



Terraprobe

*Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing*

**PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 6, PART 1, PLAN 43R-20293,
BLOCK 4, 5 & 6, CALEDON, ONTARIO**

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1.0 EXECUTIVE SUMMARY

Terraprobe Inc. (Terraprobe) was retained by Shacca Caledon Holdings c/o Glen Schnarr & Associates Inc. to complete a Phase Two Environmental Site Assessment (ESA) of the Property identified as Part of Lot 4, Concession 6, Part 1, Plan 43R-20293, Block 4, 5 and 6, Caledon, Ontario (Property). The Property is located approximately 30 m to the west of the northwest corner of the intersection between Walker Road West and Airport Road in the Town of Caledon, Ontario. Access to the Property is via Airport Road.

The Property is irregular in shape, and covers an area of approximately 2.5 ha (approximately 6.1 acres). The Property is currently an undeveloped vacant land comprised of wetland and wooded areas. The surrounding area is predominantly used for residential purposes. The Property is currently undeveloped/vacant land and considered to be "Agricultural or Other Use" as per Ontario Regulation 153/04 (O.Reg. 153/04).

The Property is to be conveyed to the Town of Caledon (the "Town") as part of the proposed development. The Town of Caledon has identified the requirements for a Phase One and Phase Two ESA completed in accordance with O. Reg. 153/04, as amended, as a condition for site plan approval process.

Terraprobe conducted a Phase One ESA in December 2019. The Phase One ESAs identified an Area of Potential Environmental Concern (APEC) at the Property and recommended to conduct a Phase Two ESA to investigate the identified APEC.

Areas of Potential Environmental Concern

The identified areas of potential environmental concern (APEC) and potential contaminants of concern (PCOC) are summarized below.

APEC	Location of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC-1	Southeastern Portion of the Property	PCA # 28 – Gasoline and Associated Products Storage in Fixed Tanks	Off-Site (PCA1)	Petroleum Hydrocarbons (PHCs) + Benzene, Toluene,	Soil & ground water

This Phase Two ESA was conducted in accordance with the Phase Two ESA standards as defined by Ontario Regulation 153/04, as amended (O.Reg. 153/04), and in accordance with generally accepted professional practices.

The scope of work for the Phase Two ESA was developed based on the results of the previous Phase One ESA and Phase Two ESA completed at the larger property by Terraprobe in 2017 and the Phase One ESA

completed in August 2019. A total of three (3) boreholes were advanced on the Property and all the boreholes were also installed with monitoring wells.

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

- The general stratigraphy at the Property, as observed in the boreholes, consists of a surficial layer of topsoil underlain by native deposits of silty sand to sand and silt, which extended to the full depth of investigation.
- The depth to ground water in monitoring wells installed on the Property ranged between approximately 3.4 m to 3.8 m below grade. Based on the groundwater elevation contours, the direction of ground water flow is towards the east/southeast.
- The applicable Site Condition Standards (SCS) are the Ontario Ministry of the Environment, Conservation and Parks Standards identified as Table 1 Full Depth Background Site Condition Standards for Residential/Parkland/Institutional land use.
- The parameters analysed for soil samples included: petroleum hydrocarbons (fraction F1 to F4), BTEX compounds, and pH.
- All analytical soil sample results met the MECP Table 1 Site Condition Standards (SCS) for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use for the analysed parameters.
- The ground water samples were collected from three (3) monitoring wells and analysed for PHCs and BTEX. The results of the ground water samples met the applicable Table 1 Standards for all analysed parameters.

Based on the results of the Phase Two ESA, there are no soils and ground water samples with contaminants found at levels exceeding the SCS, therefore, no contaminants are found in, at or under the Property. Based on the findings of the Phase Two ESA, the environmental status of the Property is considered to meet the applicable MECP Table 1 SCS. A Record of Site Condition can be filed for the Property at this time.

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2.0 INTRODUCTION

Terraprobe Inc. (Terraprobe) was retained by Shacca Caledon Holdings c/o Glen Schnarr & Associates Inc. to complete a Phase Two Environmental Site Assessment (ESA) of the Property identified as Part of Lot 4, Concession 6, Part 1, Plan 43R-20293, Block 4, 5 and 6, Caledon, Ontario (Property). The Property is located approximately 30 m to the west of the northwest corner of the intersection between Walker Road West and Airport Road in the Town of Caledon, Ontario. Access to the Property is via Airport Road.

