAST
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

J.D. BARNES LIMITED
DATED: DECEMBER 1st, 2017
REFERENCE NO.: 17-30-182-00

Notes:

Legend:

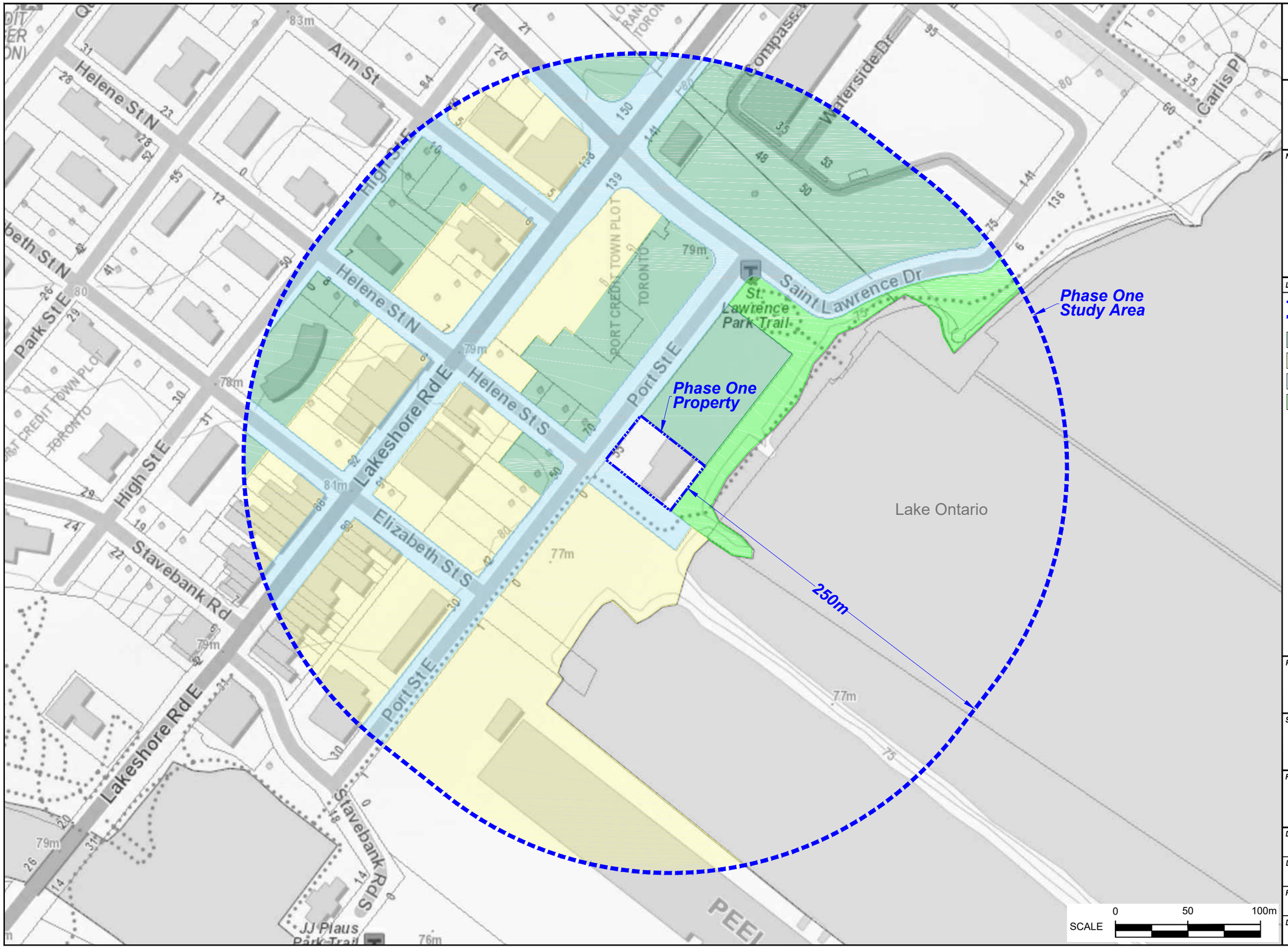
Symbol	Description
(blue line)	Phase One Property Boundary
A	Access Point
E	Electrical Panels
G	Gas
F	Furnace (roof)
T	Transformer
HV	Hydro Vault
WH	Water Heater
W	Water
CB	Catch Basin
SUMP	Sump Pump
AGST	Above Ground Storage Tank (Liquid Oxygen)
(outline)	Existing Building Footprint
(green)	Landscaped Area
(grey)	Asphalt Parking Lot / Driveway

Project Title: Phase One Environmental Site Assessment

Site Location: 55 Port Street East, Mississauga, Ontario

Figure Title: PHASE ONE PROPERTY

Designed By: AJ	**File No.:** 1-18-0012-41
Drawn By: SK	**Scale:** As Shown
Reviewed By: SQ	**Figure No.:** 2
Date: February 2018	



Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:
Ministry of Natural Resources & Forestry
Interactive Topographic Map 2018

Notes:

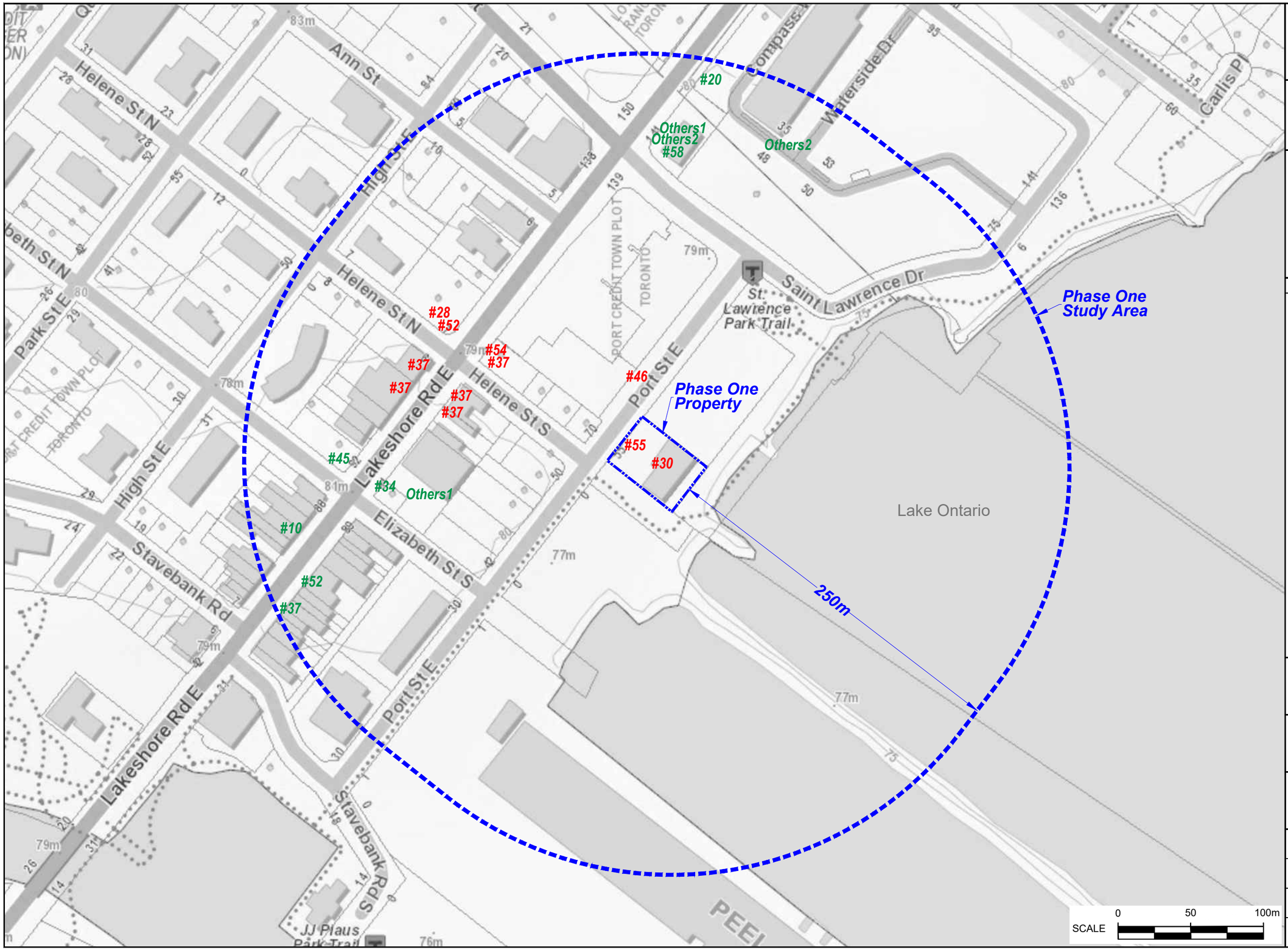
Legend:
- Phase One Property Boundary
- Phase One Study Area, 250 m
- Residential Land Use
- Commercial Land Use
- Community Land Use
- Parkland Use

Project Title:
Phase One Environmental Site Assessment

Site Location:
55 Port Street East, Mississauga, Ontario

Figure Title:
PHASE ONE STUDY AREA AND SURROUNDING PROPERTY LAND USE

Designed By: AJ	***File No.:*** 1-18-0012-41
Drawn By: SK	***Scale:*** As Shown
Reviewed By: SQ	***Figure No.:*** 3
Date: February 2018	



Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

Ministry of Natural Resources & Forestry
Interactive Topographic Map 2018

Notes:

PCA - Potentially Contaminating Activity
APEC - Area of Potential Environmental Concern

RED - PCA causing APEC on Property
GREEN - PCA unlikely to affect Property

Legend:

	Phase One Property Boundary
	Phase One Study Area, 250 m
#10	Commercial Body Shops
#20	Explosives and Ammunition Manufacturing, Production and Bulk Storage
#28	Gasoline and Associated Products Storage in Fixed Tanks
#30	Importation of Fill Material of Unknown Quality
#34	Metal Fabrication
#37	Operation of Dry Cleaning Equipment (where chemicals are used)
#45	Pulp, Paper and Paperboard Manufacturing and Processing
#46	Rail Yards, Tracks and Spurs
#52	Storage, maintenace, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems
#54	Textile Manufacturing and Processing
#55	Transformer Manufacturing, Processing and Use
#58	Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners
Others1	Ontario Spills
Others2	O. Reg. 347 Waste Generator

Project Title:

Phase One Environmental Site Assessment

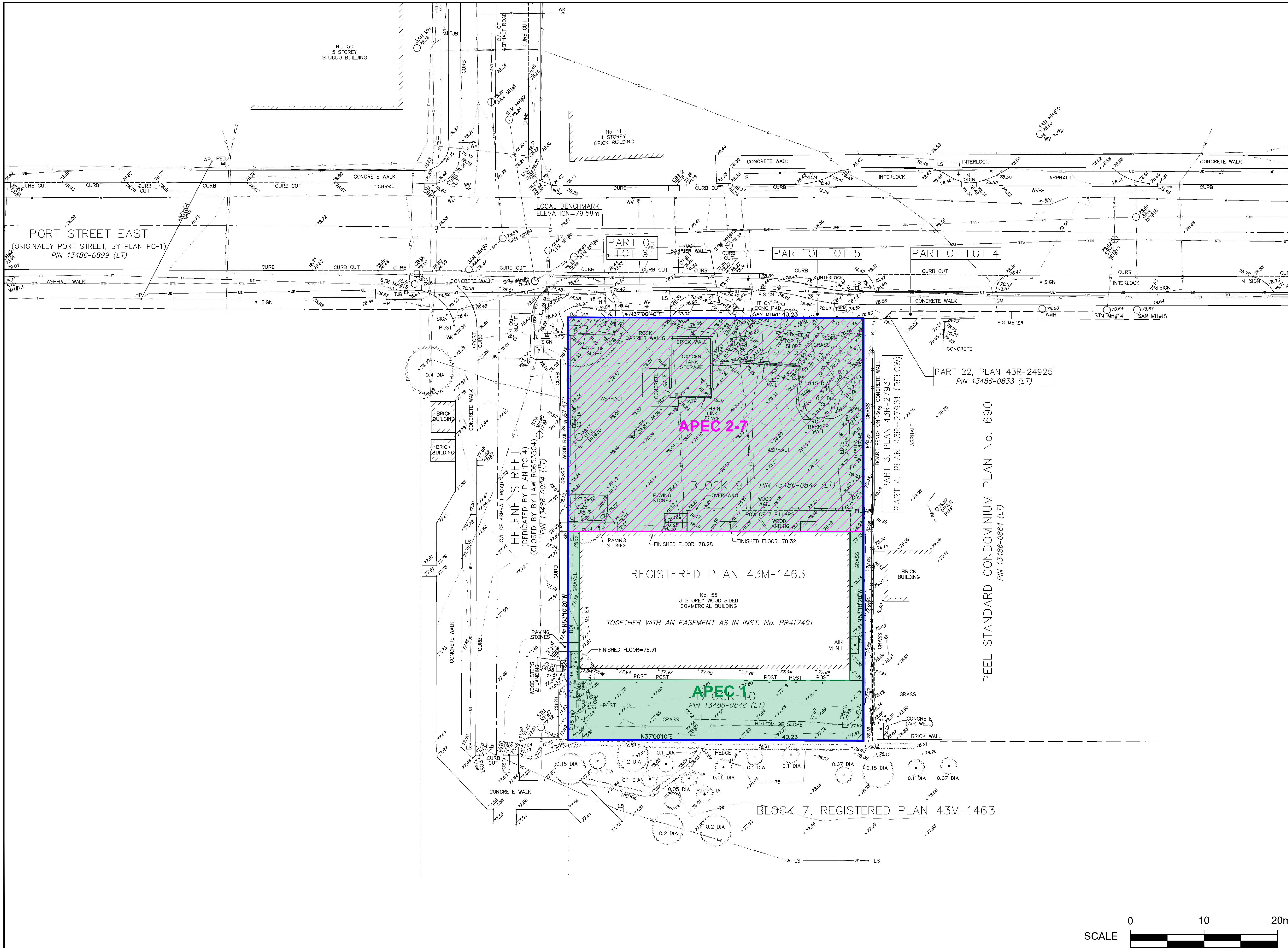
Site Location:

55 Port Street East, Mississauga, Ontario

Figure Title:

PCA LOCATIONS

Designed By: AJ	***File No.:*** 1-18-0012-41
Drawn By: SK	***Scale:*** As Shown
Reviewed By: SQ	***Figure No.:*** 4
Date: February 2018	



Terraprobe Inc.

Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing

11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650

Reference:

SKETCH SHOWING TOPOGRAPHY OF
55 PORT STREET EAST
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

J.D. BARNES LIMITED
DATED: DECEMBER 1st, 2017
REFERENCE NO.: 17-30-182-00

Notes:

APEC - Area of Potential Environmental Concern

Legend:

(blue line)	Phase One Property Boundary
(green fill)	APEC 1 (Exterior of the Building of Phase One Property)
(magenta hatch)	APEC 2 - 7 (Northern Portion of the Property)
APEC 1	Possible presence of fill material of unknown quality within the exterior of the building on the Phase One Property
APEC 2	Presence of a transformer located on the north portion of the Phase One Property
APEC 3	Historical presence of underground storage tank (UST) approximately 160 m to the northwest of the Phase One Property
APEC 4	Historical presence of multiple dry cleaner's facilities located at properties approximately 90 to 160 m to the north/northwest/west of the Phase One Property
APEC 5	Historical presence of rail spur adjacent to the northeast of the Phase One Property
APEC 6	Historical presence of auto body shop located at a property approximately 160 m to the northwest of the Phase One Property
APEC 7	Historical presence of textile manufacturing company located approximately 100 m to the northwest of the Phase One Property

Project Title: Phase One Environmental Site Assessment

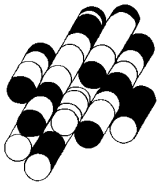
Site Location: 55 Port Street East, Mississauga, Ontario

Figure Title: APEC LOCATIONS

Designed By: AJ	**File No.:** 1-18-0012-41
Drawn By: SK	**Scale:** As Shown
Reviewed By: SQ	
Date: February 2018	**Figure No.:** 5

APPENDIX B

TERRAPROBE INC.



May 18, 2018

File No. 1-18-0012-42
Brampton Office

**RE: SAMPLING AND ANALYSIS PLAN (SAP)
55 PORT STREET EAST, MISSISSAUGA, ONTARIO**

1. INTRODUCTION

This appendix presents the Sampling and Analysis Plan (SAP) that was developed in support of the Phase Two Environmental Site Assessment (ESA) for the property located at 55 Port Street East, Mississauga, ON (hereinafter referred to as the 'Property'). The Phase Two ESA is conducted to provide characterization of the Property subsurface conditions, identify the extent of soil and ground water impacts, if any, and to assess remedial options such that, upon completion of remedial actions, if required, a Record of Site Condition (RSC) can be filed on the Ontario Ministry of the Environment (MOE) Brownfields Environmental Site Registry. The SAP presents the procedures and approach to the field investigative activities to characterize the Property site conditions and meet the data quality objectives of the Phase Two ESA.

The SAP presents the sampling program for the Property, the recommended procedures and protocols for sampling and related field activities, the data quality objectives, and the quality assurance/ quality control (QA/QC) measures for the collection of accurate, reproducible and representative data. These components are described in further detail below.

2. QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM

The data quality objectives of the quality assurance/quality control (QA/QC) program is to obtain soil and groundwater samples and other field measurements that provide data of acceptable quality that meets the objectives of the Phase Two ESA. The objectives of the QA/QC program are achieved through the implementation of procedures for the collection of unbiased (i.e. non-contaminated) samples, sample documentation, and the collection of appropriate QC samples to provide a measure of sample reproducibility and accuracy.

The field QA/QC program includes the following components:

- Decontamination Protocols;
- Equipment Calibration;

- Sample Preservation;
- Sample Documentation; and,
- Field Quality Control Samples.

Details on the field QA/QC components are provided below.

2.1 Decontamination Protocols

Decontamination protocols are followed during field sampling where non-dedicated sampling equipment is used to prevent sample cross contamination. For the borehole drilling and soil sampling, split soil sampling devices are cleaned and decontaminated between sampling intervals and auger flights between borehole locations in accordance with Standard Operating Procedure (SOP) requirements as indicated in Appendix C. For the monitoring well installation, well components are not to come into contact with the ground surface prior to insertion into boreholes. Electronic water level meters are decontaminated between monitoring well locations during well development and purging activities. All decontamination fluids are collected and stored in sealed, labelled containers.

2.2 Equipment Calibration

All equipment requiring calibration are calibrated in the field according to manufacturer's requirements using analytical grade reagents, or by the supplier prior to conducting field activities, and subsequently checked in the field. The calibration of all pre-calibrated instruments are checked in the field using analytical grade reagents and re-calibrated as required. For multiple day sampling events, equipment calibration is checked prior to the beginning of sampling activities. All calibration data are documented in a bound hard cover notebook.

2.3 Sample Preservation

Laboratory supplied sample containers are used for all sampling conducted on the Property. All samples are preserved using appropriate analytical test group specific reagents, as required and as provided by the laboratory, and upon collection placed in ice-filled insulated coolers for storage and transport.

2.4 Sample Documentation

All samples are assigned a unique identification number, which is recorded along with the date, time, project number, company name, location and requested analysis in a bound field notebook. All samples are handled and transported following Chain of Custody protocols.

2.5 Field Quality Control Samples

Field quality controls samples are collected to evaluate the accuracy and reproducibility of the field sampling procedures. For soil sampling, one (1) field duplicate sample is collected for every ten (10) samples of a specific geologic unit submitted for analysis. For groundwater sampling, one (1) field

duplicate is collected for every ten (10) samples submitted for chemical analysis. The field duplicate samples are assessed by calculating the relative percent difference (RPD) and comparing to the analytical test group specific acceptance criteria.

For ground water samples submitted for the analysis of VOCs, one (1) field blank prepared in the field using de-ionized water and/or one (1) trip blank prepared by the contractual laboratory are submitted for chemical analysis to evaluate the potential for sample cross-contamination during sampling and transportation. The recommended alert criterion is the detection of any test group analyte at a concentration in excess of laboratory detection limits.

3. DATA QUALITY OBJECTIVES

The data quality objectives of the quality assurance/quality control (QA/QC) program are as follows:

- To obtain soil and groundwater samples and other field measurements that provide data of acceptable quality that meets the objectives of the Phase Two ESA.
- To collect samples of unbiased (i.e. non-contaminated) samples, document sampling procedures, and to collect appropriate QC samples to provide a measure of sample reproducibility and accuracy.
- To collect field quality control samples at a rate that meets or exceeds those specified in Section 2.5, and to ensure that the results of those QC samples are satisfactory.

The data quality objectives for all types of field data collected during the Phase Two ESA field investigation that set the level of uncertainty in environmental data were set such that:

- Decision-making is not affected; and,
- The general (general) objectives of the investigation are met.

The data quality objectives are met through implementation of the QA/QC program and in the use of the Standard Operating Procedures identified below.

4. STANDARD OPERATION PROCEDURES FOR FIELD INVESTIGATION METHODS

To meet the requirements of the field sampling program, the following field investigative methods are undertaken:

- Borehole Drilling;
- Soil Sampling;
- Field Screening Measurements, including Calibration Procedures;
- Monitoring Well Installation;
- Monitoring Well Development;
- Field Measurement of Water Quality Indicators, including Calibration Procedures;

- Residue Management Procedures;
- Groundwater Level Measurements;
- Elevation Survey; and,
- Groundwater Sampling.

The following procedures are not required for this investigation:

- Sediment Sampling.

The field investigative methods required for this investigation are described in the following sections.

4.1 Borehole Drilling

Boreholes are advanced at the Property to facilitate the collection of soil samples for chemical analysis and geologic characterization; and, for the installation of ground water monitoring wells. Five (5) boreholes are required at the Property, up to a maximum depth of approximately 12.3 m below grade, within the surficial fill and native soil overburden materials. The boreholes are required to provide for the collection of samples of the surficial and subsurface materials beneath the Property. Additional boreholes may be drilled and additional test pits may be excavated for delineation of any soil and ground water impacts identified during the investigation. The borehole locations are selected to assess the soil and ground water quality in the areas of potential environmental concern (APECs) identified at the Property as below:

1. APEC 1 is the result of the possible presence of unknown quality of fill material. The APEC includes the Entire Property. Contaminants of concern (CoCs) are petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), metals and inorganic (M&I), and polycyclic aromatic hydrocarbons (PAHs). The CoCs may have impacted the soil and ground water.
2. APEC 2 is the result of the presence of a transformer located on the north portion of the Property. The APEC includes the Northern portion of the Property. Contaminants of concern (CoCs) are polychlorinated biphenyls (PCBs). The CoCs may have impacted the soil and ground water.
3. APEC 3 is the result of the historical presence of an underground storage tank (UST) approximately 160 m to the northwest of the Phase One Property. The APEC includes the Northern portion of the Property. Contaminants of concern (CoCs) are petroleum hydrocarbons (PHCs) plus BTEX. The CoCs may have impacted the soil and ground water.
4. APEC 4 is the result of the historical presence of multiple dry cleaner's facilities located at properties approximately 90 to 160 m to the north/northwest/west of the Phase One Property. The APEC includes the Northern portion of the Property. Contaminants of concern (CoCs) are volatile organic compounds (VOCs). The CoCs may have impacted the soil and ground water.
5. APEC 5 is the result of the the historical presence of rail spur adjacent to the northeast of the Phase One Property. The APEC includes the Northern portion of the Property. Contaminants of concern (CoCs) are petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), metals

and inorganic (M&I), and polycyclic aromatic hydrocarbons (PAHs). The CoCs may have impacted the soil and ground water.