The Property is irregular in shape, and covers an area of approximately 2.5 ha (approximately 6.1 acres). The Property is currently an undeveloped vacant land comprised of wetland and wooded areas. The surrounding area is predominantly used for residential purposes. The Property is currently undeveloped/vacant land and considered to be "Agricultural or Other Use" as per Ontario Regulation 153/04 (O.Reg. 153/04).

The Property is to be conveyed to the Town of Caledon (the "Town") as part of the proposed development. The Town of Caledon has identified the requirements for a Phase One and Phase Two ESA completed in accordance with O. Reg. 153/04, as amended, as a condition for site plan approval process.

Terraprobe conducted a Phase One ESA in August 2019. The Phase One ESAs identified an Area of Potential Environmental Concern (APEC) at the Property and recommended to conduct a Phase Two ESA to investigate the identified APEC.

The Phase Two ESA was conducted to assess the soil and ground water quality on the Property in the area of potential environmental concern and to determine what, if any, requirements exist for further investigation and/or remediation.

2.1 Site Description

The Property is currently an undeveloped vacant land comprised of wetland and wooded areas. The surrounding area is predominantly used for residential purposes. The location of the Property is shown in Figure 1. General site features are presented on the Site and Borehole/Monitoring Well Location Plan (Figure 3).

2.2 Phase Two Property Information

The Property information is provided in the following Table.

Municipal Address	NA
Legal Description	Part Lot 4 Con 6, EHS, Part 1, Plan 43R-20293, Block 4, 5 & 6, Town of Caledon, Regional Municipality of Peel
PIN	14289-0188 (LT) and 14289-0186 (LT)
Zoning	Rural Residential (A2)
Property Owner Information	Shacca Caledon Holdings 210 Drumline Circle, Unit #1, Concord, Ontario Contact: Ugo Gulia

2.3 Current and Proposed Future Uses

The Property is currently an undeveloped vacant land comprised of wetland and wooded areas. The Property is to be conveyed to the Town. The Town had identified the requirement for a Phase One Environmental Site Assessment (ESA) to be completed in accordance with Ontario Regulation 153/04, as amended, as a condition for the site plan approval process.

2.4 Applicable Site Condition Standard

The applicable Site Condition Standards (SCS) for the Subject Property were considered to be those contained in Table 1 of the April 15, 2011 Ontario Ministry of Environment, Conservation and Parks (MECP) “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*” for Full Depth Background Site Condition Standards for Residential/Parkland/Institutional/Industrial/Commercial/Community land use. This is considered to be the applicable Standard for the Property based on the following reasons:

- The Property is intended to be conveyed to the Town of Caledon as parkland.
- The Property is located within a rural area, where domestic water use may be supplied from local groundwater
- The Property is not located within 30 m of a surface water body.
- Bedrock across the Property is found at depths of greater than 2 m.
- Soil at the property was found to be coarse textured based on a review of the soil samples collected from the boreholes and the results of grain size analyses of representative soil samples on the Property.
- The soil pH was between 6 and 9 for surficial soils, and between 5 and 11 for subsurface soils.
- TRCA classified the western portion of the Property as a Locally Significant Wetland associated with the Caledon East Wetland Complex of the Humber River Watershed.
- Ministry of the Natural Resources (MNRF) Heritage information database classifies the Property as a Non-Provincially Significant Wetland.

3.0 BACKGROUND INFORMATION

3.1 Physical Setting

The Property consists of gently rolling land with a maximum topographic relief of approximately 7 m. The elevation of the ground surface at the Property varies from 298 to 291 masl and slopes gently to the east-southeast towards Innis Lake & Widget Lake.

The Property is located within the watershed of the Humber River. The nearest surface water body is Innis Lake and Widget Lake, which are located approximately 1.9 km southeast and 2.1 km east of the Property, respectively. Groundwater is expected to follow the local topography and flow towards the east-southeast.

There are no permanent water courses found at the Property. Based on communication with Nicholas Carscone from the Toronto Region and Conservation Authority (TRCA), the Property is classified as a Provincially Significant Wetland (PSW) by the TRCA. However, the Ministry of the Natural Resources (MNRF) Heritage information database classifies the Property as a Non-Provincially Significant Wetland. All surface water runoff flows towards the swale in the east, which runs along Airport Road, and ultimately discharges into the municipal sewer system.

The Property is situated within a physiographic region of Ontario known as the Niagara Escarpment. The overburden geology of Property is comprised of glaciofluvial ice contact deposits consisting of sand & gravel, with minor amounts of silt, clay and till. The bedrock on the Site is comprised of shale, limestone, dolostone and siltstone, part of the Queenston Formation (55a). Based on the Ministry of the Environment, Conservation and Parks (MECP) water well records, the bedrock is approximately 24 m below the ground surface.

3.2 Past Investigations

Previous investigations for the Property, which were completed by Terraprobe, are summarized below:

Report Title	Phase One Environmental Site Assessment 16114 Airport Road, Caledon, Ontario
Report Date	January 5, 2017
Prepared By	Terraprobe Inc. (Report Authors- Shama M. Qureshi, P.Eng., P.Geo., QP _{RA} , Muhammad Shahid, P. Geo, QP _{ESA} , and Ahmad Sarwar, B.Sc., G.I.T.)
Prepared For	Shacca Caledon Holdings c/o Glen Schnarr & Associates Inc.

- A Phase One ESA was completed for a larger property including the current Block 4, 5 & 6 Property as per the requirement of O.Reg. 153/04. The Phase One Environmental Site Assessment (ESA) identified the following Areas of Potential Environmental Concern (APEC) on the Phase One Property:

APEC	Location of APEC on the property	Details	Potential Contaminants of Concern (PCoCs)	Media Potentially Impacted
APEC 1	Eastern Portion of the property	PCA # 30 - Importation of Fill Material of Unknown Quality	Metals & Inorganics	Soil
APEC 2	South Central Portion of property	Other 1 - Ontario Spills	Petroleum Hydrocarbons (PHCs) + BTEX	Soil & Ground Water

- A Phase Two ESA would be required to investigate the APECs that have been identified on the property. A Record of Site Condition (RSC) cannot be filed, if required, based on the Phase One ESA alone.

Report Title	Phase Two Environmental Site Assessment 16114 Airport Road, Caledon, Ontario
Report Date	February 8, 2017
Prepared By	Terraprobe Inc. (Report Authors- Shama M. Qureshi, P.Eng., P.Geo., QP _{RA} , Muhammad Shahid, P. Geo, QP _{ESA} , and Ahmad Sarwar, B.Sc., G.I.T.)
Prepared For	Shacca Caledon Holdings c/o Glen Schnarr & Associates Inc.

- The Phase Two Environmental Site Assessment (ESA) was completed for a larger property including the current Block 4, 5 & 6 Property as per the requirement of O.Reg. 153/04. The Phase Two ESA was conducted to investigate the two APECs identified the Property during the Phase One ESA.
- The investigation consisted of drilling of twenty one (21) boreholes and installation of nine (9) monitoring wells on the Property. The soil stratigraphy generally consisted of surficial layer of topsoil underlain by silty sand to sandy silt earth fill, which is underlain by native deposits of sand, sandy silt to silt and sand.
- The ground water elevation contours indicated that the direction of ground water flow is towards east/southeast.
- The applicable Site Condition Standards (SCS) are the Ontario Ministry of the Environment, Conservation and Parks (MECP) Standards identified as Table 2 Standards for Residential/Parkland/Institutional Property Use in a potable ground water condition.
- The parameters analysed for soil samples included: petroleum hydrocarbons (fraction F1 to F4), BTEX compounds, metals and inorganics and pH.
- All analytical soil sample results met the MECP Table 2 (and Table 1) Site Condition Standards (SCS) for Residential Property Use for the analysed parameters.
- The ground water samples were collected from three (3) monitoring wells and analysed for PHCs and BTEX. The results of the ground water samples met the applicable Table 2 (and Table 1) Standards for all analysed parameters.
- Based on the findings of the Phase Two ESA, the environmental status of the Property was considered to meet the applicable MECP Table 2 SCS.