6. APEC 6 is the result of the historical presence of auto body shop located at a property approximately 160 m to the northwest of the Phase One Property. The APEC includes the Northern portion of the Property. Contaminants of concern (CoCs) are petroleum hydrocarbons (PHCs) and volatile organic compounds (VOCs). The CoCs may have impacted the soil and ground water.
7. APEC 7 is the result of the historical presence of auto body shop located at a property approximately 160 m to the northwest of the Phase One Property. The APEC includes the Northern portion of the Property. Contaminants of concern (CoCs) are volatile organic compounds (VOCs). The CoCs may have impacted the soil and ground water.

Prior to borehole drilling, utility clearances are obtained from public and private locators, as required. If any uncertainty regarding the location of a buried utility at a borehole location is encountered or if a borehole location is within 1 m of a buried utility, the borehole is initiated by daylighting or hand augering to a sufficient depth to be clear of any utilities. Boreholes are required to be advanced into the surficial fill and overburden soils by a drilling company under the full-time supervision of Terraprobe staff. An appropriate drill rig equipped with sampling arrangement is utilized to advance the boreholes through the overburden materials.

4.2 Soil Sampling

Soil samples for geologic characterization and chemical analysis are required to be collected on a continuous basis in the overburden materials using 5 cm diameter and 60 cm long tube samplers advanced into the subsurface using the portable direct push drill rig, or using a track mounted drill rig equipped with hollow stem augers and split spoon sampler. The soil cores are extruded from the plastic lined inner tubes/split spoon samplers. Geologic and sampling details of the recovered cores are logged and the samples are assessed for the potential presence of non-aqueous phase liquids.

Samples for chemical analysis are selected on the basis of visual, combustible gas and olfactory evidence of impacts and at specific intervals to define the lateral and vertical extent of known impacts.

Recommended volumes of soil samples selected for chemical analysis are collected into pre-cleaned, laboratory supplied, analytical test group specific containers. The samples are placed into clean insulated coolers chilled with ice for storage and transport. Samples intended for VOC and/or petroleum hydrocarbon (PHC) fractions F1 and F2 analysis are collected using a laboratory-supplied soil core sampler, placed into the vials containing methanol for preservation purposes and sealed using Teflon lined septa lids. The samples are assigned unique identification numbers, and the date, time, location, and requested analyses for each sample are documented in a bound field note book. The samples are submitted to the contractual laboratory within analytical test group holding times under Chain of Custody

(COC) protocols. New disposable chemical resistant gloves are used during the handling and sample collection for each soil core to prevent sample cross-contamination.

4.3 Field Screening Measurements, including Calibration Procedures

A portion of each soil core is placed in a re-sealable plastic bag and allowed to reach ambient temperature prior to field screening with a combustible gas detector or photo-ionization detector (PID) that is calibrated with an appropriate reference gas prior to use. The vapour measurements are made by inserting the instrument's probe into the plastic bag while manipulating the sample to ensure volatilization of the soil gases. These readings provide a real-time indication of the relative concentration of volatile organic vapours encountered in the subsurface during drilling.

4.4 Monitoring Well Installation

A total of four (4) boreholes are required to be instrumented as ground water monitoring wells installed with 3 m long screens intercepting the groundwater table in the overburden to depths between 3.0 and 12.3 m below ground surface. Additional monitoring wells may be installed for delineation of any ground water impacts identified during investigation, or to confirm ground water quality after remediation, if conducted. The monitoring wells are installed in general accordance with the Ontario Water Resources Act- R.R.O. 1990, Regulation 903 – Amended to O. Reg. 128/03 and are installed by a licensed well contractor.

The monitoring wells are constructed using 50 mm diameter, Schedule 40, PVC riser pipe and number 10 slot size (0.25 mm) well screens. The bases of the well screens are sealed with PVC end caps. All well pipe connections are factory machined threaded flush couplings. The pipe components are pre-wrapped in plastic, which are removed prior to insertion in the borehole to minimize the potential for contamination. No lubricants or adhesives are used in the construction of the monitoring well. The annular space around the well screens is backfilled with silica sand to an average height of 0.3 m above the top of the screen. Granular bentonite is placed in the borehole annulus from the top of the sand pack to approximately 0.3 m below grade. The monitoring wells are completed with a mixture of flush mount and stick up protective steel casing cemented into place.

4.5 Monitoring Well Development

The monitoring wells are developed to remove fine sediment particles potentially lodged in the sand pack and well screen to enhance hydraulic communication with the surrounding formation waters. The monitoring wells will be developed using a Waterra^{TM} sample tubing and surge block SBD-25. Monitoring well development is monitored by visual observations of turbidity, and by taking field measurements of pH, specific conductance and temperature for every standing well (i.e. wetted casing) volume removed. Standing water volumes are determined by means of an electronic water level meter. Approximately three to five wetted well volumes are removed; and, well development continues until the

purged water has chemically stabilized as indicated by visual observations and field parameters measurements.

Well development details are documented on a well development log sheet or in a bound hard cover notebook.

4.6 Field Measurement of Water Quality Indicators, including Calibration Procedures

Water quality parameter measurements are recorded using a multi meter instrument. The instrument probes are calibrated prior to use, following manufacturer's procedures using analytical grade reagents, or if obtained from a field equipment supplier, the calibration checked. Approximately three to five wetted well volumes are removed; and, well development continues until the purged water has chemically stabilized as indicated by visual observations and field parameters measurements.

Details of field measurement of water quality indicators are documented on a log sheet or in a bound hard cover notebook, indicating the values of the parameters, the volumes of water purged, the date of purging, and additional information. A YSI 556 MPS Multi-Probe Field Meter was used.

4.7 Residue Management Procedures

The residue materials produced during the borehole drilling, soil sampling programs and monitoring well sampling programs comprised of soil cuttings from drilling activities, decontamination fluids from equipment cleaning, and waters from well development and purging are placed in labeled, sealed drums for off-site disposal, or are disposed of by the licensed well contractor.

4.8 Ground Water Level Measurements

Ground water level measurements are recorded for monitoring wells to determine ground water flow and direction in the overburden aquifer beneath the Property. Water levels are measured with respect to the top of the casing by means of a Solinst interface probe, an electronic water level meter. The water levels are recorded on water level log sheets or in a bound field notebook. The water level meter probe is decontaminated between each monitoring well location.

4.9 Elevation Survey

An elevation survey is conducted to obtain vertical control of the monitoring well locations at the Property. The top of casing and ground surface elevation of each monitoring well location is ultimately surveyed against a known geodetic benchmark. Elevations measured against a geodetic benchmark are recorded as meters above mean sea level (masl). The elevation survey is accurate to within ± 1.0 cm in vertical elevation.

4.10 Ground Water Sampling

Ground water samples are collected from monitoring wells for chemical analysis. The monitoring wells are purged first of three to five wetted well volumes of water to remove standing water and draw in fresh formation water. Wells, which are purged dry, are to recover to 75% of static levels before sampling.

Recommended ground water sample volumes are collected into pre-cleaned, laboratory-supplied vials or bottles provided with analytical test group specific preservatives, as required. The samples are placed in an insulated cooler chilled with ice for storage and transport. Samples for VOC analysis are collected in triplicate vials prepared with concentrated hydrochloric acid as a preservative. Each VOC vial is inverted and inspected for gas bubbles prior to being placed in the cooler to ensure that no head- space is present.

All ground water samples are assigned unique identification numbers, and the date, time, project number, company name, location and requested analyses for each sample are documented in a bound hard cover notebook. The samples are submitted to the contractual laboratory within analytical test group holding times under COC protocols. New disposable chemical resistant gloves are used for each sampling location to prevent sample cross-contamination.

5. PHYSICAL IMPEDIMENTS

No physical impediments are expected to be encountered that interfere with or limit the ability to conduct sampling and analysis of the required parameters and media at the Phase Two Property.

6. SAMPLING AND ANALYSIS PLAN RATIONALE AND PROCEDURES

The SAP has identified rationale and procedures for the following items:

- Choice of Sampling System;
- Sampling Media;
- Number of Samples;
- Sampling Frequency;
- Sampling Points;
- Sampling Depth Intervals;
- Other Field Information; and,
- Samples to be Submitted for Laboratory Analysis.

These sampling and analysis plan rationale and procedures are listed in further details in the following sections.

6.1 Choice of Sampling System

A judgemental sampling system has been selected for the purposes of this investigation. Random sampling and grid sampling systems have not been chosen as the primary sampling system in this investigation as APECs have been identified and there is an understanding as to where potential contaminants may be found. Investigation of the APECs is considered sufficient and more effective in locating contaminants within the Property.

6.2 Sampling Media

The soil sampling media consists of the disturbed native underneath the earth fill materials, and the underlying native silt-clayey silt soils. There is no surface water at the Property and thus sediment is not included in the soil sampling media. The soil sampling, in the case of VOCs, is location-specific to assess for the potential presence of these chemical constituents based on field screening observations, or the identification of areas of potential concern.

The ground water samples are collected from the water table aquifer unit contained within the native silt-clayey silt layer. The ground water sampling is location-specific to assess for the potential presence of chemical constituents based on previous observations, or the identification of potential areas of concern.

6.3 Number of Samples

At least one sample is required to be taken for each contaminant of concern in each medium for which that contaminant was identified for each APEC. Where exceedances are found, additional samples may be required to delineate the impact.

6.4 Sampling Frequency

Soil sampling is completed at the Property at 0.6 m (2 ft.) for every 0.76 m (2.5 ft.) drilled for the first 4.6 m (15 ft.), then at 0.6 m (2 ft.) for every 1.52 m (5 ft.) drilled. However, if fill material is present then soil sampling proceeds at 0.6 m (2 ft.) for every 0.76 m (2.5 ft.) drilled until the samples no longer indicate the presence of fill material or until the depth of the investigation.

Groundwater sampling and analysis is completed at the Property for each monitoring well at least once after the development of the well is complete and water quality parameters indicate the formation water is stable.

6.5 Sampling Points

Soil sampling points for PAHs may be identified by the presence of cinders or apparent indication of PAHs within the soil samples. Soil sampling points for PHCs may be identified by the presence of hydrocarbon odours, signs of obvious staining, and combustible gas readings. Soil sampling points for

VOCs may be identified by the presence of solvent odour and signs of obvious staining. Details including the exact depth are marked on the borehole log prior to sampling. Sampling points do not apply to Metals. Further details are indicated in Section 6.6. These details identify the specific locations of potential exceedances and assist in the analysis of migration and source of the contaminant of concern.

Sampling points for ground water samples are identified at the mid-point of the well screen elevation when the low flow sampling rate is equal to or lower than the recharge rate at the monitoring well of interest. However, if the sampling rate exceeds the recharge rate or if the water table is present below the mid-point of the well screen, the sampling point does not apply to ground water sampling. Instead a sampling depth interval is recorded using the top of the water table to the bottom of the well screen in the aquifer of interest. Further details are indicated in Section 6.6.

6.6 Sampling Depth Intervals

Sampling depth intervals for soil sampling are identified as the full split spoon sampler (or equivalent) depth with respect to the geodetic elevation. The sampling depth intervals typically correspond with the sampling frequency as mentioned in Section 6.4.

Sampling depth intervals for ground water sampling when non-low flow sampling is utilized is identified as the top of the well screen to the bottom of the well screen when the water table is above the top of the well screen. In the event the water table is below the top of the well screen, the top of the water table to the bottom of the well screen will be used as the sampling depth interval for ground water sampling.

6.7 Other Field Information

Vertical control of the boreholes and monitoring wells will ultimately be obtained through the completion of an elevation survey with reference to a geodetic benchmark. Groundwater flow and direction in the water table aquifer are determined through groundwater level measurements and the relative groundwater elevations established in the Property elevation survey.

Wells are required with screens within the native clayey silt soils, which contains the water table aquifer. This provides data regarding ground water quality in the water table aquifer. The water table aquifer is the zones that is expected to be impacted in the APECs identified in the Phase One studies.

6.8 Samples to be Submitted for Laboratory Analysis

The field sampling program was developed to provide for the collection of samples of the surficial and subsurface soil materials and ground water for chemical analysis of one or more of the following parameters: petroleum hydrocarbon (PHC) fractions F1 to F4 plus BTEX, volatile organic compounds (VOC), metals and inorganic, (M&I) and polycyclic aromatic hydrocarbons (PAHs).

7. SAMPLING AND ANALYSIS PLAN CRITERIA

The QP considered the PCAs, all COPCs, and appropriate subsets of such contaminants and any other information and matters relating to the environmental condition of the property which are relevant to an informed professional judgment.

Based on the consideration of all matters and items above, the QP determined the sampling and analysis of COPCs and appropriate sampling and analysis for any other relevant contaminants that may be of concern at the Property.

The Phase Two ESA investigations, rationale for sampling locations with respect to APECs is summarised in the following table:

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity2	Location of PCA (on-site or off-site)	Contaminants of Potential Concern3	Media Potentially Impacted (Ground water, soil and/or
APEC-1	Entire Property	#30 Importation of Fill material of Unknown Quality	On-Site	PHCs, VOCs, metals, PAHs, As, Sb, Se, EC, SAR, B-HWS, Cl, CN, Hg, Cr (VI)	Soil, Groundwater
APEC-2	Northern Portion of the Property	#55 – Transformer Manufacturing, Processing and Use	On-Site	PCBs	Soil, Groundwater
APEC-3	Northern Portion of the Property	#28 – Gasoline and associated products storage in a fixed tank	Off-Site	PHCs + BTEX	Soil, Groundwater
APEC-4	Northern Portion of the Property	#37 – Operation of Dry Cleaning Equipment (where chemicals are used)	Off-Site	VOCs	Soil, Groundwater
APEC-5	Northern Portion of the Property	#46 – Rail Yards, Tracks, and Sprus	Off-Site	PHCs, VOCs, metals, PAHs, As, Sb, Se, EC, SAR, B-HWS, Cl, CN, Hg, Cr (VI)	Soil, Groundwater

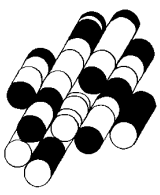
APEC-6	Northern Portion of the Property	#52 Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems.	Off-Site	PHCs, VOCs	Soil, Groundwater
APEC-7	Northern Portion of the Property	#54 – Textile Manufacturing and Processing	Off-Site	VOCs	Soil, Groundwater

8. PLAN OF IMPLEMENTATION

Borehole	Rationale	*APEC*	Chemical Analyses	
			Soil	GW
BH/MW1	Borehole drilled to determine ground water flow direction and to assess the potential impacts from fill material of unknown quality.	*APEC 1, 3, 4, 5, 6, 7*	1 PHC, 1 VOC, 2 Metals, 3 ORPs, 2 HFM, 1 PAH,	1 PHC, 1 VOC, 1 PAH, 1 Metal, 1 ORPs, 1 HFM
BH/MW2	Borehole drilled to determine ground water flow direction and to assess the potential impacts from fill material of unknown quality.	*APEC 1, 2, 3, 4, 5, 6, 7*	1 PHC, 1 VOC, 1 PCB, 2 Metals, 3 ORPs, 2 HFM	1 PHC, 1 VOC, 1 Metal, 1 ORPs, 1 HFM, 1 PCB
BH/MW3	Borehole drilled to determine ground water flow direction and to assess the potential impacts from fill material of unknown quality.	*APEC 1, 3, 4, 5, 6, 7*	1 PHC, 1 VOC, 1 PAH, 2 Metals, 5 ORPs, 2 HFM	
BH/MW4	Borehole drilled to assess the potential impacts from fill material of unknown quality.	*APEC 1*	1 PHC, 1 VOC, 1 PAH, 2 Metals, 2 ORPs, 2 HFM	1 PHC, 1 VOC
BH/MW5	Borehole drilled to determine ground water flow direction and to assess the potential impacts from fill material of unknown quality.	*APEC 1*	1 PHC, 1 VOC, 2 Metals, 2 ORPs, 2 HFM, 1 PCB	1 PHC, 1 VOC, 1 Metal, 1 ORPs, 1 HFM, 1 PAH

APPENDIX C

TERRAPROBE INC.



STANDARD OPERATING PROCEDURE – SOIL SAMPLING

General Procedures

Introduction

Subsurface investigations typically involve sampling of subsurface soils at various depths at locations of interest. Several soil sampling methods can be implemented depending on the nature of the investigations. Field screening of soil samples may be performed when potential contaminants of concern include VOC and PHC F1.

Equipment Required

- Nitrile Gloves
- Field Parameter Measurement Device (Gastech, PID)
- Laboratory Sample Bottles
- Terracores or sampling syringes (sampler)
- Field Notebook and/or Field Sheets
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice and cooler

Procedure

1. Review sampling plan and sampling locations with project manager
2. Determine what equipment and supplies are required.
3. Obtain necessary sampling and monitoring equipment.
4. Coordinate with project manager and clients, as required, for site access.
5. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
6. Identify and mark all sampling locations.
7. Assemble the appropriate laboratory supplied jars/vials.
8. Collect the samples to be analyzed
    a. Borehole - split spoon, sample from spoon
        i. Split spoon sampling methods are primarily used to collect shallow and deep subsurface soils.
        ii. Gravel, concrete, asphalt and etc. present at or near the surface of the sampling location should be removed prior to split spoon sampling.

iii. Split spoons used for soil sampling must be constructed with stainless steel and are 2 inches in diameter and 18 to 24 inches in length.

iv. The top several inches of the material in the spoon must be discarded before remove any portion of the spoon for sampling.

b. Test pit (backhoe), bag from excavator bucket, then sample.

i. Usually used in the collection of surface and shallow soil samples. Allow soil samples to be collected from very specific intervals.

ii. The bucket must be decontaminated prior to sample collection.

iii. Ensure to scrap off any smeared material on the surface of the bucket that may cross-contaminate the sample prior to jarring the soil sample.

iv. Make sure to not physically enter backhoe excavations to collect a sample for safety issue.

c. Hand-dig (hang augers), sample.

i. Hand augers are typically used to advanced boreholes and collect surficial soils and shallow subsurface soils. A 4 inch stainless steel auger buckets with cutting heads are usually used. The bucket is advanced by simultaneously pushing and turning using an attached handle with extension.

ii. The top several inches of the soil collected by the auger bucket should be discarded and not be placed in the laboratory supplied container for sample submission.

iii. VOC samples need to be collected directly from the auger bucket, if possible.

iv. The entire hand auger assembly must be decontaminated before sampling at a new location. This is to minimize cross-contamination of soil samples.

9. Fill the appropriate jars, making sure to label properly; include the date, company name, parameter to be analyzed, and project number.
10. Change Nitrile gloves between samples.
11. Clean off loose soil that may be on the outside of the jar.
12. Place in a cooler with ice.
13. Log samples in field book.
14. Complete a Chain of Custody for all samples.
15. Package samples and complete necessary paperwork.
16. Transport samples (that have been kept cool) to laboratory or transport to office and call for pick up.

References

- *SESD Operating Procedure – Soil Sampling* U.S EPA, December 2011
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011

STANDARD OPERATING PROCEDURE – BOREHOLE DRILLING

Solid and Hollow Stem Augers

Introduction

Soil drilling, using a drill rig or other equipment based on site accessibility is a common way to obtain soil samples on a site. Soil drilling is typically completed with a truck or bombardier-mounted drill rig, or Pionjar (or other portable drilling equipment) depending on the site accessibility. The driller operator will handle all equipment, including opening the split spoon.

Hollow stem augers are typically used when wet or loose cohesionless materials are encountered to permit sampling without removing the augers. Alternatively, solid stem augers are advanced and removed at each sampling depth. Samples and in-situ Standard Penetration Testing (STP) are conducted by driving a standard 2" diameter split spoon (hollow sampling tube) through a process of continuous or intermittent sampling. If monitoring wells are to be installed in the boreholes, hollow stem augers are to be used.

Equipment Required

- Personal Protective Equipment (PPE)
    - Hard hat, safety vest, protective eyewear, steel toed boots
- Nitrile Gloves
- Slider Bags
- Borehole logs & Clipboard
- Portable Soil Vapour Measurement Device (Gastech/PID)
- Laboratory Sample Bottles
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice
- Drums for Soil Storage

Procedure

1. Prior to drilling, boreholes will be numbered and marked and the site cleared for utilities.
2. Downhole equipment is cleaned/decontaminated by the contractor.

3. All drill cuttings are to be placed in labeled drums or other container and moved to a designated location.
4. Review sampling plan and borehole locations with project manager
5. Determine what equipment and supplies are required.
6. Obtain necessary sampling and monitoring equipment.
7. Coordinate with project manager and clients and drilling crew, as required, for site access.
8. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
9. Perform health and safety meeting, discuss safety around rig and muster points should there be an emergency.
10. The technician will direct the drill crew where to set up the rig to begin drilling.
11. A borehole log must be prepared for every borehole drilled. Include: elevation, GPS coordinates, depth, soil classification, drilling details, sampling, water levels, free product (if any).
12. Record the type of equipment used (solid stem or hollow, type of rig) and the start time when drilling begins.
13. Sampling will be at pre-specified intervals; typically every 2 ½" to 10-15 feet then once every 5 feet from then on. Between samples, split spoons will be cleaned (if an environmental sampling is being conducted).
14. At each sampling interval record; interval number (or sample ID), blow counts, soil description, PPM reading
15. Record depth of borehole, caving (if any) and water level when borehole is complete.
16. Upon completion of drilling in an open borehole that will not be converted to a well the borehole is to be properly filled and abandoned. There are two methods depending on whether the static water level is above or below the bottom of the borehole.
    a. Above and less than 20 feet deep: Abandon borehole by mixing cement or cement/bentonite grout and pouring the mixture into the borehole until it is filled to ground surface.
    b. Below and more than 20 feet deep: Mix and pump cement/bentonite mixture to the bottom of the hole until filled to ground surface.