Report Title	Phase One Environmental Site Assessment Part of Lot 4, Concession 6, Part 1, Plan 43R-20293, Block 4, 5 & 6, Caledon, Ontario
Report Date	August 30, 2019
Prepared By	Terraprobe Inc. (Report Authors- Muhammad Shahid, P. Geo, QP _{ESA} , and Jessie Hui Chung Wu, M. Env. Sc.)
Prepared For	Shacca Caledon Holdings c/o Glen Schnarr & Associates Inc.

- A Phase One Environmental Site Assessment (ESA) was completed for Block 4, 5 and 6 as per the requirement of O.Reg. 153/04. The following Potentially Contaminating Activity (PCA) was identified within the Phase One Study Area (Study Area). No PCAs were identified on the Property.
- Off-site PCA - #28 - Gasoline and Associated Products Storage in Fixed Tanks. An above ground storage tank was observed adjacent to the southeast of the Property at 7 Walker Road.
- The off-site PCA cause an Area of potential Environmental Concern (APEC) on the Property that need to be investigated through a Phase Two ESA prior to filing of a Record of Site Condition (RSC).

4.0 SCOPE OF THE INVESTIGATION

4.1 Overview of Site Investigation

The scope of the Phase Two ESA was determined to assess the soil and ground water quality at the Property, based on the findings of the Phase One ESA completed at the Property.

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

- Drilling of a total of three (3) boreholes on the Property. The drilling was carried out in conjunction with the subsurface investigations conducted on a larger property which included the Phase Two Property.
- Installation of a ground water monitoring well in three (3) boreholes to investigate the ground water condition at the Property.
- Analysed ten (10) selected soil samples including quality control/quality assurance (QC/QA), petroleum hydrocarbons (PHCs F1 to F4), BTEX, and pH.
- Submission of four (4) ground water samples from three (3) installed monitoring wells, including QC/QA to AGAT Laboratories for chemical analysis of PHCs (F1-F4), benzene, toluene, ethylbenzene and xylene (BTEX).
- Surveying the monitoring wells and measuring the ground water levels for identification of the ground water flow direction.
- Reviewing the analytical results and comparing with the applicable MECP Standards.
- Summarizing the result of investigation in a report format.

4.2 Media Investigated

Sampling was conducted for soil and ground water on the subject Property. No surface water was present on the Property; therefore, surface water or sediment sampling was not conducted. Soil sampling was conducted during the drilling program by Percussion Dual Tube Sampler (PDTs). Ground water samples were obtained from the monitoring wells using conventional sampling techniques. The seasonal variation in concentrations was not monitored, as only one set of ground water samples was collected during this investigation. However, no significant variations in concentrations are anticipated.

4.3 Phase One Conceptual Site Model

The Phase One Conceptual Site Model (CSM) 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 CSM from the Phase One ESA is provided in Appendix A. and the PCA and APEC locations are provided in Figure 2.

4.4 Deviations from Sampling and Analysis Plan

No deviations from the sampling and analysis plan were made during the investigation. Sample and Analysis Plan is provided in Appendix B.

5.0 INVESTIGATION METHOD

5.1 General

Public and private utility clearances were undertaken prior to commencing the subsurface investigation. The Phase Two ESA generally 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)

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

5.2 Drilling

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

Borehole	BH4-19, BH5-19 and BH6-19
Date of Work	October 1, 2019
Name of Contractor	Kodiak Drilling
Equipment Used	Geoprobe track mounted, dual tube sampling
Decontamination Measures	New dual tube samplers are used between samples.
Sampling Frequency	Please refer to the borehole logs in Appendix D for the sampling frequency

5.3 Soil Sampling

5.3.1 Equipment Used

- Laboratory supplied sampling containers
- Nitrile gloves
- Cooler with loose ice
- Mini Rae Photo-Ionization Detector (PID)

5.3.2 Geological Description of Soil

Please refer to the borehole logs in Appendix D for the geological description of each soil sample collected.