References

- *Standard Operating Procedure No. 6. Drilling, Logging, and Sampling of Subsurface Materials.*
- *Geotechnical Field Investigations, Terraprobe Limited, July 1990.*

STANDARD OPERATING PROCEDURE – GROUND WATER SAMPLING

Non-Gas Contact Positive Displacement Pump (Bladder Pump)

Introduction

Low flow purging and sampling involves extracting groundwater at rates comparable to ambient groundwater flow (typically less than 500 ml/min), so that the drawdown of the water level is minimized, and the mixing of stagnant water with water from the screened intake area in a well is reduced.

Stabilization of parameters (pH, D.O., conductivity, temperature, etc.) and turbidity of the purged water are monitored before a sample is taken, thus low flow methods facilitate equilibrium with the surrounding formation water and produces samples that are representative of the formation water.

Non-gas contact positive displacement pumps cause the least amount of alteration in sample integrity as compared to other sample retrieval methods. Water comes into contact with the inside of the bladder (Teflon) and the sample tubing, also Teflon which may be dedicated to each well.

Equipment Required

- Interface or Water Level Meter
- Bladder Pump (appropriate size for monitoring wells)
- Controler Unit and Batteries
- Required Replacement Bladders
- Required Teflon Tubing
- Required String/Rope
- Nitrile Gloves
- Bucket
- Graduated Cylinder
- Stop Watch
- Field Parameter Measurement Device (Horiba Flow Cell, YSI Meter, Hanna Meter, etc.)
- Laboratory Sample Bottles
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice

Procedure

1. Review sampling plan and monitoring well locations with project manager
2. Review borehole logs and determine monitoring well depths and well screen locations.
3. Determine what equipment and supplies are required.
4. Obtain necessary sampling and monitoring equipment.
5. Decontaminate or pre-clean equipment, and ensure that it is in working order.
6. Coordinate with project manager and clients, as required, for site access.
7. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
8. Identify and mark all sampling locations.
9. Start sampling at the least contaminated monitoring well.
10. Remove locking well cap, note location time of day, and date in your notebook
11. Remove well casing cap.
12. Lower water level measuring device or equivalent into well until water surface is encountered.
13. Measure distance from water surface to reference measuring point on well casing and in field notebook. Alternatively, if there is no reference point, note that water level measurement is from top of steel casing, top of PVC riser pipe, from ground surface.
14. Measure total depth of well. Repeat at least twice to confirm measurement and record in field notebook
15. Calculate the volume of water in the well and record in field notebook.
16. Select the appropriate purging and sampling equipment.
17. Assemble Teflon tubing, pump and charged control box.
18. Assemble pump, hoses and safety cable, and lower the pump into the well to the. Make sure the pump is deep enough so that purging does not evacuate all the water and that the pump is located at the depth of the well screen NOTE: Running the pump without water may cause damage to the bladder.
19. Attach power supply, and purge well until field parameters (such as temperature, pH, conductivity, etc.) have stabilized. Field parameters are measured either by a flow through cell (HORIBA) or hand held device (YSI). When field parameters are measured record the measurements, the elapsed time, the flow rate and the water level in the monitoring well. Do not allow the pump to run dry. If the pumping rate exceeds the well recharge rate, lower the pump further into the well, and continue pumping.
    a. If the calculated purge volume is small, the measurements should be taken frequently to provide a sufficient number of measurements to evaluate stability (every 15 to 30 seconds). If the purge volume is large, measurements taken every 5 to 10 minutes may be sufficient.
    b. Stabilization occurs when:
        i. Turbidity (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized),
        ii. Dissolved Oxygen (10% for values greater than 0.5 mg/L, if three Dissolved Oxygen values are less than 0.5 mg/L, consider the values as stabilized),
        iii. Conductivity (3%),

iv. Temperature (3%),

v. pH (± 0.1 unit),

vi. Oxidation/Reduction Potential (± 10 millivolts).

c. If after three well volumes have been removed, the chemical parameters have not stabilized according to the above criteria, additional well volumes should be removed.

d. If the field parameters have not stabilized within five volumes, contact the project manager to determine whether or not to collect a sample or to continue purging.

20. Collect and dispose of purge waters as specified in the site-specific sampling plan.
21. Assemble the appropriate laboratory supplied bottles.
22. Turn pump on, increase the cycle time and reduce the pressure to the minimum that will allow the sample to come to the surface and not induce significant drawdown.
23. Collect samples in the laboratory supplied bottle
    a. For non-filtered samples collect directly from the outlet tubing into the sample bottle.
    b. For filtered samples, connect the pump outlet tubing directly to the filter unit. The pump pressure should remain decreased so that the pressure build-up on the filter does not blow out the pump bladder or displace the filter.
24. Cap the sample bottle tightly and place relabeled sample container in a carrier
25. Replace the well cap.
26. Log all samples in the site logbook and label all samples.
27. Package samples and complete necessary paperwork.
28. Transport sample to staging area for preparation for transport to analytical laboratory.
29. On completion, remove the tubing from the well and either replace the Teflon tubing and bladder with new dedicated tubing and bladder or rigorously decontaminate the existing materials.

NOTE: Purging should be completed immediately prior to sample collection although it is acceptable to purge and then collect samples within 24 hours. During purging, water level measurements may be taken regularly at 15- to 30-second intervals. This data may be used to compute aquifer transmissivity and other hydraulic characteristics.

References

- *Low Stress (low flow) purging and Sampling Procedure for the Collecting of Groundwater Samples From Monitoring Wells*, U.S.EPA, September 2010
- *Field Sampling guidance Document # 1220 – Groundwater Well Sampling*, U.S.EPA, September 2004
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011

STANDARD OPERATING PROCEDURE – FIELD SCREENING AND CALIBRATION

RKI Eagle Gastech and Mini Rae Photo-Ionization Detector

Introduction

Field screening is an important tool in that it provides data for onsite, real time total vapor measurements, evaluation of existing conditions, sample location optimization, extent of contamination, and health and safety evaluations.

RKI Eagle

Portable Multi-Gas Detector

The gastech can be used for reading headspace values in soil and water (wells). There are two types of 'Gastechs' in the Terraprobe office, the RKI Eagle 1 and Eagle 2. These portable gas detectors assist in screening field samples on many projects.

Portable VOC Monitor (Mini Rae 2000)

Portable VOC Monitors or PIDs (photo-ionization detector) monitors VOCs using the photo-ionization detector. If screening is required for VOCs, then this machine can be used. The PIDs are also used for health and safety for workers in enclosed spaces (such as trenches) in a known contaminated area.

Equipment Required

For Cailbration

- Canister of gas (Hexane at 400ppm for Eagle 1, Hexane at 1650ppm for Eagle 2, Isobutylene at 100ppm for PID)
- Regulator.
- Tubing to attach probe to canister.

Field Screening

- Eagle or Mini Rae
- Nitrile Gloves
- Slider Bags
- Sampling Plan (from project manager)

- Access Agreements (if required)
- Field Notebook and/or Field Sheets
  Appropriate Sampling Jars

Procedure (Calibration)

In order to ensure accuracy in the field, Terraprobe calibrates its Gastechs and PIDs each time they will be in the field.

There are three different gas canisters – one for the Eagle 1, the other for the Eagle 2 and a third for the MiniRae. The Eagle 1 is calibrated using the concentration of 400ppm while the Eagle 2 is calibrated with the concentration of 1650ppm. The PID is calibrated with Isobutylene at a concentration of 100ppm. Calibrating each machine is similar in principle but there are differences due to the different models we are using.

Eagle 1:

1. Take the Eagle to a fresh-air location
2. Turn the Eagle on and allow one minute for warm up
3. Hold the AIR button until a tone sounds
4. Press and hold SHIFT/▼ and then press the DISP/ADJ button. This will display the Calibration menu.
5. Select Single Calibration, press Enter
6. Press Enter to select HEX
7. The screen displays the channel selected, and the gas reading will flash
8. Connect the tubing from the regulator to the Eagle's probe.
9. If needed, use the AIR /▲ and SHIFT/▼ buttons to adjust the reading to match the concentration on the cylinder.
10. Press the ENTER button to set the value. Single Calibration will end and the menu will display.
11. Disconnect the tubing from the probe.
12. With the single calibration menu still displayed, use the SHIFT/▼ button until the ESC message displays, then press the ENTER button to return to the Calibration menu.
13. Press the SHIFT/▼ button to place the arrow next to Normal Operation and then press ENTER to return to the normal screen.

Eagle 2:

1. Take the Eagle to a fresh-air environment.
2. Turn the Eagle on and allow one minute for warm up.
3. Press and hold the RANGE/SHIFT button, when press the DISPLAY/ADJUST/NO button and release both buttons.
4. The Calibration Mode Screen displays with the cursor beside Auto Calibration.
5. Set the fresh air reading by: Moving the cursor to the Perform Air Adjust menu item by using the RANGE/SHIFT button. Press and release the POWER/ENTER/RESET button. The screen will say “Perform Air Adjust?” Press the AIR/YES button to continue. The Eagle 2 will indicate it is adjusting the zero reading before it returns to the Calibration Mode Screen.
6. Move the cursor to Single Calibration menu item by using the AIR/YES button.
7. Press and release the POWER/ENTER/RESET button. The “Select Sensor Screen” appears with the cursor flashing.
8. Move the cursor next to the sensor you want to calibrate with the AIR/YES and RANGE/SHIFT buttons.
9. Press and release the power enter reset button to proceed to the Single Calibration Gas Value screen. The calibration gas value is flashing
10. If necessary, adjust the calibration gas value to match the cylinder concentration with the air/yes and range/shift buttons.
11. Press and release the power/enter/reset button to proceed to the single calibration apply gas screen. Cal in Process is flashing.
12. Connect the tubing from the demand flow regulator to the probe. Allow the Eagle 2 to draw gas for one minute.

Mini Rae PID Calibration

1. Bring the Mini Rae to a fresh air environment.
2. Push the MODE and N/- buttons together to access a sub menu.
3. “Fresh Air Cal?” will appear.
4. Press the Y/+ key, the display shows “zero in progress” followed by “wait” and a countdown timer.
5. After about 15 seconds, the display shows the message “zeroed… reading = X.Xppm…” Press any key or wait, the monitor will return to “Fresh Air Calibration?” menu.
6. Connect the tubing to the regulator on the gas cylinder.
7. Press the Y/+ key at the “Span Cal?” to start calibration. The display shows the gas name and the span value of the corresponding gas.
8. The display shows “Apply gas now!” Turn on the valve of the span gas supply.

9. Display shows "wait… 30" with a countdown timer showing the number of remaining seconds while the monitor performs the calibration.
10. When the countdown timer reaches 0, the display gas shows the calibrated value.
11. After a span calibration is completed, the display will show the message "Span Cal Done! Turn Off Gas!"
12. Turn off the flow of gas and disconnect the calibration tubing from the Mini Rae.
13. Press any key to return to the sub menu. Press MENU to return to main menu and being operations.

Procedure (Field Screening)

1. Place soil sample in a slider bag and gently break up the pieces.
2. Using the Eagle, insert the probe into the bag and hold it above the soil. Do NOT put the probe in the soil. Wait 30 seconds for the probe to read the soil vapour.
3. Record the value and remove the probe from the slider bag.
4. PIDs can be used the same way HOWEVER, it must be noted that if sampling for VOCs, the sample must be preserved within 10-12 seconds of sampling. This means that any sample that is potentially going to be jarred must have a methanol vial stored immediately.
5. Using the probes to measure headspace readings in a well follows the same basic principles. Open the j-plug or slip cap and quickly insert the probe into the top of the well taking extreme caution not to allow the probe to touch any water, and cover the top of the well with your hand.
6. Wait 30 seconds for the probe to establish a reading.
7. Remove the probe and record the value.

References

- *US EPA Field Sampling Guidance Document #1210 "Soil Sampling for Volatile Compounds"*
- *MiniRae 2000 Portable VOC Monitor Operation and Maintenance Manual, Rev. C*
- *US EPA Field Screening Methods Catalog User's Guide*
- *Instruction Manual Eagle Series Portable Multi Gas Detector. Rev.H.*
- *RKI Eagle 2 Operator's Manual. Rev. Q.*

STANDARD OPERATING PROCEDURE – FIELD MEASUREMENT OF WATER QUALITY INDICATORS

YSI 556 Flow-through System

Introduction

Stabilization of parameters (pH, D.O., conductivity, temperature, etc.) and turbidity of the purged water are monitored before a sample is taken. It is recommended to use the YSI 556 Flow-through system with low flow sampling methods in order to facilitate equilibrium with the surrounding formation water and produces samples that are representative of the formation water.

YSI 556 Flow-through system can simultaneously measure water quality parameters while utilizing a flow cell to give continuous data.

Equipment Required

- Interface or Water Level Meter
- Water pump (Bladder Pump or Peristaltic Pump)
- Controller Unit and Batteries
- Required Replacement Bladders (if Bladder Pump is used)
- Required Teflon Tubing
- Required String/Rope (if Bladder Pump is used)
- Nitrile Gloves
- Bucket
- Graduated Cylinder
- Stop Watch
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Sampling Plan (from project manager)
- Access Agreements (if required)

Procedure

1. Review sampling plan and monitoring well locations with project manager
2. Review borehole logs and determine monitoring well depths and well screen locations.
3. Determine what equipment and supplies are required.
4. Obtain necessary sampling and monitoring equipment.

5. Decontaminate or pre-clean equipment, and ensure that it is in working order.
6. Calibrate all the sensors (with the exception of temperature) on the YSI 556 Flow-through System as follow:
    a. Prior to Calibration
        i. The transport/calibration cup comes with the probe module serves as a calibration chamber; however, laboratory glassware may be used.
        ii. Ensure all sensors are immersed in calibration solutions. The top vent hole of the conductivity sensor must be immersed.
        iii. Fill a bucket with ambient temperature water to rinse the probe module between calibration solutions. Prepare clean, absorbent paper towels or cotton cloth available to dry probe module between rinse ands and calibration solutions. This reduces carry-over contamination and increase accuracy of the calibration.
    b. Conductivity Calibration
        i. Accessing the calibration screen from the main menu.
        ii. Choose conductivity calibration, then *specific conductance*. The recommended calibration solution volume is 55 ml for both upright and upside down orientation.
        iii. It is recommended that the conductivity standard chosen should be within the same conductivity range as the samples to be measured (fresh water = 1 mS/cm; brackish water = 10 mS/cm; seawater = 50 mS/cm).
        iv. Carefully immerse the sensor end of probe module into the solution and rotate or move up and down to remove any bubbles from the conductivity cell.
        v. Secured transport/calibration cup on the threaded end of the probe module and prevent over tighten.
        vi. Enter the calibration standard of choice. Be sure to enter the value in mS/cm at 25°C and allow at least one minute for temperature equilibration before proceeding.
        vii. Observe reading under *specific conductance*. It is stabilized when it shows no significant change for approximately 30 seconds. You can then press enter to record the calibration.
        viii. Escape the calibrate menu and rinse the probe module and sensors in tap or purified water and dry.
    c. Dissolved Oxygen Calibration
        i. Accessing the calibration screen from the main menu and choose DO calibration.
        ii. Calibrate either % or mg/L automatically calibrates the other.
        iii. **For %:** Place 3mm (1/8 inch) of water in the bottom of the transport/calibration cup and place the probe module in the transport/calibration cup (ensure DO and temperature sensors are not immersed in the water).
        iv. Engaged only 1 or 2 threads of the transport/calibration cup to ensure the DO sensor is vented to the atmosphere. Enter the current local barometric pressure (no entry is required if *optional barometer* unit is present).
        v. Allow approximately ten minutes for the air in the calibration cup to become water saturated and for the temperature to equilibrate before proceeding. Start calibrating.

vi. **For mg/L:** Place the probe module in water with a known DO concentration (immerse all the sensors). Proceed to enter the known DO concentration of the water.

vii. Stir the water with a stir bar or rapidly move the probe module to provide fresh sample to the DO sensor. Allow at least one minute for temperature equilibration before proceeding.

viii. **For % and mg/L**: It is stabilized when it shows no significant change for approximately 30 seconds. You can then press enter to record the calibration.

ix. Escape the calibrate menu and rinse the probe module and sensors in tap or purified water and dry.

d. pH Calibration

i. Accessing the calibration screen from the main menu

ii. Choose **1-point** if you are adjusting previous calibration; **2-point** if the media being monitor is known to be either basic or acidic (use two calibration standards); **3-point** assures maximum accuracy when the pH of the media cannot be anticipated. Always calibrate with buffer 7 first regardless of calibration options.

iii. Recommended calibration solution volume is 30 ml for upright orientation and 60 ml for upside down orientation.

iv. Immerse the sensor end of the probe module into the solution and gently rotate the probe to remove any bubbles from the pH sensor. Secure the calibration cup to the probe module.

v. Enter the calibration value of the buffer for current temperature. Allow at least one minute for temperature equilibration before proceeding.

vi. It is stabilized when it shows no significant change for approximately 30 seconds. You can then press enter to record the calibration.

vii. Escape the calibrate menu and rinse the probe module and sensors in tap or purified water and dry.

viii. Repeat step d-iii to d-vii using a second pH buffer (for 2-point/3-point options)

e. ORP Calibration

i. Accessing the calibration screen from the main menu and choose ORP calibration.

ii. Placed either 30 ml (upright) or 60 ml (upside down) of known ORP solution into a calibration cup.

iii. Rotate probe module up and down to remove any bubbles from the OPR sensor.

iv. Secured transport/calibration cup on the threaded end of the probe module and prevent over tighten.

v. Enter correct calibration solution value at the current temperature as shown below:

Temperature °C	Zobell Solution Value, mV
-5	270.0
0	263.5
5	257.0

Temperature °C	Zobell Solution Value, mV
10	250.5
15	244.0
20	237.5
25	231.0
30	224.5
35	218.0
40	211.5
45	205.0

vi. Allow at least one minute for temperature equilibration before proceeding. It is stabilized when it shows no significant change for approximately 30 seconds. You can then press enter to record the calibration.

vii. Escape the calibrate menu and rinse the probe module and sensors in tap or purified water and dry.

7. Coordinate with project manager and clients, as required, for site access.
8. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
9. Identify and mark all sampling locations.
10. Start sampling at the least contaminated monitoring well.
11. Remove locking well cap, note location time of day, and date in your notebook
12. Remove well casing cap.
13. Lower water level measuring device or equivalent into well until water surface is encountered.
14. Measure distance from water surface to reference measuring point on well casing and in field notebook. Alternatively, if there is no reference point, note that water level measurement is from top of steel casing, top of PVC riser pipe, from ground surface.
15. Measure total depth of well. Repeat at least twice to confirm measurement and record in field notebook
16. Calculate the volume of water in the well and record in field notebook.
17. Select the appropriate purging and sampling equipment.
18. Lower the pump into the well to the. Make sure the pump is deep enough so that purging does not evacuate all the water and that the pump is located at the depth of the well screen
19. Purge well until field parameters (such as temperature, pH, conductivity, etc.) have stabilized. Field parameters are measured by attaching the YSI 556 multi probe system to a flow through cell. When field parameters are measured record the measurements, the elapsed time, the flow rate and the water level in the monitoring well. Do not allow the pump to run dry. If the pumping rate exceeds the well recharge rate, lower the pump further into the well, and continue pumping.
    a. If the calculated purge volume is small, the measurements should be taken frequently to provide a sufficient number of measurements to evaluate stability (every 15 to 30 seconds). If the purge volume is large, measurements taken every 5 to 10 minutes may be sufficient.
    b. Stabilization occurs when:

i. Turbidity (± 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized),

ii. Dissolved Oxygen (± 10% for values greater than 0.5 mg/L, if three Dissolved Oxygen values are less than 0.5 mg/L, consider the values as stabilized),

iii. Conductivity (± 3%),

iv. Temperature (± 3%),

v. pH (± 0.1 unit),

vi. Oxidation/Reduction Potential (± 10 millivolts).

c. If after three well volumes have been removed, the chemical parameters have not stabilized according to the above criteria, additional well volumes should be removed.

d. If the field parameters have not stabilized within five volumes, contact the project manager to determine whether or not to collect a sample or to continue purging.

20. Collect and dispose of purge waters as specified in the site-specific sampling plan.

References

- *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures*, U.S.EPA, April 1996
- *Low-Flow Sampling of Water Quality Paramenters Used in Determining Groundwater Stability*, YSI Environmental, 2005
- *Field Sampling guidance Document # 1220 – Groundwater Well Sampling*, U.S.EPA, September 2004
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011
- *YSI 556 MPS Operations Manual*, YSI Environmental, August 2009

STANDARD OPERATING PROCEDURE – WELL INSTALLATION

Introduction

All wells are to be constructed with flush-thread joints and factory-slotted screen. Terraprobe monitoring wells are 2-inch (50 mm) inside diameter PVC unless otherwise stipulated or required by site specific standards or sampling requirements. Other possible well diameters and materials include:

- 1-inch (25 mm) PVC,
- 1.5 –inch (37 mm) PVC,
- 4-inch (100mm) steel,
- 6 inch (150 mm) steel,
- 10 inch (255 mm) steel and;
- 3 foot (915 mm) concrete.

Water washed silica sand is used for the filter pack, bentonite is used to create a seal above the screen to just below the surface and sand is added to ground level. Well casings are installed using cement to secure them.

Notes:

- Monitoring wells are to be installed by a licenced well driller only.
- The installation procedures outlined in this document are for reference only to insure familiarization with the process.
- The installation procedures outlined in this document are for the installation of a typical 2-inch PVC monitoring well.
- Maximum length of well screen allowed under O.Reg. 153/04 is 3 m (10 feet)
- A MOE Well Record is required under O.Reg. 903 if:
    - The monitoring well is greater than 3 m (10 feet) and/or
    - The monitoring well will be in place longer than 30 days
- Well Records can be either for a single well or a group of wells (cluster).
- A well cluster record can be written only if all the wells are within the same property, or adjacent properties owned by the same owner.

Equipment Required

- Interface or Water Level Meter
- Field Notebook and/or Field Sheets
- Well Keys/Locks or Tools Required
- PVC Pipe (risers/casing)
- PVC Screen
- J-Plugs
- Flush Mount Casing or Above Grade Casing
- Bentonite
- Silica Sand
- Sampling Plan (from project manager)
- Access Agreements (if required)

Procedure

1. After borehole completion, measure total depth before riser casing and screen are installed and before the augers are removed. This confirms drilling depths are accurate.
2. Decontaminate screen and casing (typically done off-site by water well driller), check that casing sections are straight and not cracked or damaged.
3. Verify and record diameter and lengths of casings and screen.
4. The casing/screen will be installed by:
    a. Placing an end cap on the screen section
    b. Attaching a section of riser to the screen and lowering into the borehole
    c. Additional sections of riser will be added and lowered into the borehole until the desired screened interval is reached
5. Record the length of screen and riser pipe used for the monitoring well.
6. Verify and record that the proper filter (sand) pack has been selected.
7. The sand is poured into the space around the screen. Ensure it fills the hole to at least two feet above the screen.
    a. In hollow stem auger wells, the sand pack must be poured down the hollow stem of the augers. Augers are then pulled out of the borehole in 2-1/2 to 5 feet increments, sand is poured and level measured with a weighted tape.
8. Use a weighted tape and take continuous measurements while the sand is being poured to ensure proper installation. Pack the sand down to verify.
9. Record how much sand is used.
10. A bentonite seal is placed directly above the sand pack, minimum two feet thick, and should extend into the next soil strata.
11. Record how much bentonite is used.
12. A grout seal is then placed above the bentonite and can be a mixture of cement, bentonite, sand and water.

13. Surface completion is to be completed one of two ways.
    a. Above grade: Locking well cover sticking above grade, secured by lock and key.
    b. At grade: Flush mount casing, lock with ratchet bolts or allen key.
14. Each casing is installed over the PVC pipe and cemented into place.
15. Record GPS coordinates and measure stick up (if above grade).
16. Confirm that a well record will be completed for the monitoring well. Confirm the information to be submitted on the well record or the cluster of wells.
17. Survey the completed monitoring well to a geodetic or recoverable benchmark

References

- *Geotechnical Field Investigations, Terraprobe Ltd, July 26, 1990*
- *Ontario Water Resources Act R.R.O. 1990 Regulation 903 Wells*
- *Environmental Protection Act Ontario Regulation 153/04*

STANDARD OPERATING PROCEDURE – SOIL SAMPLING

VOC

Introduction

To properly screen for VOC and PHC F1 that may be present in the soil, it is necessary to preserve ALL samples. Upon retrieval of soil samples from borehole and test pit investigations, soil should be placed in methanol vials as quickly as possible (within 10 to 15 seconds after retrieval). Temporary storage of soil in split spoons, jars or ziplock bags is not permitted.

Field screening may still be used to decide which samples will be submitted for analysis but all potential samples must be immediately chemically preserved. Once the VOC or PHC F1 sample has been collected the remaining portion of the sample can be placed into plastic bags and sealed tightly with a nominal head space. Upon completion of each borehole, gas tech or PID readings can be taken of each sample collected to determine which sample(s) will be submitted for chemical analysis.

In addition to samples collected in methanol vials, a separate container must be collected to determine moisture content. The same jars that are used to collect other soil samples are appropriate containers (60ml or 120ml).

Equipment Required

- Nitrile Gloves
- Field Parameter Measurement Device (Gastech, PID)
- Laboratory Sample Bottles
- Terracores or sampling syringes (sampler)
- Field Notebook and/or Field Sheets
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice

Procedure

1. Review sampling plan and sampling locations with project manager
2. Determine what equipment and supplies are required.

3. Obtain necessary sampling and monitoring equipment.
4. Coordinate with project manager and clients, as required, for site access.
5. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
6. Identify and mark all sampling locations.
7. Assemble the appropriate laboratory supplied bottles.
8. Collect the sample to be analyzed
    a. Borehole - split spoon, sample from spoon
    b. Test pit, collect sample in bag from excavator bucket, then sample immediately
9. Push the sampler into the soil to retrieve the sample.
10. Remove the sampler from the soil.
11. Clean off loose soil that may be on the outside of the sampler and remove extra soil if applicable.
12. Place the mouth of the sampler into the 40ml methanol vial.
13. Ensure vial is at an angle to reduce the chance of splashing chemical.
14. Collect samples in the laboratory supplied bottle
15. Log all samples in the site logbook and label all samples.
16. Package samples and complete necessary paperwork.
17. Transport sample to staging area for preparation for transport to analytical laboratory.

References

- *Field Sampling guidance Document # 1210 – Soil Sampling for Volatile Compounds*, U.S.EPA,
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011

STANDARD OPERATING PROCEDURE – WELL DEVELOPMENT

Introduction

Monitoring well development is necessary to ensure that complete hydraulic connection is made and maintained between the well and the aquifer material surrounding the well screen and filter pack. It also serves to restore the groundwater properties disturbed during drilling.

Most common techniques at Terraprobe include 'surging', and bailing, often used together. Other development methods that may be used include jetting, airlift, and submersible pump methods. Jetting is typically not used as a development method for environmental investigations, but is commonly used for water resource monitoring wells or drinking water wells. Generally a phased process is used to develop wells, starting with a gentle bailing phase to remove sand, followed by a surging phase, and finally a pumping phase after the well begins to clear up.

After a well is first installed, and in fact, often before the bentonite pellet seal is set, gentle bailing is used to remove water and sand from the well. Bailing can be accomplished through the use of dedicated bailers or Waterra inertia pumps. The purpose of this technique is used to settle the sand pack. After further well sealant materials have been added and allowed to set for approximately 48 hours, bailing is resumed as part of well development. The purpose of bailing is to remove any fine material that may have accumulated in the well, and start pulling in natural material into the sand pack. Bailing is often conducted until the sand content in the removed water begins to decrease.

After the sand content begins to decrease, surging is conducted. A surge block is used to move sediments from the filter pack into the well casing. All surge blocks will be constructed of materials that will not introduce contamination into the well. Surge blocks should have some manner of allowing pressure release to prevent casing collapse. Terraprobe uses Waterra surge blocks which fit onto Waterra inertia pumps. The surge block is moved up and down the well screen interval and then removed, followed by a return to bailing to remove any sand brought into the well by the surging action. Care should be taken to not surge too strongly with subsequent casing deformation or collapse; the well screen interval is often the weakest part of a well. Surging should be followed by additional bailing to remove fine materials that may have entered the well during the surging effort.

After surging has been completed and the sand content of the bailed water has decreased, a submersible pump or inertia pump is used to continue well development. The pump should be moved up and

down the well screen interval until the obtained water is relatively clear. Well development will continue until the water in the well clarifies and monitoring parameters such as pH, specific conductivity, and temperature stabilize as defined in the project-specific planning documents. It should be noted that where very fine-grained formations are present at the screened interval, continued well development until clear water is obtained might be impossible. Decisions regarding when to cease development where very fine-grained conditions exist should be made between the field supervisor and project manager.

During well development pH, specific conductivity, temperature, and turbidity should be monitored frequently to establish natural conditions and evaluate whether the well has been completely developed. The main criterion for well development is clear water (Nephelometric turbidity units or NTU of less than 5). As mentioned above, clear water can often be impossible to obtain with environmental monitoring wells. A further criterion for completed well development is that the other water quality parameters mentioned above stabilize to within 10 percent between readings over one well volume. The minimum volume of water purged from the well during development will be approximately a minimum of 3 borehole volumes (wells will typically not reach stabilization of water quality parameters before this condition is achieved and may not have reached stability even after this threshold has been achieved).

Equipment Required

- Interface or Water Level Meter
- Nitrile Gloves
- Water Quality Meter (EC, pH, Temperature)
- Bucket
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Waterra
- Waterra cutters (avoid using knives)
- Surge Blocks (if required)
- Foot valves
- Storage for contaminated (or suspected contaminated) water.
- Access Agreements (if required)

Procedure

1. Review monitoring well locations with project manager
2. Review borehole logs and determine monitoring well depths and well screen locations.
3. Obtain Waterra tubing, foot valves and surge blocks.
4. Coordinate with project manager and clients, as required, for site access.
5. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
6. Identify and mark all monitoring wells.

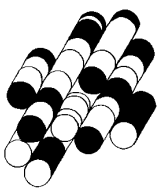
7. Open the monitoring well and take initial readings (ie; head space air monitor readings, water level, well depth) and record in the field notebook.
8. Organize equipment.
9. Bailing the monitoring well:
    a. Calculate casing volume to determine the ideal amount to be purged (three casing volumes).
    b. Attach foot valve to that end of Waterra
    c. Slowly lower Waterra down the well. Once it hits the bottom, leave some extra Waterra above the top of the well to easily handle pumping and cut the Waterra.
    d. Slowly remove three casing volumes from the monitoring well.
    e. Dispose of purged water in barrels if known or suspected contaminates are of concern, or however the project manager instructs.
10. Surging the monitoring well
    a. Slip surge block onto the end of the Waterra and reattach the foot valve, securing the surge block
    b. Place surge block and Waterra back into the monitoring well
    c. Raise and lower the surge block along the screen. (Should be able to feel location of the well screen)
    d. Continue surging for 5-10 minutes.
11. Final purge of the monitoring well
    a. Remove surge block from Waterra
    b. Lower the Waterra back down the well. Begin pumping water out of the well, taking care to note water quality and appearance (smell, clarity, etc.).
    c. Continue to purge the monitoring well until the following water quality parameters have stabilized:
        i. Turbidity (± 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized),
        ii. Conductivity (± 3%),
        iii. Temperature (± 3%),
        iv. pH (± 0.1 unit),
    d. Dispose of purged water in barrels if known or suspected contaminates are of concern, or however the project manager instructs.
12. Record final measurements in field book, record date, water level before and after development, quantity of water removed, equipment used and techniques (surge and purge, or purge only).

References

- *ASTM Standard Practice and Installation of Ground Water Monitoring Wells in Aquifers*
- *EPA SOP#2044 Well Development March 10, 199*

APPENDIX D

TERRAPROBE INC.



LOG OF BOREHOLE 1

Terraprobe

Project No. : 1-18-0012-01	Client : Brown Maple Investments Ltd	Originated by : BR
Date started : March 21, 2018	Project : 55 Port Street East	Compiled by : SZ
Sheet No. : 1 of 1	Location : Mississauga, Ontario	Checked by : BS

Position : E: 614557, N: 4823234 (UTM 17T) Elevation Datum : Geodetic

Rig type : Track-mounted Drilling Method : Solid stem augers

Elev Depth (m)	Description	Number	Type	SPT 'N' Value
78.2	**GROUND SURFACE**			
	80mm **ASPHALTIC CONCRETE**			
	670mm **AGGREGATE**	1	SS	16
77.4 / 0.8	**SANDY SILT to SILT AND SAND**, trace gravel, trace clay, compact to dense, grey, moist to wet	2	SS	23
		3	SS	37
75.6 / 2.6	**SILT**, some clay, trace to some sand, dilatant, loose to compact, grey, moist	4A	SS	23
		4B		
		5	SS	7
73.6 / 4.6	**CLAYEY SILT**, some sand to sandy, trace to some gravel, trace shale fragments, very stiff to hard, grey, moist (GLACIAL TILL)	6	SS	17
		7	SS	35
		8	SS	28
		9	SS	66
67.5 / 10.7	**INFERRED BEDROCK** (GEORGIAN BAY FORMATION)	10	SS	50 / 75mm
65.9 / 12.3	**END OF BOREHOLE**	11	SS	70 / 100mm

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane; 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL) Natural Water Content (MC) Liquid Limit (LL); 10 20 30

Lab Data and Comments: GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

0 7 75 18

12 28 39 21

auger grinding

Unstabilized water level measured at 10.4 m below ground surface; borehole was open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Apr 2, 2018	6.5	71.7

file: 1-18-0012-01 bh logs.gpj

LOG OF BOREHOLE 2

Terraprobe

Project No. : 1-18-0012-01	Client : Brown Maple Investments Ltd	Originated by : BR
Date started : March 21, 2018	Project : 55 Port Street East	Compiled by : SZ
Sheet No. : 1 of 1	Location : Mississauga, Ontario	Checked by : BS

Position : E: 614576, N: 4823248 (UTM 17T) Elevation Datum : Geodetic

Rig type : Track-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
	78.2	**GROUND SURFACE**				
0	78.0	90mm **ASPHALTIC CONCRETE**				
	0.2	140mm **AGGREGATE**		1	SS	8
		SANDY SILT to SILT AND SAND, trace gravel, trace clay, loose to dense, brown, moist to wet		2	SS	37
1						
				3	SS	16
2	75.9					
	2.3	**SILT**, some clay, trace to some sand, dilatant, compact, grey, moist		4	SS	12
3						
				5	SS	13
4	73.6					
	4.6	**CLAYEY SILT**, some sand to sandy, trace to some gravel, trace shale fragments, stiff, grey, moist (GLACIAL TILL)		6	SS	13
5						
		...hard below				
6				7	SS	76
7						
				8	SS	50 / 125mm
8						
				9	SS	40
9						
10	67.5					
	67.5	**INFERRED BEDROCK** (GEORGIAN BAY FORMATION)		10	SS	50 / 25mm
	10.7	**END OF BOREHOLE**				

Elevation Scale (m): 78, 77, 76, 75, 74, 73, 72, 71, 70, 69, 68

Penetration Test Values (Blows / 0.3m): Dynamic Cone; 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane; 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL), Natural Water Content (MC), Liquid Limit (LL); 10 20 30

Headspace Vapour (ppm): 51

Instrument Details: Unstabilized Water Level

Lab Data and Comments: GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

0 43 53 4

10 28 40 22

auger grinding

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Apr 2, 2018	6.8	71.5

Unstabilized water level measured at 10.5 m below ground surface; borehole was open upon completion of drilling.

50 mm dia. monitoring well installed.

file: 1-18-0012-01 bh logs.gpj

LOG OF BOREHOLE 3

Terraprobe

Project No. : 1-18-0012-01	Client : Brown Maple Investments Ltd	Originated by : BR
Date started : March 22, 2018	Project : 55 Port Street East	Compiled by : SZ
Sheet No. : 1 of 1	Location : Mississauga, Ontario	Checked by : BS

Position : E: 614576, N: 4823222 (UTM 17T) Elevation Datum : Geodetic

Rig type : Track-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) / Undrained Shear Strength (kPa)	Moisture / Plasticity (PL, MC, LL)	Headspace Vapour (ppm)	Instrument Details	Unstabilized Water Level	Lab Data and Comments (GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL)
0	78.2	**GROUND SURFACE**					78						
	78.0	90mm **ASPHALTIC CONCRETE**											
	0.2	120mm **AGGREGATE**		1	SS	1							
	77.4	**FILL**, silty sand, trace clay, very loose, brown, wet					77						
1	0.8	**SANDY SILT to SILT AND SAND**, trace clay, compact to dense, brown, wet		2	SS	25							
				3	SS	39							0 46 52 2
2	75.9						76						
	2.3	**SILT**, some sand, some clay, compact, grey, moist		4	SS	22							
3	75.2						75						
	3.0	**CLAYEY SILT**, some sand to sandy, trace to some gravel, stiff to hard, grey, moist (GLACIAL TILL)		5	SS	11							
4							74						
		...sandy silt, some clay, slightly plastic		6	SS	11							17 28 37 18
5							73						
6				7	SS	32	72						
7							71						
8				8	SS	26	70						
9				9	SS	28	69						
10													
	67.5						68					▽	
	67.4	**INFERRED BEDROCK** (GEORGIAN BAY FORMATION)		10	SS	60 / 100mm							
	10.8	**END OF BOREHOLE**											

Unstabilized water level measured at 10.4 m below ground surface; borehole was open upon completion of drilling.

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane 40 80 120 160

Moisture / Plasticity: Plastic Limit, Natural Water Content, Liquid Limit — PL MC LL — 10 20 30

SOIL PROFILE | SAMPLES | Lab Data and Comments

file: 1-18-0012-01 bh logs.gpj

LOG OF BOREHOLE 4

Terraprobe

Project No. : 1-18-0012-01	Client : Brown Maple Investments Ltd	Originated by : BR
Date started : March 23, 2018	Project : 55 Port Street East	Compiled by : SZ
Sheet No. : 1 of 1	Location : Mississauga, Ontario	Checked by : BS

Position : E: 614594, N: 4823208 (UTM 17T) Elevation Datum : Geodetic

Rig type : Track-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
	77.7	**GROUND SURFACE**				
		100mm **TOPSOIL**		1	SS	10
		FILL, clayey silt, some sand, trace gravel, trace construction debris, stiff, brown, moist		2	SS	10
	76.2 / 1.5					
		FILL, sand, trace silt, trace gravel, compact, dark brown, moist		3	SS	11
	75.4 / 2.3					
		SAND, trace silt, loose, brown, wet		4	SS	7
	74.7 / 3.0					
	74.3 / 3.4	**SILT**, some sand, some clay, loose, grey, wet		5A	SS	8
		CLAYEY SILT, some sand to sandy, trace to some gravel, firm to very stiff, grey, moist (GLACIAL TILL)		5B		
				6	SS	20
				7	SS	28
		...hard below		8	SS	73
	68.9					
	68.8 / 8.9	**INFERRED BEDROCK** (GEORGIAN BAY FORMATION)		9	SS	60 / 75mm

END OF BOREHOLE
Auger refusal

Unstabilized water level measured at 3.0 m below ground surface; borehole was open upon completion of drilling.

50 mm dia. monitoring well installed.

Penetration Test Values (Blows / 0.3m) — Dynamic Cone: 10, 20, 30, 40

Undrained Shear Strength (kPa) — Unconfined, Pocket Penetrometer, Field Vane, Lab Vane: 40, 80, 120, 160

Moisture / Plasticity — Plastic Limit (PL), Natural Water Content (MC), Liquid Limit (LL): 10, 20, 30

Elevation Scale (m): 77, 76, 75, 74, 73, 72, 71, 70, 69

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) — GR SA SI CL

0 99 (1)

auger refusal

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Apr 2, 2018	3.2	74.6

file: 1-18-0012-01 bh logs.gpj

LOG OF BOREHOLE 5

Terraprobe

Project No. : 1-18-0012-01	Client : Brown Maple Investments Ltd	Originated by : BR
Date started : March 22, 2018	Project : 55 Port Street East	Compiled by : SZ
Sheet No. : 1 of 1	Location : Mississauga, Ontario	Checked by : BS

Position : E: 614616, N: 4823227 (UTM 17T) Elevation Datum : Geodetic

Rig type : Track-mounted Drilling Method : Solid stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
	77.6	**GROUND SURFACE**				
		100mm **TOPSOIL**		1	SS	12
	76.8	**FILL**, clayey silt, some sand, trace gravel, trace construction debris, stiff, brown, moist				
	0.8	**FILL**, sand, trace silt, trace gravel, trace organics, loose to compact, brown, moist		2	SS	14
				3	SS	8
	75.3					
	2.3	**SAND**, trace silt, loose, brown, wet		4	SS	10
	74.6					
	3.0	**SANDY GRAVEL**, trace silt, dense, grey, wet		5	SS	41
	73.0					
	4.6	**CLAYEY SILT**, some sand to sandy, trace to some gravel, trace shale fragments, stiff, grey, moist (GLACIAL TILL)		6	SS	9
		...hard below		7	SS	83
				8	SS	33
				9	SS	76 / 275mm
	66.9					
	66.9	**INFERRED BEDROCK** (GEORGIAN BAY FORMATION)		10	SS	60 / 75mm
	10.7	**END OF BOREHOLE**				

Penetration Test Values (Blows / 0.3m): Dynamic Cone (10, 20, 30, 40)

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane (40, 80, 120, 160)

Moisture / Plasticity: Plastic Limit (PL), Natural Water Content (MC), Liquid Limit (LL) (10, 20, 30)

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT)

GR SA SI CL

spoon wet

10 26 41 23

auger grinding, refusal

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Apr 2, 2018	3.0	74.7

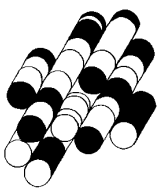
Unstabilized water level measured at 3.0 m below ground surface; borehole caved to 4.6 m below ground surface upon completion of drilling.

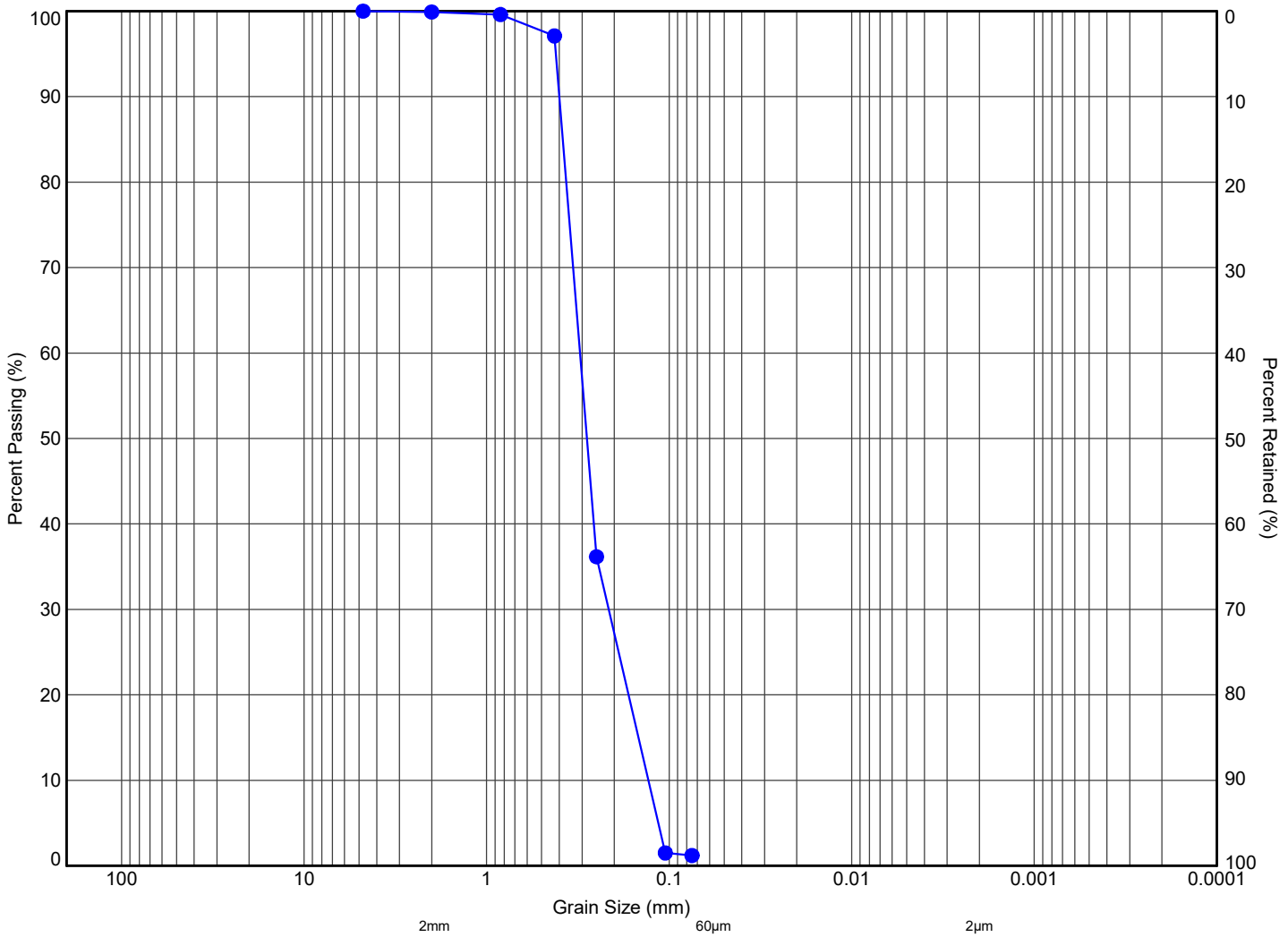
50 mm dia. monitoring well installed.

file: 1-18-0012-01 bh logs.gpj

APPENDIX E

TERRAPROBE INC.





MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

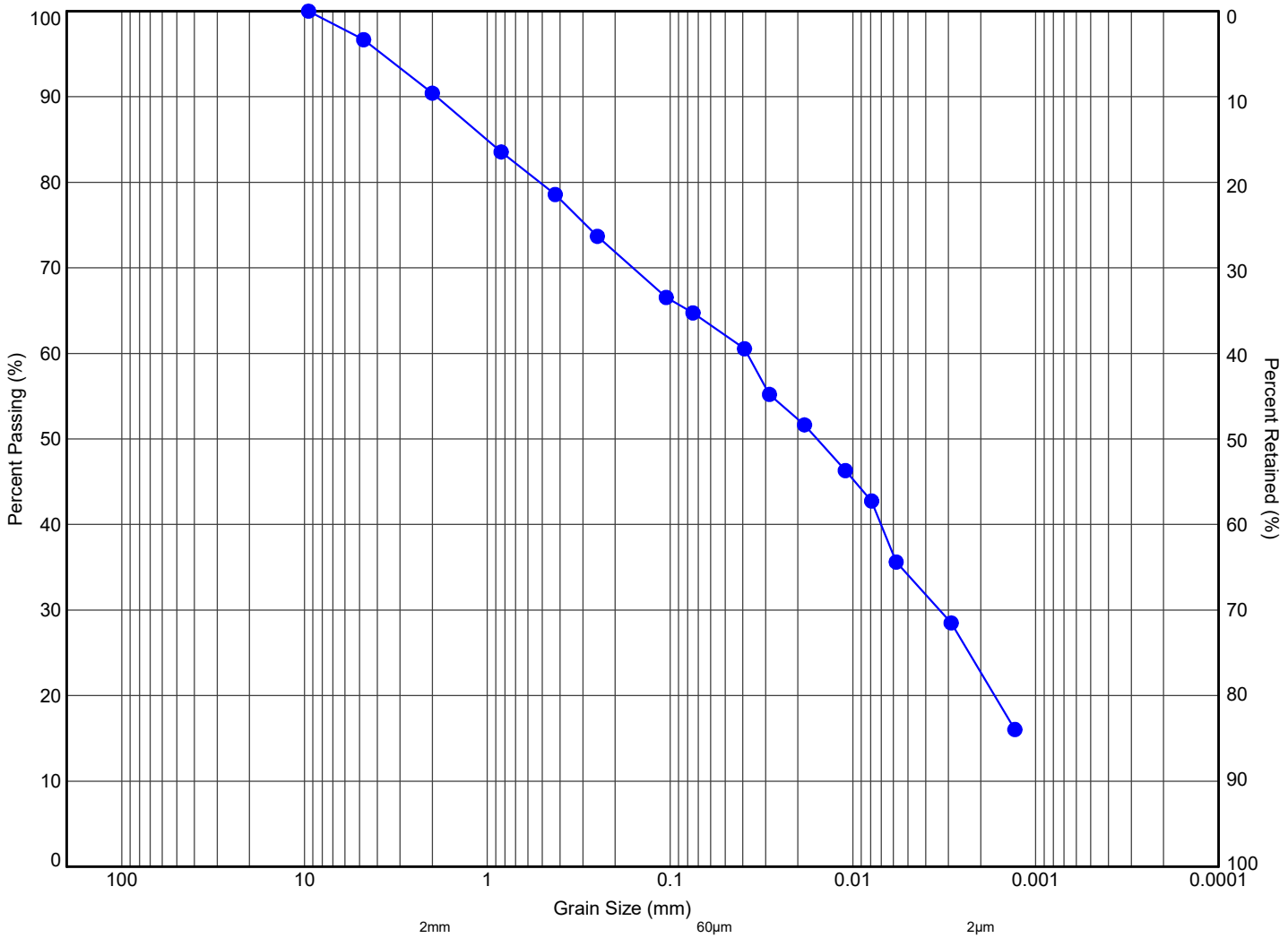
MIT SYSTEM

	Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	*(Fines, %)*
●	**4**	SS4	2.6	75.2	0	99			*(1)*

Terraprobe
11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title: **GRAIN SIZE DISTRIBUTION**
SAND, TRACE SILT

File No.: **1-18-0012-01**



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

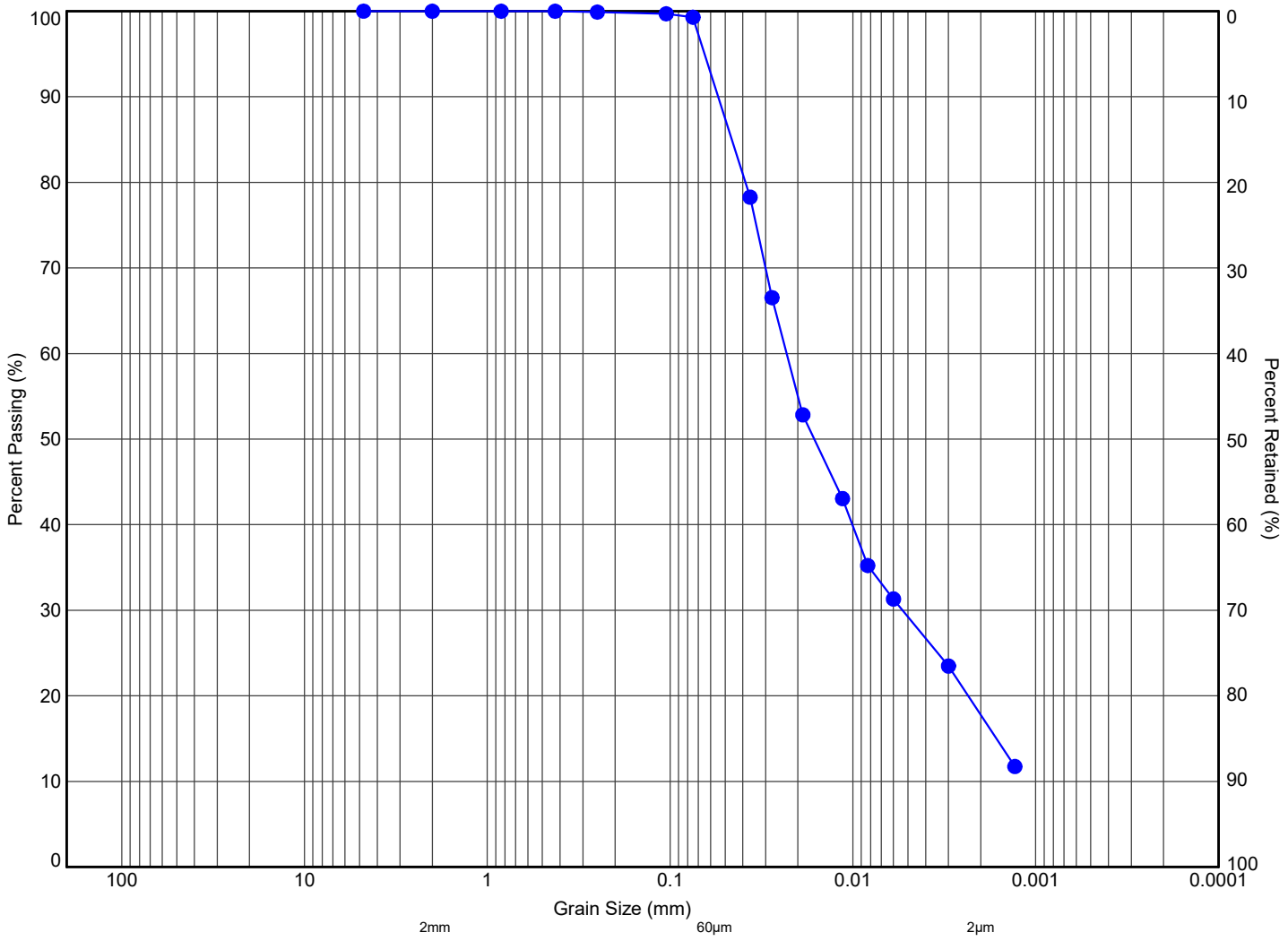
	Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	*(Fines, %)*
●	**5**	SS7	6.4	71.2	10	26	41	23	

Terraprobe
11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title:

GRAIN SIZE DISTRIBUTION
CLAYEY SILT, SANDY, TRACE GRAVEL

File No.: **1-18-0012-01**



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

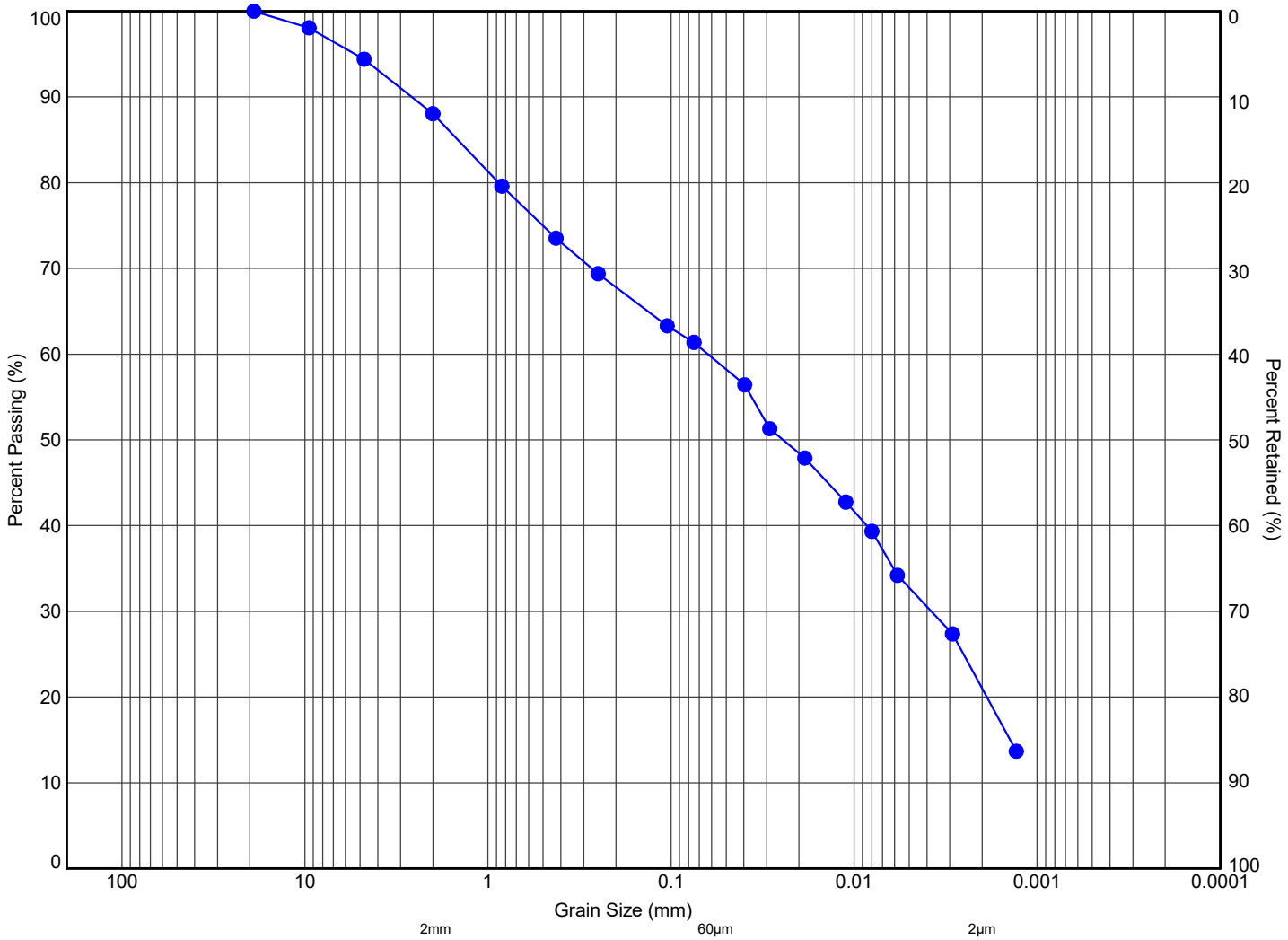
	Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	*(Fines, %)*
●	**1**	4B	2.7	75.4	0	7	75	18	

Terraprobe
11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title:

GRAIN SIZE DISTRIBUTION
SILT, SOME CLAY, TRACE SAND

File No.: **1-18-0012-01**



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

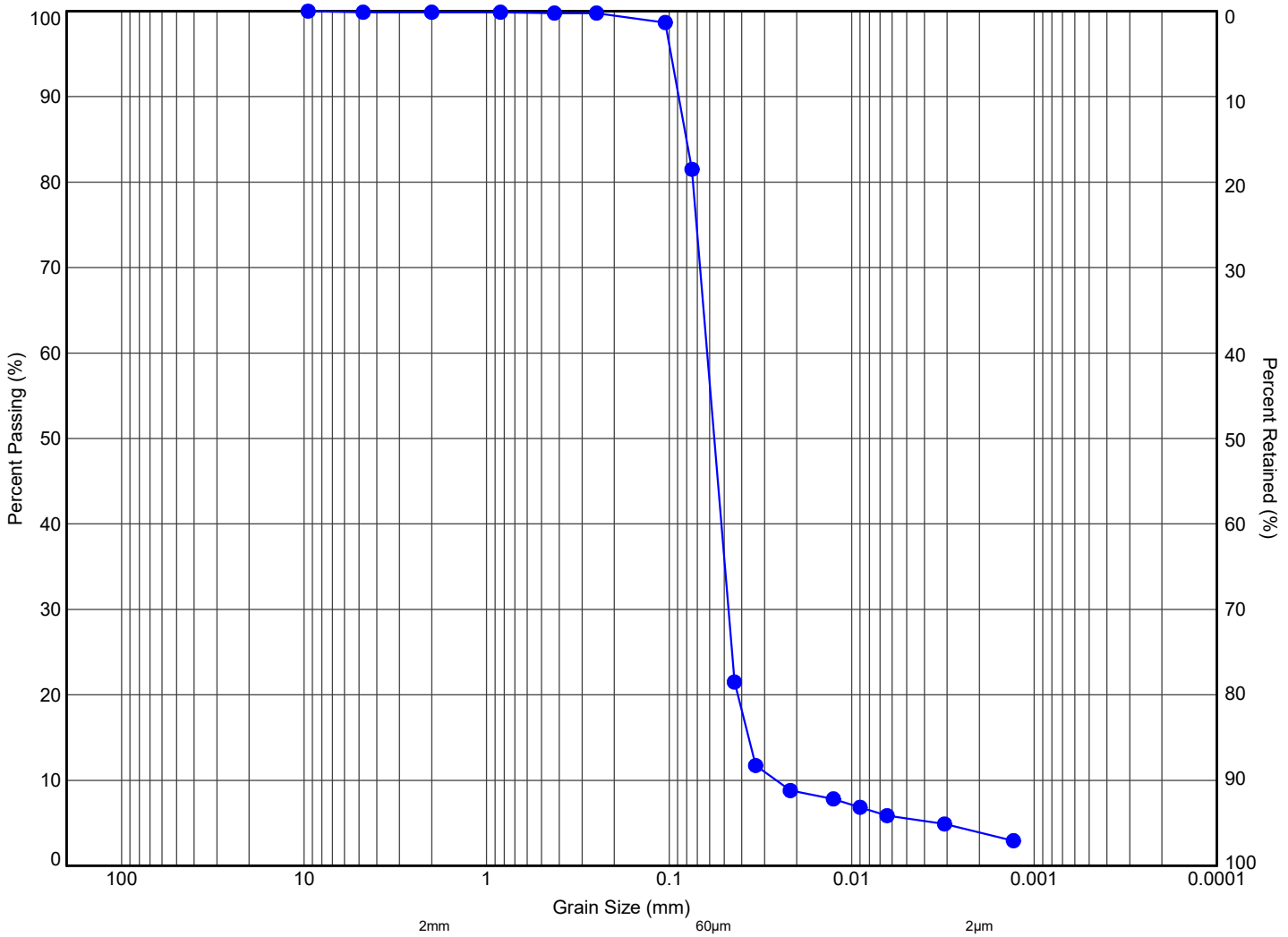
MIT SYSTEM

	Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	*(Fines, %)*
●	**1**	SS6	4.9	73.3	12	28	39	21	

Terraprobe
11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title: **GRAIN SIZE DISTRIBUTION**
CLAYEY SILT, SANDY, SOME GRAVEL

File No.: **1-18-0012-01**



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

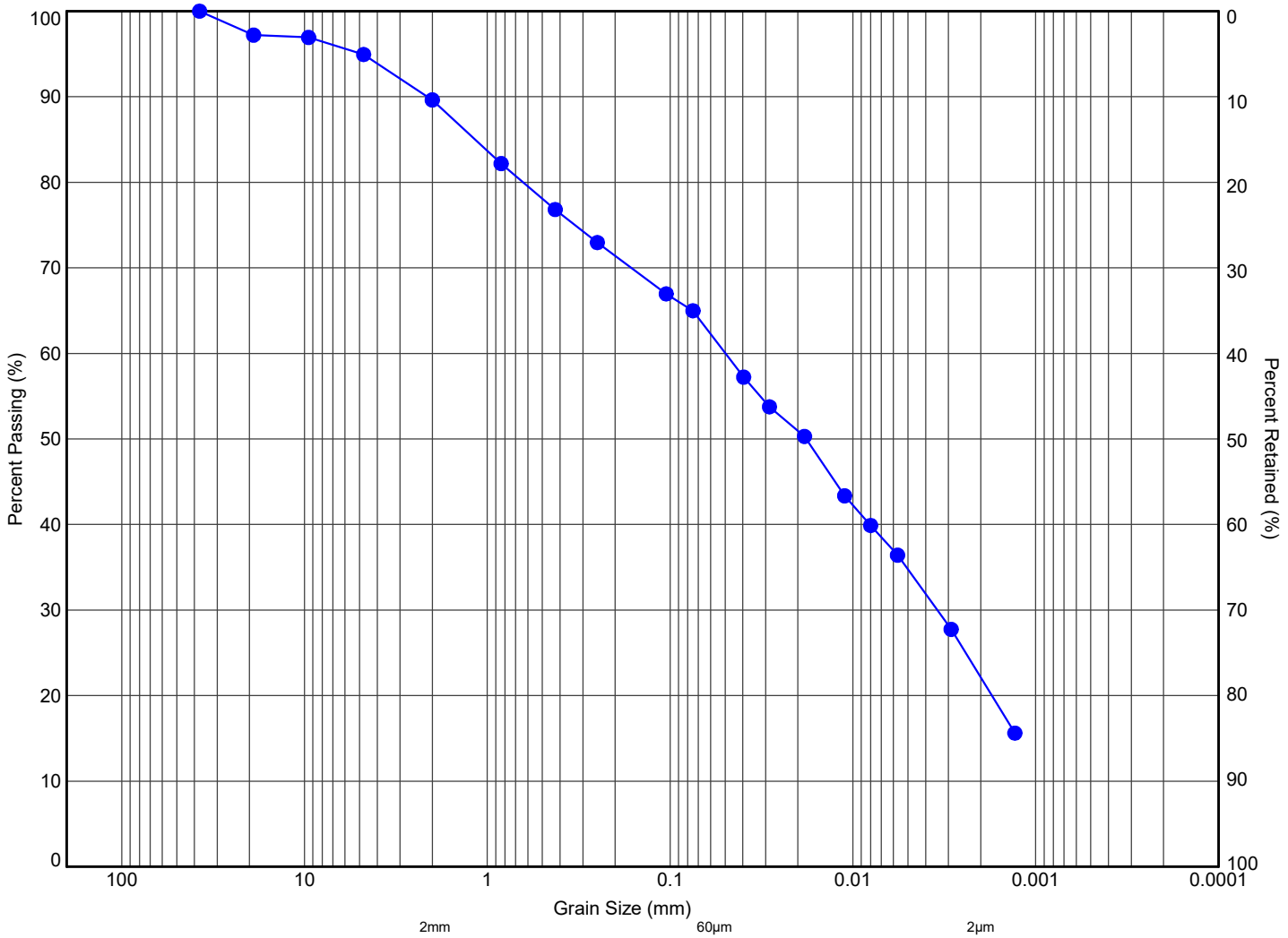
MIT SYSTEM

	Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	*(Fines, %)*
●	**2**	SS2	1.1	77.2	0	43	53	4	

Terraprobe
11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title: **GRAIN SIZE DISTRIBUTION**
SILT AND SAND, TRACE CLAY

File No.: **1-18-0012-01**



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

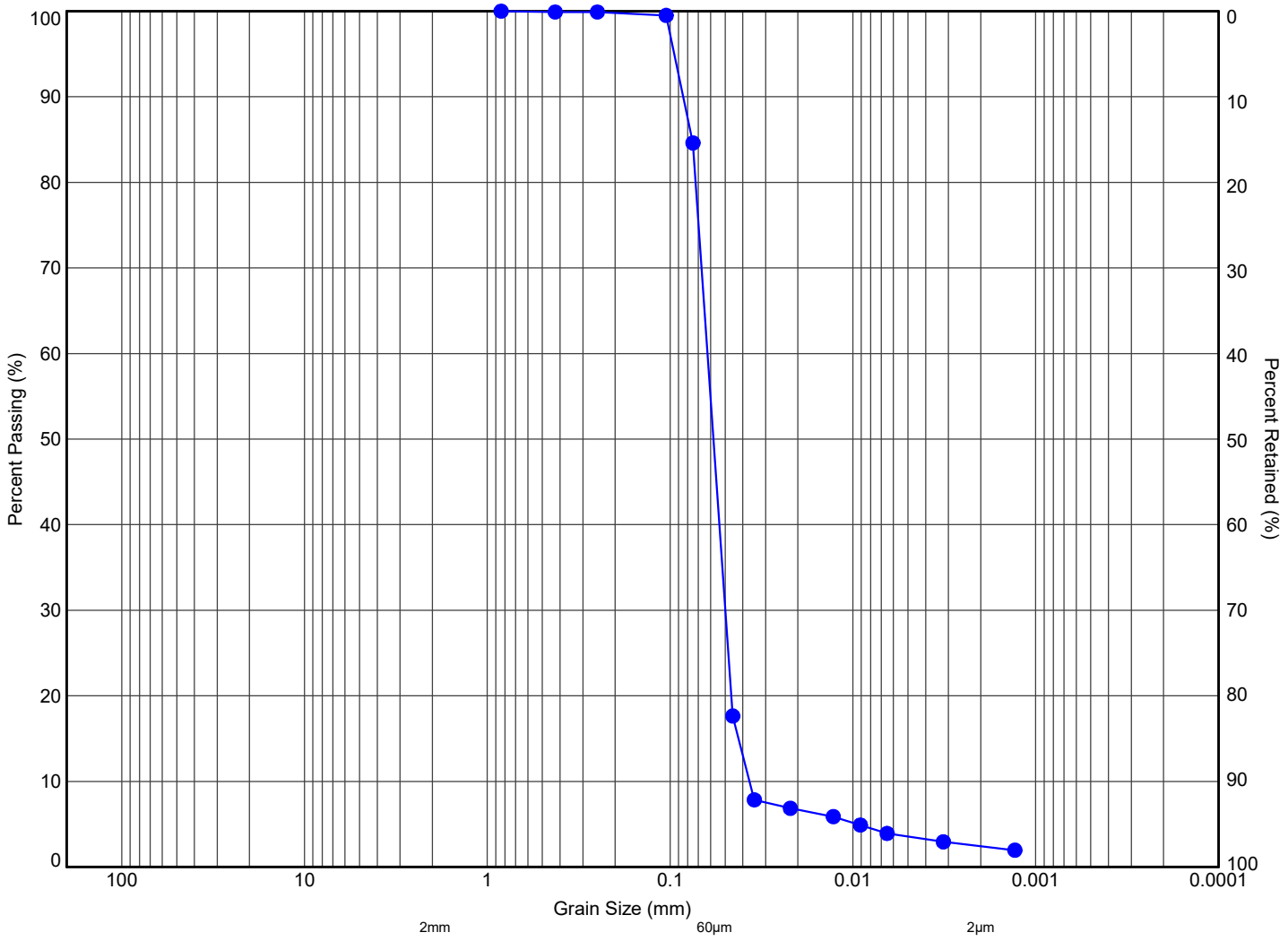
	Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	*(Fines, %)*
●	**2**	SS7	6.4	71.8	10	28	40	22	

Terraprobe
11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title:

GRAIN SIZE DISTRIBUTION
CLAYEY SILT, SANDY, TRACE GRAVEL

File No.: **1-18-0012-01**



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

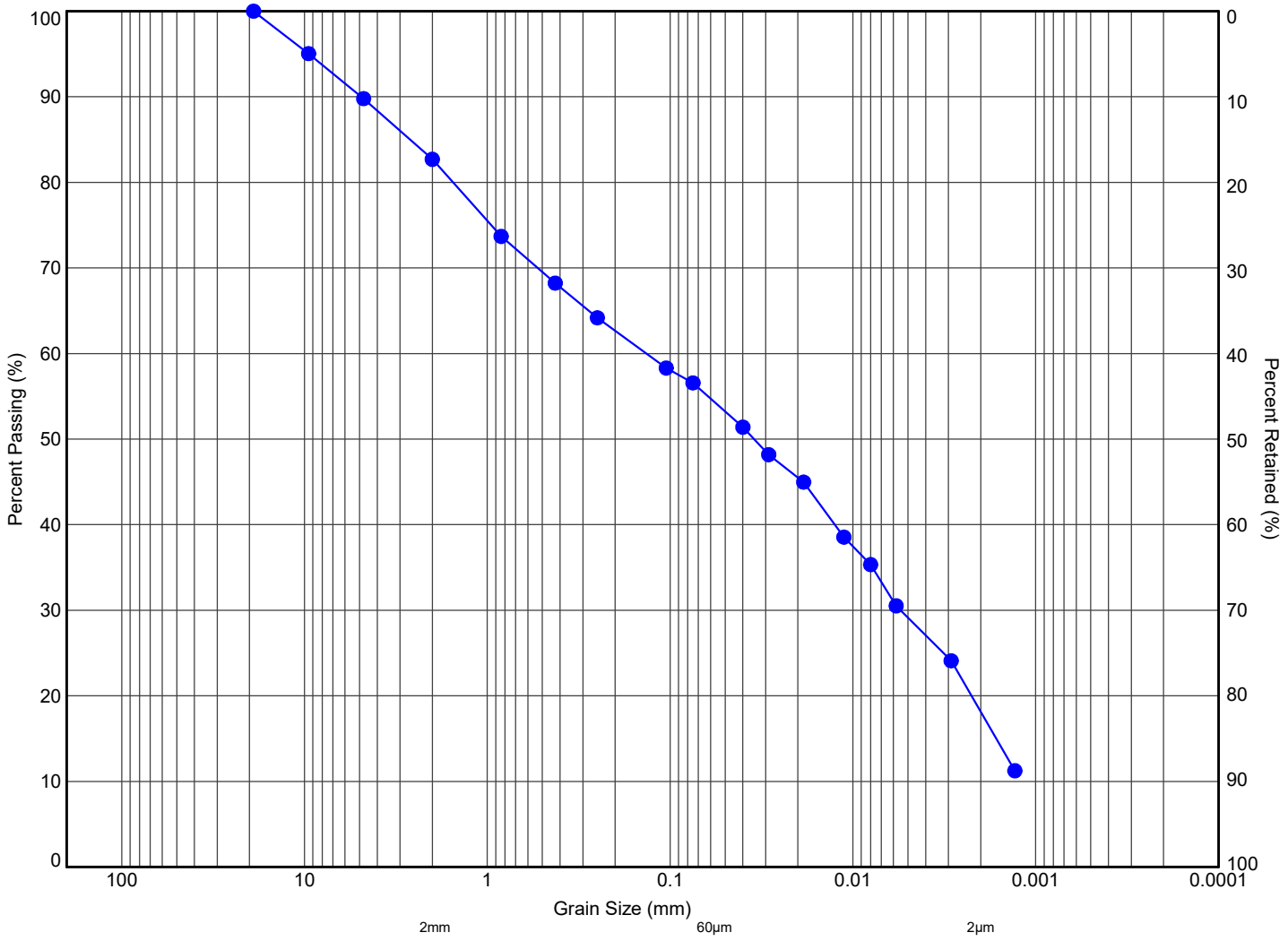
	Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	*(Fines, %)*
●	**3**	SS3	1.8	76.4	0	46	52	2	

Terraprobe
11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title:

GRAIN SIZE DISTRIBUTION
SILT AND SAND, TRACE CLAY

File No.: **1-18-0012-01**



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

	Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	*(Fines, %)*
●	**3**	SS6	4.9	73.3	17	28	37	18	

Terraprobe
11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

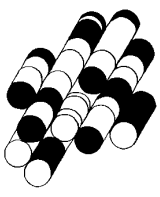
Title:

GRAIN SIZE DISTRIBUTION
SANDY SILT, SOME CLAY, SOME GRAVEL

File No.: **1-18-0012-01**

APPENDIX F

TERRAPROBE INC.



AGAT Laboratories

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

CLIENT NAME: TERRAPROBE INC.
11 INDELL LANE
BRAMPTON, ON L6T3Y3
(905) 796-2650

ATTENTION TO: alysson johnson

PROJECT: 1-18-0012-42

AGAT WORK ORDER: 18T323516

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Apr 03, 2018

PAGES (INCLUDING COVER): 17

VERSION*: 1

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

*NOTES

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

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: alysson johnson

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-03-26

DATE REPORTED: 2018-04-03

		SAMPLE DESCRIPTION:		BH1/SS1/0'-2'	BH1/SS6/15-17	BH2/SS1/0-2	BH2/SS5/10-12	BH3/SS1/0-2	BH3/SS7/20-22	BH4/SS2/2.5-4.5	BH4/SS6/15-17
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-03-21	2018-03-21	2018-03-21	2018-03-21	2018-03-22	2018-03-22	2018-03-23	2018-03-23
Parameter	**Unit**	**G / S**	**RDL**	**9150071**	**9150073**	**9150080**	**9150084**	**9150089**	**9150116**	**9150118**	**9150129**
Antimony	µg/g	1.3	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	3	6	2	3	2	5	4	5
Barium	µg/g	220	2	60	54	17	56	21	53	46	40
Beryllium	µg/g	2.5	0.5	<0.5	0.7	<0.5	<0.5	<0.5	0.7	<0.5	0.7
Boron	µg/g	36	5	<5	9	<5	7	<5	11	<5	8
Boron (Hot Water Soluble)	µg/g	1.5	0.10	0.27	0.82	0.16	0.33	<0.10	1.13	0.43	0.51
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	2	12	23	10	17	7	27	14	22
Cobalt	µg/g	22	0.5	5.9	14.1	4.3	9.1	4.1	13.0	6.5	13.9
Copper	µg/g	92	1	15	26	11	19	10	26	24	28
Lead	µg/g	120	1	50	9	5	7	6	10	54	10
Molybdenum	µg/g	2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	82	1	12	31	8	19	8	29	22	30
Selenium	µg/g	1.5	0.4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g	0.5	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	0.5	<0.5	0.5	<0.5	0.6	<0.5	0.6	<0.5	0.5
Vanadium	µg/g	86	1	19	28	17	23	14	28	19	28
Zinc	µg/g	290	5	81	66	22	46	20	65	66	67
Chromium VI	µg/g	0.66	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity	mS/cm	0.7	0.005	**1.27**	0.237	**1.72**	0.199	**1.80**	0.437	0.274	0.195
Sodium Adsorption Ratio	NA	5	NA	**9.76**	0.861	**43.8**	0.582	**30.1**	1.83	0.508	0.727
pH, 2:1 CaCl2 Extraction	pH Units		NA	9.05	8.06	7.88	7.86	7.84	8.03	7.62	7.90

Certified By: Amanjot Bhela

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Certificate of Analysis

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: alysson johnson

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-03-26

DATE REPORTED: 2018-04-03

		SAMPLE DESCRIPTION:		BH5/SS1/0-2	BH5/SS4/7.5-9.5	DUP 3
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2018-03-22	2018-03-22	2018-03-21
Parameter	Unit	G / S	RDL	9150219	9150220	9150229
Antimony	µg/g	1.3	0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	2	<1	5
Barium	µg/g	220	2	27	22	57
Beryllium	µg/g	2.5	0.5	<0.5	<0.5	0.7
Boron	µg/g	36	5	<5	<5	10
Boron (Hot Water Soluble)	µg/g	1.5	0.10	0.39	0.13	0.79
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	2	10	5	23
Cobalt	µg/g	22	0.5	4.8	1.6	13.6
Copper	µg/g	92	1	19	14	26
Lead	µg/g	120	1	37	63	10
Molybdenum	µg/g	2	0.5	<0.5	<0.5	<0.5
Nickel	µg/g	82	1	10	4	30
Selenium	µg/g	1.5	0.4	<0.4	<0.4	<0.4
Silver	µg/g	0.5	0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	0.5	<0.5	<0.5	0.5
Vanadium	µg/g	86	1	15	6	28
Zinc	µg/g	290	5	41	34	74
Chromium VI	µg/g	0.66	0.2	<0.2	<0.2	<0.2
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10
Electrical Conductivity	mS/cm	0.7	0.005	0.285	0.206	0.213
Sodium Adsorption Ratio	NA	5	NA	0.611	0.480	0.854
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.77	8.16	8.03

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9150071-9150229 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.

Certified By: Amanjot Bhela

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Certificate of Analysis

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: alysson johnson

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-03-26

DATE REPORTED: 2018-04-03

		SAMPLE DESCRIPTION:		BH1/SS1/0'-2'	BH3/SS1/0-2	BH4/SS1/0-2	DUP 2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-03-21	2018-03-22	2018-03-23	2018-03-21
Parameter	**Unit**	**G / S**	**RDL**	**9150071**	**9150089**	**9150117**	**9150226**
Naphthalene	µg/g	0.09	0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	0.072	0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.19	0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.69	0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.22	0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	<0.05	<0.05	0.08	<0.05
Pyrene	µg/g	1	0.05	<0.05	<0.05	0.07	<0.05
Benz(a)anthracene	µg/g	0.36	0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	2.8	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.47	0.05	<0.05	<0.05	0.07	<0.05
Benzo(k)fluoranthene	µg/g	0.48	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.23	0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	0.05	<0.05	<0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	0.59	0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	12.5	16.8	11.6	14.7
Surrogate	**Unit**	**Acceptable Limits**					
Chrysene-d12	%	50-140		100	108	102	99

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9150071-9150226 Results are based on the dry weight of the soil.
Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&j)Fluoranthene isomers because the isomers co-elute on the GC column.

Certified By: NPopowkolof

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Certificate of Analysis

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: alysson johnson

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-03-26

DATE REPORTED: 2018-04-03

		SAMPLE DESCRIPTION:		BH1/SS7/20-22	BH2/SS1/0-2	BH3/SS5/10-12	BH4/SS3/5-7	BH5/SS5/10-12	DUP 1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-03-21	2018-03-21	2018-03-22	2018-03-23	2018-03-22	2018-03-21
Parameter	**Unit**	**G / S**	**RDL**	**9150077**	**9150080**	**9150096**	**9150123**	**9150222**	**9150225**
F1 (C6 to C10)	µg/g		5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	240	50	<50	<50	<50	110	<50	<50
F4 (C34 to C50)	µg/g	120	50	<50	<50	<50	91	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	8.9	15.9	16.5	9.7	14.8	9.0
Surrogate	**Unit**	**Acceptable Limits**							
Terphenyl	%	60-140		110	120	98	120	112	100

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9150077-9150225 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified without the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: alysson johnson

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-03-26

DATE REPORTED: 2018-04-03

SAMPLE DESCRIPTION:				BH1/SS7/20-22	BH2/SS1/0-2	BH3/SS5/10-12	BH4/SS3/5-7	BH5/SS5/10-12	DUP 1
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2018-03-21	2018-03-21	2018-03-22	2018-03-23	2018-03-22	2018-03-21
Parameter	Unit	G / S	RDL	9150077	9150080	9150096	9150123	9150222	9150225
Dichlorodifluoromethane	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	0.25	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzene	ug/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03	<0.03	0.05	<0.03	<0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Toluene	ug/g	0.2	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dibromochloromethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Chlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: alysson johnson

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-03-26

DATE REPORTED: 2018-04-03

		SAMPLE DESCRIPTION:		BH1/SS7/20-22	BH2/SS1/0-2	BH3/SS5/10-12	BH4/SS3/5-7	BH5/SS5/10-12	DUP 1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-03-21	2018-03-21	2018-03-22	2018-03-23	2018-03-22	2018-03-21
Parameter	**Unit**	**G / S**	**RDL**	**9150077**	**9150080**	**9150096**	**9150123**	**9150222**	**9150225**
Bromoform	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene	µg/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate	**Unit**	**Acceptable Limits**							
Toluene-d8	% Recovery	50-140		90	89	88	88	88	91
4-Bromofluorobenzene	% Recovery	50-140		95	97	95	93	96	96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9150077-9150225 The sample was analysed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.

Certified By: NPopowich

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AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: alysson johnson

SAMPLING SITE:

SAMPLED BY:

Total PCBs (soil)

DATE RECEIVED: 2018-03-26

DATE REPORTED: 2018-04-03

		SAMPLE DESCRIPTION:		BH2/SS1/0-2	BH5/SS1/0-2	DUP 4
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2018-03-21	2018-03-22	2018-03-22
Parameter	**Unit**	**G / S**	**RDL**	**9150080**	**9150219**	**9150230**
PCBs	µg/g	0.3	0.1	<0.1	<0.1	<0.1
Moisture Content	%		0.1	15.9	5.6	7.8
Surrogate	**Unit**	**Acceptable Limits**				
Decachlorobiphenyl	%	60-130		104	80	104

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9150080-9150230 Results are based on the dry weight of soil extracted.

Certified By: N Popowkolof

AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

5835 COOPERS AVENUE
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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: alysson johnson

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9150071	BH1/SS1/0'-2'	ON T8 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity	mS/cm	0.7	1.27
9150071	BH1/SS1/0'-2'	ON T8 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	NA	5	9.76
9150080	BH2/SS1/0-2	ON T8 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity	mS/cm	0.7	1.72
9150080	BH2/SS1/0-2	ON T8 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	NA	5	43.8
9150089	BH3/SS1/0-2	ON T8 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity	mS/cm	0.7	1.80
9150089	BH3/SS1/0-2	ON T8 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio	NA	5	30.1

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CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

ATTENTION TO: alysson johnson

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: Apr 03, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	9150071	9150071	<0.8	<0.8	NA	< 0.8	94%	70%	130%	94%	80%	120%	80%	70%	130%
Arsenic	9150071	9150071	3	3	NA	< 1	95%	70%	130%	101%	80%	120%	100%	70%	130%
Barium	9150071	9150071	60	72	18.2%	< 2	92%	70%	130%	101%	80%	120%	94%	70%	130%
Beryllium	9150071	9150071	<0.5	<0.5	NA	< 0.5	84%	70%	130%	117%	80%	120%	99%	70%	130%
Boron	9150071	9150071	<5	<5	NA	< 5	81%	70%	130%	112%	80%	120%	91%	70%	130%
Boron (Hot Water Soluble)	9150071	9150071	0.27	0.27	NA	< 0.10	99%	60%	140%	95%	70%	130%	96%	60%	140%
Cadmium	9150071	9150071	<0.5	<0.5	NA	< 0.5	97%	70%	130%	104%	80%	120%	104%	70%	130%
Chromium	9150071	9150071	12	12	0.0%	< 2	81%	70%	130%	113%	80%	120%	107%	70%	130%
Cobalt	9150071	9150071	5.9	5.7	3.4%	< 0.5	88%	70%	130%	103%	80%	120%	101%	70%	130%
Copper	9150071	9150071	15	15	0.0%	< 1	90%	70%	130%	110%	80%	120%	102%	70%	130%
Lead	9150071	9150071	50	52	3.9%	< 1	104%	70%	130%	111%	80%	120%	98%	70%	130%
Molybdenum	9150071	9150071	<0.5	<0.5	NA	< 0.5	90%	70%	130%	104%	80%	120%	106%	70%	130%
Nickel	9150071	9150071	12	12	0.0%	< 1	92%	70%	130%	105%	80%	120%	101%	70%	130%
Selenium	9150071	9150071	0.4	<0.4	NA	< 0.4	108%	70%	130%	102%	80%	120%	104%	70%	130%
Silver	9150071	9150071	<0.2	<0.2	NA	< 0.2	82%	70%	130%	104%	80%	120%	97%	70%	130%
Thallium	9150071	9150071	<0.4	<0.4	NA	< 0.4	96%	70%	130%	104%	80%	120%	98%	70%	130%
Uranium	9150071	9150071	<0.5	<0.5	NA	< 0.5	96%	70%	130%	106%	80%	120%	106%	70%	130%
Vanadium	9150071	9150071	19	19	0.0%	< 1	91%	70%	130%	108%	80%	120%	107%	70%	130%
Zinc	9150071	9150071	81	80	1.2%	< 5	94%	70%	130%	112%	80%	120%	110%	70%	130%
Chromium VI	9150060		<0.2	<0.2	NA	< 0.2	71%	70%	130%	94%	80%	120%	98%	70%	130%
Cyanide	9150084	9150084	<0.040	<0.040	NA	< 0.040	99%	70%	130%	109%	80%	120%	100%	70%	130%
Mercury	9150071	9150071	<0.10	<0.10	NA	< 0.10	98%	70%	130%	104%	80%	120%	103%	70%	130%
Electrical Conductivity	9150071	9150071	1.27	1.26	0.8%	< 0.005	98%	90%	110%	NA			NA		
Sodium Adsorption Ratio	9150071	9150071	9.76	9.48	2.9%	NA	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	9149000		7.32	7.31	0.1%	NA	101%	80%	120%	NA			NA		

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Certified By: Amanjot Bhela

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Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

ATTENTION TO: alysson johnson

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Apr 03, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	9138550		< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	106%	50%	140%	115%	50%	140%
Acenaphthylene	9138550		< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	119%	50%	140%	130%	50%	140%
Acenaphthene	9138550		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	116%	50%	140%	118%	50%	140%
Fluorene	9138550		< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	120%	50%	140%	119%	50%	140%
Phenanthrene	9138550		< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	118%	50%	140%	120%	50%	140%
Anthracene	9138550		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	115%	50%	140%	117%	50%	140%
Fluoranthene	9138550		< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	119%	50%	140%	119%	50%	140%
Pyrene	9138550		< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	118%	50%	140%	117%	50%	140%
Benz(a)anthracene	9138550		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	117%	50%	140%	114%	50%	140%
Chrysene	9138550		< 0.05	< 0.05	NA	< 0.05	107%	50%	140%	116%	50%	140%	119%	50%	140%
Benzo(b)fluoranthene	9138550		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	85%	50%	140%	96%	50%	140%
Benzo(k)fluoranthene	9138550		< 0.05	< 0.05	NA	< 0.05	122%	50%	140%	91%	50%	140%	99%	50%	140%
Benzo(a)pyrene	9138550		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	110%	50%	140%	106%	50%	140%
Indeno(1,2,3-cd)pyrene	9138550		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	111%	50%	140%	113%	50%	140%
Dibenz(a,h)anthracene	9138550		< 0.05	< 0.05	NA	< 0.05	109%	50%	140%	120%	50%	140%	121%	50%	140%
Benzo(g,h,i)perylene	9138550		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	102%	50%	140%	116%	50%	140%
2-and 1-methyl Naphthalene	9138550		< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	99%	50%	140%	107%	50%	140%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	9150713		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	113%	50%	140%	99%	50%	140%
Vinyl Chloride	9150713		< 0.02	< 0.02	NA	< 0.02	106%	50%	140%	105%	50%	140%	81%	50%	140%
Bromomethane	9150713		< 0.05	< 0.05	NA	< 0.05	90%	50%	140%	111%	50%	140%	97%	50%	140%
Trichlorofluoromethane	9150713		< 0.05	< 0.05	NA	< 0.05	99%	50%	140%	90%	50%	140%	104%	50%	140%
Acetone	9150713		< 0.50	< 0.50	NA	< 0.50	104%	50%	140%	101%	50%	140%	102%	50%	140%
1,1-Dichloroethylene	9150713		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	103%	60%	130%	86%	50%	140%
Methylene Chloride	9150713		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	111%	60%	130%	99%	50%	140%
Trans- 1,2-Dichloroethylene	9150713		< 0.05	< 0.05	NA	< 0.05	83%	50%	140%	102%	60%	130%	86%	50%	140%
Methyl tert-butyl Ether	9150713		< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	111%	60%	130%	99%	50%	140%
1,1-Dichloroethane	9150713		< 0.02	< 0.02	NA	< 0.02	92%	50%	140%	100%	60%	130%	108%	50%	140%
Methyl Ethyl Ketone	9150713		< 0.50	< 0.50	NA	< 0.50	92%	50%	140%	102%	50%	140%	101%	50%	140%
Cis- 1,2-Dichloroethylene	9150713		< 0.02	< 0.02	NA	< 0.02	87%	50%	140%	106%	60%	130%	96%	50%	140%
Chloroform	9150713		< 0.04	< 0.04	NA	< 0.04	82%	50%	140%	105%	60%	130%	91%	50%	140%
1,2-Dichloroethane	9150713		< 0.03	< 0.03	NA	< 0.03	106%	50%	140%	109%	60%	130%	94%	50%	140%
1,1,1-Trichloroethane	9150713		< 0.05	< 0.05	NA	< 0.05	110%	50%	140%	94%	60%	130%	94%	50%	140%
Carbon Tetrachloride	9150713		< 0.05	< 0.05	NA	< 0.05	79%	50%	140%	90%	60%	130%	83%	50%	140%
Benzene	9150713		< 0.02	< 0.02	NA	< 0.02	75%	50%	140%	109%	60%	130%	96%	50%	140%
1,2-Dichloropropane	9150713		< 0.03	< 0.03	NA	< 0.03	81%	50%	140%	95%	60%	130%	92%	50%	140%
Trichloroethylene	9150713		< 0.03	< 0.03	NA	< 0.03	89%	50%	140%	98%	60%	130%	90%	50%	140%
Bromodichloromethane	9150713		< 0.05	< 0.05	NA	< 0.05	82%	50%	140%	89%	60%	130%	88%	50%	140%

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Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

ATTENTION TO: alysson johnson

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Apr 03, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Methyl Isobutyl Ketone	9150713		< 0.50	< 0.50	NA	< 0.50	87%	50%	140%	89%	50%	140%	96%	50%	140%
1,1,2-Trichloroethane	9150713		< 0.04	< 0.04	NA	< 0.04	88%	50%	140%	102%	60%	130%	113%	50%	140%
Toluene	9150713		< 0.02	< 0.02	NA	< 0.02	94%	50%	140%	111%	60%	130%	107%	50%	140%
Dibromochloromethane	9150713		< 0.05	< 0.05	NA	< 0.05	99%	50%	140%	85%	60%	130%	96%	50%	140%
Ethylene Dibromide	9150713		< 0.04	< 0.04	NA	< 0.04	101%	50%	140%	91%	60%	130%	102%	50%	140%
Tetrachloroethylene	9150713		< 0.05	< 0.05	NA	< 0.05	90%	50%	140%	108%	60%	130%	113%	50%	140%
1,1,1,2-Tetrachloroethane	9150713		< 0.04	< 0.04	NA	< 0.04	98%	50%	140%	86%	60%	130%	99%	50%	140%
Chlorobenzene	9150713		< 0.05	< 0.05	NA	< 0.05	82%	50%	140%	111%	60%	130%	108%	50%	140%
Ethylbenzene	9150713		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	109%	60%	130%	99%	50%	140%
m & p-Xylene	9150713		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	116%	60%	130%	107%	50%	140%
Bromoform	9150713		< 0.05	< 0.05	NA	< 0.05	107%	50%	140%	86%	60%	130%	95%	50%	140%
Styrene	9150713		< 0.05	< 0.05	NA	< 0.05	80%	50%	140%	102%	60%	130%	108%	50%	140%
1,1,2,2-Tetrachloroethane	9150713		< 0.05	< 0.05	NA	< 0.05	107%	50%	140%	106%	60%	130%	113%	50%	140%
o-Xylene	9150713		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	117%	60%	130%	110%	50%	140%
1,3-Dichlorobenzene	9150713		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	105%	60%	130%	114%	50%	140%
1,4-Dichlorobenzene	9150713		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	115%	60%	130%	102%	50%	140%
1,2-Dichlorobenzene	9150713		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	104%	60%	130%	114%	50%	140%
1,3-Dichloropropene	9150713		< 0.04	< 0.04	NA	< 0.04	89%	50%	140%	95%	60%	130%	99%	50%	140%
n-Hexane	9150713		< 0.05	< 0.05	NA	< 0.05	110%	50%	140%	117%	60%	130%	104%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)															
F1 (C6 to C10)	9150059		< 5	< 5	NA	< 5	92%	60%	130%	90%	85%	115%	91%	70%	130%
F2 (C10 to C16)	9140451		< 10	< 10	NA	< 10	100%	60%	130%	99%	80%	120%	76%	70%	130%
F3 (C16 to C34)	9140451		< 50	< 50	NA	< 50	103%	60%	130%	99%	80%	120%	72%	70%	130%
F4 (C34 to C50)	9140451		< 50	< 50	NA	< 50	102%	60%	130%	92%	80%	120%	85%	70%	130%
Total PCBs (soil)															
PCBs	9132654		< 0.1	< 0.1	NA	< 0.1	100%	60%	140%	95%	60%	140%	92%	60%	140%

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

Certified By: N Popnikolof

AGAT Laboratories

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Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

ATTENTION TO: alysson johnson

SAMPLING SITE:

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

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Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

ATTENTION TO: alysson johnson

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Moisture Content	ORG-91-5106	EPA SW-846 3541 & 8270	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method, SW846 5035	P &T GC / FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method, SW846 5035	P & T GC / FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	Balance
Moisture Content	VOL-91-5009	CCME Tier 1 Method, SW846 5035,8015	BALANCE
Terphenyl	VOL-91-5009	CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS

AGAT Laboratories

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

Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T323516

PROJECT: 1-18-0012-42

ATTENTION TO: alysson johnson

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
PCBs	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541 & 8082	GC/ECD
Moisture Content		MOE E3139	BALANCE

AGAT Laboratories

14

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

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 18T323516

Cooler Quantity:

Arrival Temperatures: 3.6 | 4 | 4.2

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes:

Report Information:

Company: Terraprobe
Contact: Alyssa Johnson
Address: 11 Indell Lane
Brampton ON
Phone: 905-796-2650 Fax:

Reports to be sent to:

1. Email: ajohnson@terraprobe.ca
2. Email: sayedakur@terraprobe.ca

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 8 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture

Soil Texture *(Check One)*
☒ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm

Region _____ *Indicate One*
☐ MISA

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

_____ *Indicate One*

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

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

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

OR Date Required (Rush Surcharges May Apply):

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

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

Project Information:

Project: 1-18-0012-42
Site Location: Mississauga
Sampled By: B.R.
AGAT Quote #: PO:

Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	O. Reg 153: All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (incl. Hydrides)	O. Reg 153: ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☒ VOC ☐ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☒ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use
BH1/SS1/0'-2'	Mar21/18		2	S			X						X		X				
BH1/SS6/15-17	↓		1	↓			X						X						
BH1/SS7/20-22			2										X	X					
BH2/SS1/0-2			4				X						X	X		X			
BH2/SS5/10-12	↓		1				X												
BH3/SS1/0-2	Mar22/18		2				X								X				
BH3/SS5/10-12	↓		2										X	X					
BH3/SS7/20-22	↓		1				X												
BH4/SS1/0-2	Mar23/18		1												X				
BH4/SS2/2.5-4.5	↓		1				X												
BH4/SS3/5-7	↓		2	↓									X	X					

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Alyssa Johnson	Mar26/18	1:57PM	Sima	18/3/26	2:55

Page 1 of 2

Nº: T 064798

AGAT Laboratories

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

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: Terraprobe
Contact: Alyssa Johnson
Address: 11 Indell Lane
Brampton ON
Phone: 905-796-2650 Fax:
Reports to be sent to:
1. Email: ajohnson@terraprobe.ca
2. Email: sdyedokun@terraprobe.ca

Project Information:

Project: 1-18-0012-42
Site Location: Mississauga
Sampled By: B.R.
AGAT Quote #: PO:
Please note: if quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

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

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☒ Regulation 153/04
Table 8 *Indicate One*
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture *(Check One)*
☒ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region *Indicate One*
☐ MISA

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

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

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI Y/N	O. Reg 153: Metals and Inorganics	O. Reg 153: All Metals (excl. Hydrides)	O. Reg 153: Hydride Metals (Incl. Hydrides)	O. Reg 153: B-HWS, Cl, CN, ORPs, Cr^{6+}, EC, FOC, Hg, pH, SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: TP, NH_3, TKN, NO_3, NO_2, NO_3+NO_2	Volatiles: VOC, BTEX, THM	PHCs F1 - F4	ABNs	PAHs	PCBs: Total, Aroclors	Organochlorine Pesticides	TCLP: M&I, VOCs, ABNs, B(a)P, PCBs	Sewer Use
BH4/SS6/15-17	Mar23/18		2	S			X														
BH5/SS1/0-2	Mar22/18		3				X											X			
BH5/SS4/7.5-9.5	↓		2				X														
BH5/SS5/10-12	↓		2											X	X						
DUP1	Mar21/18		2											X	X						
DUP2	↓		1														X				
DUP3	↓		1				X														
DUP4	Mar20/18		1	↓														X			

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Alyssa Johnson Alyssa Johnson	Mar 26/18	1:57pm	Sima		
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

Page 2 of 2

Nº: T 064799

Laboratory Use Only

Work Order #:
Cooler Quantity:
Arrival Temperatures: 3.6 | 4 | 4.2
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

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

OR Date Required (Rush Surcharges May Apply):

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

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

AGAT Laboratories

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

CLIENT NAME: TERRAPROBE INC.
11 INDELL LANE
BRAMPTON, ON L6T3Y3
(905) 796-2650

ATTENTION TO: Allison Simmonds

PROJECT: 1-18-0012-42

AGAT WORK ORDER: 18T336875

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

DATE REPORTED: May 15, 2018

PAGES (INCLUDING COVER): 6

VERSION*: 1

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

*NOTES

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

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 18T336875

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Allison Simmonds

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-05-08

DATE REPORTED: 2018-05-15

				SAMPLE DESCRIPTION:	BH1/SS2/2.5-4.5	BH2/SS2/2.5-4.5	BH3/SS2/2.5-4.5
				SAMPLE TYPE:	Soil	Soil	Soil
				DATE SAMPLED:	2018-03-21	2018-03-21	2018-03-22
Parameter	Unit	G / S	RDL		9230241	9230242	9230243
Electrical Conductivity	mS/cm	0.7	0.005		0.694	0.672	2.02
Sodium Adsorption Ratio	NA	5	NA		2.19	1.76	26.1

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9230241-9230243 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).

Samples were received and analyzed beyond recommended hold times.

Certified By: Amanjot Bhela

AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 18T336875

PROJECT: 1-18-0012-42

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Allison Simmonds

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9230243	BH3/SS2/2.5-4.5	ON T8 S RPI/ICC	O. Reg. 153(511) - ORPs (Soil)	Electrical Conductivity	mS/cm	0.7	2.02
9230243	BH3/SS2/2.5-4.5	ON T8 S RPI/ICC	O. Reg. 153(511) - ORPs (Soil)	Sodium Adsorption Ratio	NA	5	26.1

AGAT Laboratories

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

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T336875

PROJECT: 1-18-0012-42

ATTENTION TO: Allison Simmonds

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: May 15, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - ORPs (Soil)															
Electrical Conductivity	9232757		2.23	2.17	2.7%	< 0.005	97%	90%	110%	NA			NA		
Sodium Adsorption Ratio	9229976		8.96	8.94	0.2%	NA	NA			NA			NA		

Comments: NA signifies Not Applicable.

Certified By: Amanjot Bhela

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

Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T336875

PROJECT: 1-18-0012-42

ATTENTION TO: Allison Simmonds

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010C	ICP/OES

AGAT Laboratories

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

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 18T336875

Cooler Quantity:

Arrival Temperatures: 12.6 | 12.9 | 11.9 | (on ice)

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes:

Report Information:

Company: Terraprobe
Contact: Alysson Johnson
Address: 11 Indell Lane
Brampton ON
Phone: 905 796 2650 Fax:
Reports to be sent to:
1. Email: soyedokun@terraprobe.ca
2. Email: ajohnson@terraprobe.ca

Project Information:

Project: 1-18-0012-42
Site Location: Mississauga
Sampled By:
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 8 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture

Soil Texture (Check One)
☐ Coarse
☐ Fine

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

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

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

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

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

OR Date Required (Rush Surcharges May Apply):

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

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

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	All Metals ☐ 153 Metals (excl. Hydrides)	Hydride Metals ☐ 153 Metals (Incl. Hydrides)	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☒ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☐ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use
BH1/SS2/2.5-4.5	Mar 21/18		1	S						X											
BH2/SS2/2.5-4.5	Mar21/18		1	S						X											
BH3/SS2/2.5-4.5	Mar22/18		1	S						X											

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Alysson Johnson Alysson Johnson	May 8/18	3:50 pm	Sherman B	May 8/18 3:50 pm	
					Page 1 of 1
					N°:

AGAT Laboratories

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

CLIENT NAME: TERRAPROBE INC.
11 INDELL LANE
BRAMPTON, ON L6T3Y3
(905) 796-2650

ATTENTION TO: Alysson Johnson

PROJECT: 1-18-0012-42

AGAT WORK ORDER: 18T342471

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

DATE REPORTED: May 30, 2018

PAGES (INCLUDING COVER): 6

VERSION*: 1

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

*NOTES

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

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 18T342471

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Alysson Johnson

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-05-24

DATE REPORTED: 2018-05-28

				SAMPLE DESCRIPTION:	BH3/SS4/7.5-9.5
				SAMPLE TYPE:	Soil
				DATE SAMPLED:	2018-05-22
Parameter	Unit	G / S	RDL	9267753	
Electrical Conductivity	mS/cm	0.7	0.005	1.06	
Sodium Adsorption Ratio	NA	5	NA	4.62	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9267753 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).

Certified By: Amanjot Bhela

AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 18T342471

PROJECT: 1-18-0012-42

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Alysson Johnson

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9267753	BH3/SS4/7.5-9.5	ON T8 S RPI/ICC	O. Reg. 153(511) - ORPs (Soil)	Electrical Conductivity	mS/cm	0.7	1.06

AGAT Laboratories

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

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T342471

PROJECT: 1-18-0012-42

ATTENTION TO: Alysson Johnson

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - ORPs (Soil)															
Electrical Conductivity	9267753	9267753	1.06	1.07	0.9%	< 0.005	99%	90%	110%	NA			NA		
Sodium Adsorption Ratio	9267753	9267753	4.62	4.67	1.1%	NA	NA			NA			NA		

Comments: NA signifies Not Applicable.

Certified By: Amanjot Bhela

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

Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T342471

PROJECT: 1-18-0012-42

ATTENTION TO: Alysson Johnson

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010C	ICP/OES

SP-6 / BH4S

AGAT Laboratories

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

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 18T342471

Cooler Quantity:

Arrival Temperatures: 7.1 | 7.2 | 7.2 / 6.1 | 6.2 | 6.2

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes:

Report Information:

Company: Terraprobe
Contact: Alysson Johnson
Address: 11 Indell Lane
Brampton ON
Phone: 905-796-2650 Fax:
Reports to be sent to:
1. Email: ajohnson@terraprobe.ca
2. Email: soyedokun@terraprobe.ca

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 8 (Indicate One)
☐ Ind/Com
☐ Res/Park
☐ Agriculture

Soil Texture (Check One)
☐ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm

Region (Indicate One)
☐ MISA

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

(Indicate One)

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

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

OR Date Required (Rush Surcharges May Apply):

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

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

Project Information:

Project: 1-18-0012-42
Site Location: Mississauga
Sampled By:
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

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

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (Incl. Hydrides))	O. Reg 153: ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	O. Reg 153: Full Metals Scan	O. Reg 153: Regulation/Custom Metals	O. Reg 153: Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	O. Reg 153: Volatiles: ☐ VOC ☐ BTEX ☐ THM	O. Reg 153: PHCs F1 - F4	O. Reg 153: ABNs	O. Reg 153: PAHs	O. Reg 153: PCBs: ☐ Total ☐ Aroclors	O. Reg 153: Organochlorine Pesticides	O. Reg 153: TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 153: Sewer Use
BH3/SS4/7.5-9.5	Mar 22/18		1	S				☒										

Samples Relinquished By (Print Name and Sign): Alysson Johnson	Date: May 23/18	Time: 2pm	Samples Received By (Print Name and Sign): 2018/05/24	Date	Time: 1:45
Samples Relinquished By (Print Name and Sign): 2018/05/24	Date	Time: 2:10	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

Page 1 of 1

N°:

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

AGAT Laboratories

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

CLIENT NAME: TERRAPROBE INC.
11 INDELL LANE
BRAMPTON, ON L6T3Y3
(905) 796-2650

ATTENTION TO: Alysson Johnson

PROJECT: 1-18-0012-42

AGAT WORK ORDER: 18T342481

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

DATE REPORTED: May 30, 2018

PAGES (INCLUDING COVER): 6

VERSION*: 1

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

*NOTES

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

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 18T342481

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Alysson Johnson

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-05-24

DATE REPORTED: 2018-05-28

		SAMPLE DESCRIPTION:		BH3/SS3/5-7
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2018-05-22
Parameter	Unit	G / S	RDL	9267755
Electrical Conductivity	mS/cm	0.7	0.005	1.65
Sodium Adsorption Ratio	NA	5	NA	17.4

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9267755 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).

Certified By: Amanjot Bhela

AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 18T342481

PROJECT: 1-18-0012-42

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Alysson Johnson

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9267755	BH3/SS3/5-7	ON T8 S RPI/ICC	O. Reg. 153(511) - ORPs (Soil)	Electrical Conductivity	mS/cm	0.7	1.65
9267755	BH3/SS3/5-7	ON T8 S RPI/ICC	O. Reg. 153(511) - ORPs (Soil)	Sodium Adsorption Ratio	NA	5	17.4

AGAT Laboratories

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

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T342481

PROJECT: 1-18-0012-42

ATTENTION TO: Alysson Johnson

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - ORPs (Soil)															
Electrical Conductivity	9270072		0.408	0.405	0.7%	< 0.005	99%	90%	110%	NA			NA		
Sodium Adsorption Ratio	9267753		4.62	4.67	1.1%	NA	NA			NA			NA		

Comments: NA signifies Not Applicable.

Certified By: Amanjot Bhela

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

Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T342481

PROJECT: 1-18-0012-42

ATTENTION TO: Alysson Johnson

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010C	ICP/OES

SR-6 1 BHS

AGAT Laboratories

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

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: Terraprobe
Contact: Alysson Johnson
Address: 11 Indell Lane
Brampton ON
Phone: 905-796-2650 Fax:
Reports to be sent to:
1. Email: ajohnson@terraprobe.ca
2. Email: soycdokun@terraprobe.ca

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☑ Regulation 153/04
Table 8 *Indicate One*
☐ Ind/Com
☑ Res/Park
☐ Agriculture

Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region *Indicate One*
☐ MISA

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

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

Report Guideline on *Certificate of Analysis* ☑ Yes ☐ No

Laboratory Use Only

Work Order #: 18T342481

Cooler Quantity:
Arrival Temperatures: 7.1 7.2 7.2 / 6.1 6.2 6.2
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT ☑ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

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

OR Date Required (Rush Surcharges May Apply):

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

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

Project Information:

Project: 1-18-0012-42
Site Location: Mississauga
Sampled By:
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☑ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

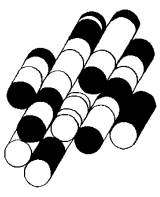
B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI Y/N	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (Incl. Hydrides))	O. Reg 153: ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	O. Reg 153: Full Metals Scan	O. Reg 153: Regulation/Custom Metals	O. Reg 153: Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	O. Reg 153: Volatiles: ☐ VOC ☐ BTEX ☐ THM	O. Reg 153: PHCs F1 - F4	O. Reg 153: ABNs	O. Reg 153: PAHs	O. Reg 153: PCBs: ☐ Total ☐ Aroclors	O. Reg 153: Organochlorine Pesticides	O. Reg 153: TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 153: Sewer Use
BH3/SS3/5-7	Mar 22/18		1	S				X										

Samples Relinquished By (Print Name and Sign): Alysson Johnson	Date: May 23/18	Time: 2pm	Samples Received By (Print Name and Sign): 2018/05/24	Date	Time: 1:45		
Samples Relinquished By (Print Name and Sign): 2018/05/24	Date	Time: 2:10	Samples Received By (Print Name and Sign):	Date	Time	Page 1 of 1	
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time	N°:	

APPENDIX G

TERRAPROBE INC.



AGAT Laboratories

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

CLIENT NAME: TERRAPROBE INC.
11 INDELL LANE
BRAMPTON, ON L6T3Y3
(905) 796-2650

ATTENTION TO: Samuel Oyedokun

PROJECT: 1-18-0012-42

AGAT WORK ORDER: 18T325447

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

WATER ANALYSIS REVIEWED BY: Parvathi Malemath, Data Reviewer

DATE REPORTED: Apr 10, 2018

PAGES (INCLUDING COVER): 15

VERSION*: 1

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

*NOTES

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

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

Certificate of Analysis

AGAT WORK ORDER: 18T325447

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Samuel Oyedokun

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-04-02

DATE REPORTED: 2018-04-10

		SAMPLE DESCRIPTION:		MW1	MW5	Dup1
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2018-04-02	2018-04-02	2018-04-02
Parameter	Unit	G / S	RDL	9160121	9160168	9160169
Naphthalene	µg/L	11	0.20	<0.20	<0.20	<0.20
Acenaphthylene	µg/L	1	0.20	<0.20	<0.20	<0.20
Acenaphthene	µg/L	4.1	0.20	<0.20	<0.20	<0.20
Fluorene	µg/L	120	0.20	<0.20	<0.20	<0.20
Phenanthrene	µg/L	1	0.10	<0.10	<0.10	<0.10
Anthracene	µg/L	1	0.10	<0.10	<0.10	<0.10
Fluoranthene	µg/L	0.41	0.20	<0.20	<0.20	<0.20
Pyrene	µg/L	4.1	0.20	<0.20	<0.20	<0.20
Benz(a)anthracene	µg/L	1	0.20	<0.20	<0.20	<0.20
Chrysene	µg/L	0.1	0.10	<0.10	<0.10	<0.10
Benzo(b)fluoranthene	µg/L	0.1	0.10	<0.10	<0.10	<0.10
Benzo(k)fluoranthene	µg/L	0.1	0.10	<0.10	<0.10	<0.10
Benzo(a)pyrene	µg/L	0.01	0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20	<0.20	<0.20
Dibenz(a,h)anthracene	µg/L	0.2	0.20	<0.20	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20	<0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	3.2	0.20	<0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits				
Chrysene-d12	%	50-140		80	73	65

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Ground Water - All Types of Property Uses
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9160121-9160169 Note: The result for Benzo(b)Flouranthene is the total of the Benzo(b)&(j)Flouranthene isomers because the isomers co-elute on the GC column.

Certified By: NPopnikolof

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 18T325447

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Samuel Oyedokun

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Water)

DATE RECEIVED: 2018-04-02

DATE REPORTED: 2018-04-10

		SAMPLE DESCRIPTION:		MW2	MW4
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2018-04-02	2018-04-02
Parameter	Unit	G / S	RDL	9160144	9160146
F1 (C6 to C10)	µg/L		25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	420	25	<25	<25
F2 (C10 to C16)	µg/L	150	100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	130
F4 (C34 to C50)	µg/L	500	100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA	NA
Surrogate	Unit	Acceptable Limits			
Terphenyl	%	60-140		80	92

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Ground Water - All Types of Property Uses
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9160144-9160146 The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.

Certified By: N Popnikolof

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 18T325447

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Samuel Oyedokun

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)

DATE RECEIVED: 2018-04-02

DATE REPORTED: 2018-04-10

		SAMPLE DESCRIPTION:		MW1	MW5	Dup1
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2018-04-02	2018-04-02	2018-04-02
Parameter	Unit	G / S	RDL	9160121	9160168	9160169
F1 (C6 to C10)	µg/L		25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	420	25	<25	<25	<25
F2 (C10 to C16)	µg/L	150	100	<100	<100	<100
F2 (C10 to C16) minus Naphthalene	µg/L		100	<100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	<100	<100
F3 (C16 to C34) minus PAHs	µg/L		100	<100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA	NA	NA
Surrogate	Unit	Acceptable Limits				
Terphenyl	%	60-140		82	80	79

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Ground Water - All Types of Property Uses
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9160121-9160169 The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX and PAH contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 18T325447

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Samuel Oyedokun

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-04-02

DATE REPORTED: 2018-04-10

		SAMPLE DESCRIPTION:		MW1	MW2	MW4	MW5	Dup1	Trip Blank
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2018-04-02	2018-04-02	2018-04-02	2018-04-02	2018-04-02	2018-04-02
Parameter	Unit	G / S	RDL	9160121	9160144	9160146	9160168	9160169	9160185
Dichlorodifluoromethane	µg/L	590	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	0.5	0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Bromomethane	µg/L	0.89	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	150	0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Acetone	µg/L	2700	1.0	<1.0	<1.0	15	<1.0	<1.0	<1.0
1,1-Dichloroethylene	µg/L	1.6	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Methylene Chloride	µg/L	50	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl tert-butyl ether	µg/L	15	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Methyl Ethyl Ketone	µg/L	1800	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	µg/L	2.4	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	200	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Carbon Tetrachloride	µg/L	0.79	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzene	µg/L	5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	µg/L	5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	µg/L	16	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	µg/L	4.7	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	22	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	25	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Ethylene Dibromide	µg/L	0.2	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chlorobenzene	µg/L	30	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Ethylbenzene	µg/L	2.4	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

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Certificate of Analysis

AGAT WORK ORDER: 18T325447

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Samuel Oyedokun

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-04-02

DATE REPORTED: 2018-04-10

		SAMPLE DESCRIPTION:		MW1	MW2	MW4	MW5	Dup1	Trip Blank
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2018-04-02	2018-04-02	2018-04-02	2018-04-02	2018-04-02	2018-04-02
Parameter	Unit	G / S	RDL	9160121	9160144	9160146	9160168	9160169	9160185
Bromoform	µg/L	25	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Styrene	µg/L	5.4	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	1	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	59	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	1	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	3	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichloropropene	µg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Xylene Mixture	µg/L	300	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
n-Hexane	µg/L	51	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits							
Toluene-d8	% Recovery	50-140		115	99	102	106	100	111
4-Bromofluorobenzene	% Recovery	50-140		74	86	78	80	89	87

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Ground Water - All Types of Property Uses
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 18T325447

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Samuel Oyedokun

SAMPLING SITE:

SAMPLED BY:

Total PCBs (water)

DATE RECEIVED: 2018-04-02

DATE REPORTED: 2018-04-10

		SAMPLE DESCRIPTION:		MW2	Dup2
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2018-04-02	2018-04-02
Parameter	Unit	G / S	RDL	9160144	9160176
PCBs	µg/L	0.2	0.1	<0.1	<0.1
Surrogate	Unit	Acceptable Limits			
Decachlorobiphenyl	%	60-130		74	61

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Ground Water - All Types of Property Uses
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Certificate of Analysis

AGAT WORK ORDER: 18T325447

PROJECT: 1-18-0012-42

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Samuel Oyedokun

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-04-02

DATE REPORTED: 2018-04-10

		SAMPLE DESCRIPTION:		MW1		MW2		MW5		Dup1
		SAMPLE TYPE:		Water		Water		Water		Water
		DATE SAMPLED:		2018-04-02		2018-04-02		2018-04-02		2018-04-02
Parameter	Unit	G / S	RDL	9160121	RDL	9160144	RDL	9160168	RDL	9160169
Antimony	µg/L	6	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0
Arsenic	µg/L	25	1.0	2.3	1.0	3.0	1.0	2.7	1.0	2.7
Barium	µg/L	1000	2.0	216	2.0	179	2.0	203	2.0	231
Beryllium	µg/L	4	0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5	<0.5
Boron	µg/L	5000	10.0	1500	10.0	1950	10.0	192	10.0	1580
Cadmium	µg/L	2.1	0.2	<0.2	0.2	<0.2	0.2	<0.2	0.2	<0.2
Chromium	µg/L	50	2.0	<2.0	2.0	<2.0	2.0	3.9	2.0	<2.0
Cobalt	µg/L	3.8	0.5	<0.5	0.5	<0.5	0.5	0.9	0.5	<0.5
Copper	µg/L	69	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0
Lead	µg/L	10	0.5	<0.5	0.5	<0.5	0.5	<0.5	0.5	<0.5
Molybdenum	µg/L	70	0.5	7.9	0.5	8.6	0.5	4.3	0.5	8.5
Nickel	µg/L	100	1.0	<1.0	1.0	<1.0	1.0	<1.0	1.0	<1.0
Selenium	µg/L	10	1.0	<1.0	1.0	1.0	1.0	<1.0	1.0	1.0
Silver	µg/L	1.2	0.2	<0.2	0.2	<0.2	0.2	<0.2	0.2	<0.2
Thallium	µg/L	2	0.3	<0.3	0.3	<0.3	0.3	<0.3	0.3	<0.3
Uranium	µg/L	20	0.5	<0.5	0.5	1.5	0.5	0.6	0.5	<0.5
Vanadium	µg/L	6.2	0.4	0.4	0.4	1.3	0.4	0.9	0.4	<0.4
Zinc	µg/L	890	5.0	<5.0	5.0	<5.0	5.0	<5.0	5.0	<5.0
Mercury	µg/L	0.29	0.02	<0.02	0.02	<0.02	0.02	<0.02	0.02	<0.02
Chromium VI	µg/L	25	5	<5	5	<5	5	<5	5	<5
Cyanide	µg/L	52	2	<2	2	<2	2	<2	2	<2
Sodium	µg/L	490000	1000	335000	2500	294000	1000	139000	1000	350000
Chloride	µg/L	790000	1000	445000	1000	657000	500	277000	1000	444000
Electrical Conductivity	uS/cm		2	1790	2	2630	2	1720	2	1780
pH	pH Units		NA	7.93	NA	7.73	NA	7.54	NA	7.94

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition - Ground Water - All Types of Property Uses
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9160121-9160169 Elevated RDLs indicate the degree of sample dilutions prior to analyses to keep analytes within the calibration range, reduce matrix interference and to avoid contaminating the instrument.

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Quality Assurance

CLIENT NAME: TERRAPROBE INC.
PROJECT: 1-18-0012-42
SAMPLING SITE:

AGAT WORK ORDER: 18T325447
ATTENTION TO: Samuel Oyedokun
SAMPLED BY:

Trace Organics Analysis

RPT Date: Apr 10, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PAHs (Water)															
Naphthalene		TW	< 0.20	< 0.20	NA	< 0.20	101%	50%	140%	114%	50%	140%	114%	50%	140%
Acenaphthylene		TW	< 0.20	< 0.20	NA	< 0.20	111%	50%	140%	114%	50%	140%	116%	50%	140%
Acenaphthene		TW	< 0.20	< 0.20	NA	< 0.20	108%	50%	140%	119%	50%	140%	115%	50%	140%
Fluorene		TW	< 0.20	< 0.20	NA	< 0.20	112%	50%	140%	117%	50%	140%	113%	50%	140%
Phenanthrene		TW	< 0.10	< 0.10	NA	< 0.10	117%	50%	140%	119%	50%	140%	110%	50%	140%
Anthracene		TW	< 0.10	< 0.10	NA	< 0.10	111%	50%	140%	122%	50%	140%	115%	50%	140%
Fluoranthene		TW	< 0.20	< 0.20	NA	< 0.20	116%	50%	140%	120%	50%	140%	107%	50%	140%
Pyrene		TW	< 0.20	< 0.20	NA	< 0.20	114%	50%	140%	122%	50%	140%	117%	50%	140%
Benz(a)anthracene		TW	< 0.20	< 0.20	NA	< 0.20	108%	50%	140%	123%	50%	140%	122%	50%	140%
Chrysene		TW	< 0.10	< 0.10	NA	< 0.10	107%	50%	140%	116%	50%	140%	122%	50%	140%
Benzo(b)fluoranthene		TW	< 0.10	< 0.10	NA	< 0.10	112%	50%	140%	118%	50%	140%	116%	50%	140%
Benzo(k)fluoranthene		TW	< 0.10	< 0.10	NA	< 0.10	117%	50%	140%	105%	50%	140%	111%	50%	140%
Benzo(a)pyrene		TW	< 0.01	< 0.01	NA	< 0.01	108%	50%	140%	119%	50%	140%	107%	50%	140%
Indeno(1,2,3-cd)pyrene		TW	< 0.20	< 0.20	NA	< 0.20	102%	50%	140%	119%	50%	140%	106%	50%	140%
Dibenz(a,h)anthracene		TW	< 0.20	< 0.20	NA	< 0.20	105%	50%	140%	122%	50%	140%	103%	50%	140%
Benzo(g,h,i)perylene		TW	< 0.20	< 0.20	NA	< 0.20	95%	50%	140%	111%	50%	140%	96%	50%	140%
2-and 1-methyl Naphthalene		TW	< 0.20	< 0.20	NA	< 0.20	93%	50%	140%	101%	50%	140%	103%	50%	140%
Total PCBs (water)															
PCBs		TW	< 0.1	< 0.1	NA	< 0.1	114%	60%	140%	118%	60%	140%	101%	60%	140%
O. Reg. 153(511) - VOCs (Water)															
Dichlorodifluoromethane	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	71%	50%	140%	80%	50%	140%	70%	50%	140%
Vinyl Chloride	9160146	9160146	< 0.17	< 0.17	NA	< 0.17	103%	50%	140%	98%	50%	140%	76%	50%	140%
Bromomethane	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	102%	50%	140%	124%	50%	140%	99%	50%	140%
Trichlorofluoromethane	9160146	9160146	< 0.40	< 0.40	NA	< 0.40	84%	50%	140%	110%	50%	140%	74%	50%	140%
Acetone	9160146	9160146	15	16	6.5%	< 1.0	109%	50%	140%	107%	50%	140%	108%	50%	140%
1,1-Dichloroethylene	9160146	9160146	< 0.30	< 0.30	NA	< 0.30	99%	50%	140%	119%	60%	130%	100%	50%	140%
Methylene Chloride	9160146	9160146	< 0.30	< 0.30	NA	< 0.30	109%	50%	140%	117%	60%	130%	102%	50%	140%
trans- 1,2-Dichloroethylene	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	106%	50%	140%	89%	60%	130%	108%	50%	140%
Methyl tert-butyl ether	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	75%	50%	140%	103%	60%	130%	97%	50%	140%
1,1-Dichloroethane	9160146	9160146	< 0.30	< 0.30	NA	< 0.30	106%	50%	140%	87%	60%	130%	118%	50%	140%
Methyl Ethyl Ketone	9160146	9160146	< 1.0	< 1.0	NA	< 1.0	87%	50%	140%	112%	50%	140%	114%	50%	140%
cis- 1,2-Dichloroethylene	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	119%	50%	140%	107%	60%	130%	113%	50%	140%
Chloroform	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	116%	50%	140%	108%	60%	130%	93%	50%	140%
1,2-Dichloroethane	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	112%	50%	140%	114%	60%	130%	107%	50%	140%
1,1,1-Trichloroethane	9160146	9160146	< 0.30	< 0.30	NA	< 0.30	105%	50%	140%	107%	60%	130%	103%	50%	140%
Carbon Tetrachloride	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	82%	50%	140%	83%	60%	130%	117%	50%	140%
Benzene	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	99%	50%	140%	108%	60%	130%	110%	50%	140%
1,2-Dichloropropane	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	111%	50%	140%	118%	60%	130%	104%	50%	140%

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Quality Assurance

CLIENT NAME: TERRAPROBE INC.
AGAT WORK ORDER: 18T325447
PROJECT: 1-18-0012-42
ATTENTION TO: Samuel Oyedokun
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Apr 10, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Trichloroethylene	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	115%	50%	140%	112%	60%	130%	94%	50%	140%
Bromodichloromethane	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	110%	50%	140%	118%	60%	130%	111%	50%	140%
Methyl Isobutyl Ketone	9160146	9160146	< 1.0	< 1.0	NA	< 1.0	94%	50%	140%	106%	50%	140%	100%	50%	140%
1,1,2-Trichloroethane	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	107%	50%	140%	111%	60%	130%	113%	50%	140%
Toluene	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	103%	50%	140%	120%	60%	130%	115%	50%	140%
Dibromochloromethane	9160146	9160146	< 0.10	< 0.10	NA	< 0.10	108%	50%	140%	119%	60%	130%	106%	50%	140%
Ethylene Dibromide	9160146	9160146	< 0.10	< 0.10	NA	< 0.10	114%	50%	140%	113%	60%	130%	118%	50%	140%
Tetrachloroethylene	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	116%	50%	140%	103%	60%	130%	110%	50%	140%
1,1,1,2-Tetrachloroethane	9160146	9160146	< 0.10	< 0.10	NA	< 0.10	80%	50%	140%	106%	60%	130%	100%	50%	140%
Chlorobenzene	9160146	9160146	< 0.10	< 0.10	NA	< 0.10	103%	50%	140%	97%	60%	130%	111%	50%	140%
Ethylbenzene	9160146	9160146	< 0.10	< 0.10	NA	< 0.10	116%	50%	140%	115%	60%	130%	110%	50%	140%
m & p-Xylene	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	120%	50%	140%	101%	60%	130%	102%	50%	140%
Bromoform	9160146	9160146	< 0.10	< 0.10	NA	< 0.10	115%	50%	140%	112%	60%	130%	108%	50%	140%
Styrene	9160146	9160146	< 0.10	< 0.10	NA	< 0.10	100%	50%	140%	120%	60%	130%	99%	50%	140%
1,1,2,2-Tetrachloroethane	9160146	9160146	< 0.10	< 0.10	NA	< 0.10	90%	50%	140%	113%	60%	130%	89%	50%	140%
o-Xylene	9160146	9160146	< 0.10	< 0.10	NA	< 0.10	120%	50%	140%	117%	60%	130%	99%	50%	140%
1,3-Dichlorobenzene	9160146	9160146	< 0.10	< 0.10	NA	< 0.10	81%	50%	140%	119%	60%	130%	109%	50%	140%
1,4-Dichlorobenzene	9160146	9160146	< 0.10	< 0.10	NA	< 0.10	110%	50%	140%	84%	60%	130%	104%	50%	140%
1,2-Dichlorobenzene	9160146	9160146	< 0.10	< 0.10	NA	< 0.10	94%	50%	140%	96%	60%	130%	104%	50%	140%
1,3-Dichloropropene	9160146	9160146	< 0.30	< 0.30	NA	< 0.30	117%	50%	140%	115%	60%	130%	108%	50%	140%
n-Hexane	9160146	9160146	< 0.20	< 0.20	NA	< 0.20	114%	50%	140%	119%	60%	130%	88%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)															
F1 (C6 to C10)	9160146	9160146	< 25	< 25	NA	< 25	96%	60%	140%	92%	60%	140%	94%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	96%	60%	140%	74%	60%	140%	70%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	96%	60%	140%	115%	60%	140%	76%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	93%	60%	140%	95%	60%	140%	101%	60%	140%

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

Certified By: N Popnikolof

AGAT Laboratories

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Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T325447

PROJECT: 1-18-0012-42

ATTENTION TO: Samuel Oyedokun

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: Apr 10, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Water)															
Antimony	9155037		<1.0	<1.0	NA	< 1.0	99%	70%	130%	98%	80%	120%	103%	70%	130%
Arsenic	9155037		2.7	2.6	NA	< 1.0	102%	70%	130%	104%	80%	120%	107%	70%	130%
Barium	9155037		68.8	65.6	4.8%	< 2.0	98%	70%	130%	100%	80%	120%	103%	70%	130%
Beryllium	9155037		<0.5	<0.5	NA	< 0.5	94%	70%	130%	99%	80%	120%	107%	70%	130%
Boron	9155037		896	940	4.8%	< 10.0	101%	70%	130%	98%	80%	120%	116%	70%	130%
Cadmium	9155037		<0.2	<0.2	NA	< 0.2	101%	70%	130%	107%	80%	120%	108%	70%	130%
Chromium	9155037		<2.0	<2.0	NA	< 2.0	100%	70%	130%	101%	80%	120%	101%	70%	130%
Cobalt	9155037		<0.5	<0.5	NA	< 0.5	100%	70%	130%	105%	80%	120%	105%	70%	130%
Copper	9155037		<1.0	<1.0	NA	< 1.0	102%	70%	130%	106%	80%	120%	101%	70%	130%
Lead	9155037		<0.5	<0.5	NA	< 0.5	99%	70%	130%	105%	80%	120%	99%	70%	130%
Molybdenum	9155037		12.6	12.3	2.4%	< 0.5	98%	70%	130%	102%	80%	120%	108%	70%	130%
Nickel	9155037		<1.0	<1.0	NA	< 1.0	102%	70%	130%	104%	80%	120%	103%	70%	130%
Selenium	9155037		<1.0	<1.0	NA	< 1.0	105%	70%	130%	108%	80%	120%	114%	70%	130%
Silver	9155037		<0.2	<0.2	NA	< 0.2	94%	70%	130%	107%	80%	120%	101%	70%	130%
Thallium	9155037		<0.3	<0.3	NA	< 0.3	101%	70%	130%	106%	80%	120%	101%	70%	130%
Uranium	9155037		<0.5	<0.5	NA	< 0.5	98%	70%	130%	106%	80%	120%	103%	70%	130%
Vanadium	9155037		<0.4	<0.4	NA	< 0.4	95%	70%	130%	98%	80%	120%	103%	70%	130%
Zinc	9155037		<5.0	<5.0	NA	< 5.0	106%	70%	130%	109%	80%	120%	110%	70%	130%
Mercury	9160121	9160121	<0.02	<0.02	NA	< 0.02	104%	70%	130%	100%	80%	120%	96%	70%	130%
Chromium VI	9158966		<5	<5	NA	< 5	103%	70%	130%	103%	80%	120%	101%	70%	130%
Cyanide	9158966		<2	<2	NA	< 2	103%	70%	130%	107%	80%	120%	101%	70%	130%
Sodium	9160048		29900	30000	0.3%	< 500	98%	70%	130%	98%	80%	120%	99%	70%	130%
Chloride	9160144	9160144	657000	640000	2.6%	< 100	92%	70%	130%	105%	70%	130%	103%	70%	130%
Electrical Conductivity	9160758		2330	2330	0.0%	< 2	101%	90%	110%						
pH	9160758		7.48	7.54	0.8%	NA	101%	90%	110%						

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the Reporting Limit (RL), the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Certified By:

AGAT Laboratories

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Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T325447

PROJECT: 1-18-0012-42

ATTENTION TO: Samuel Oyedokun

SAMPLING SITE:

SAMPLED BY:

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

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http://www.agatlabs.com

Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T325447

PROJECT: 1-18-0012-42

ATTENTION TO: Samuel Oyedokun

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Bromodichloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Styrene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
PCBs	ORG-91-5112	EPA SW-846 3510 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5112	EPA SW-846 3510 & 8082	GC/ECD

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Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 18T325447

PROJECT: 1-18-0012-42

ATTENTION TO: Samuel Oyedokun

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Antimony	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Barium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Boron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Selenium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Silver	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Thallium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Uranium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Mercury	MET-93-6100	EPA SW-846 7470 & 245.1	CVAAS
Chromium VI	INOR-93-6034	SM 3500-Cr B	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE METHOD CN- 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Sodium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Chloride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Electrical Conductivity	INOR-93-6000	SM 2510 B	PC TITRATE
pH	INOR-93-6000	SM 4500-H+ B	PC TITRATE

AGAT Laboratories

2Lg

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Chain of Custody Record

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

Laboratory Use Only

Work Order #: 18T325447

Cooler Quantity:

Arrival Temperatures: 7 | 7.3 | 6.9
6.9 | 7 | 7.1

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes: on ice

Report Information:

Company: Terraprobe
Contact: Alyssa Johnson
Address: 11 Didsbury Cres
Brampton ON
Phone: 905-796-2650 Fax:
Reports to be sent to:
1. Email: ajohnson@terraprobe.ca
2. Email: Sayedkun@terraprobe.ca

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 8 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (Check One)
☐ Coarse
☒ Fine

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

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

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

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

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

OR Date Required (Rush Surcharges May Apply):

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

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

Project Information:

Project: 18-0012-42
Site Location: Mississauga
Sampled By: AJ
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	O. Reg 153: All Metals ☐ 153 Metals (excl. Hydrides)	O. Reg 153: Hydride Metals	O. Reg 153: ORPs: ☐ B-HWS ☐ Cr ☐ CN ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	O. Reg 153: Full Metals Scan	O. Reg 153: Regulation/Custom Metals	O. Reg 153: Nutrients: ☐ TP ☐ NH_4 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	O. Reg 153: Volatiles: ☒ VOC ☐ BTEX ☐ THM	O. Reg 153: CCME Fractions 1 to 4	O. Reg 153: ABNs	O. Reg 153: PAHs	O. Reg 153: PCBs: ☒ Total ☐ Aroclors	O. Reg 153: Organochlorine Pesticides	O. Reg 153: TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 153: Sewer Use
MW1	Apr 2/18	PM	13	GW		Y	X							X	X		X	X			
MW2	↓	↓	13	↓		Y	X							X	X			X			
MW4			7											X	X						
MW5			13			Y	X							X	X		X				
DUP1			13			Y	X							X	X		X				
DUP2	↓	↓	1	↓														X			
Trip Blank	↓	↓	3	↓																	

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Alyssa Johnson alyssajohnson	Apr 2/18	3:40pm	Sima	18/4/2	3:40
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

Page 1 of 1

Nº: T 068487

Document ID: DIV-78-1511.013

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

Date Issued: September 20, 2016