5.4 Field Screening Measurements

Soil samples were screened in the field using portable hydrocarbon vapour testing equipment and following the procedure outlined in the “*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*” published by the Ontario Ministry of the Environment, Conservation and Parks.

Samples were screened using a Mini Rae Photo-Ionization Detector. The monitor has a range of 0 parts per million (ppm) to 10,000 ppm and an accuracy of +/- 5%. The monitor was calibrated with isobutylene gas prior to field screening as per the calibration procedure outlined by RAE Systems in “*Mini Rae 2000 Portable VOC Monitor Operation and Maintenance Manual, Rev. E*” released May, 2005.

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.

5.5 Ground Water Monitoring Well Installation

Three (3) ground water monitoring wells were installed for ground water monitoring and environmental sampling. All monitoring wells were installed by Kodiak Drilling, a licensed well contractor. This was performed under the full-time supervision of a Terraprobe field technician.

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 the ground surface. The monitoring wells were completed with an above ground stickup pipe.

Upon completion the wells were tagged and filed with the Ontario Ministry of the Environment, Conservation and Parks (MECP). The monitoring well installation details are provided on borehole logs in Appendix D. The monitoring well locations are provided on Figure 3.

5.6 Ground Water Field Measurement of Water Quality Parameters

Field measurement of water quality parameters were measured using a Hanna Instruments portable pH/EC/TDS/Temperature meter (model HI 991301).

Range

- pH 0.00 to 14.00 pH
- EC 0.00 to 20.00 mS/cm
- TDS 0.00 to 10.00 ppt (g/L)

- Temperature 0.0 to 60.0°C

Resolution

- pH 0.01 pH
- EC 0.01 mS/cm
- TDS 0.01 ppt
- Temperature 0.1°C

Accuracy

- pH ± 0.01 pH
- EC $\pm 2\%$ F.S.
- TDS $\pm 2\%$ F.S.
- Temperature $\pm 0.5^\circ\text{C}$

5.7 Ground Water Sampling

The monitoring wells were purged and sampled using inertia pump and tubing. Stabilization of parameters (pH, D.O., conductivity, temperature, etc.) and turbidity of the purged water are monitored before a sample is taken, thus sampling methods facilitate equilibrium with the surrounding formation water and produces samples that are representative of the formation water.

Stabilization was considered to occur when consecutive readings were within the following:

- Conductivity $\pm 3\%$
- Temperature $\pm 3\%$
- pH ± 0.1 unit

5.8 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 Property.

5.9 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 of 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, Conservation and Parks

Ontario Ministry of Environment Drinking Water Testing License Laboratories Limited

5.10 Residue Management Procedures

Soil cuttings from the drilling were placed on the Property. The development and purge water generated during the ground water sampling events was disposed of to the ground surface.

5.11 Elevation Surveying

The elevations of the boreholes on the Property were surveyed by Terraprobe using a Trimble R10 survey system. The Trimble R10 is a differential global positioning system (GPS) which involves the cooperation of two receivers, one that's stationary and another that's roving around making position measurements. The elevation of each borehole on the Property is presented on the borehole logs in Appendix D.

5.12 Quality Assurance and Quality Control Measures

5.12.1 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
pH	250 mL glass jar, Teflon lined lid
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

Ground Water Parameters	Container
BTEX, PHCs (F1), THMs, VOCs;	40–60 mL glass vials (minimum of 2)
PHCs (F2–F4)	2 x 500 mL amber glass bottle, 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 and ground water samples.

Chain of Custody

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

5.12.2 Equipment Cleaning Procedures

All non-dedicated sampling and monitoring equipment must be cleaned following each use. During soil sampling a dedicated sampling device was used for each sample to prevent cross-contamination. During ground water sampling any part of the interface meter which came into contact with the ground water was cleaned between monitoring wells.

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

5.12.3 Field Quality Control Measures

- All non-dedicated sampling and monitoring equipment must be cleaned following each use.
- Where ground water samples are to be analyzed for volatile organic compounds one trip blank sample was submitted for laboratory analysis with each laboratory submission.
- Sufficient field duplicate samples were collected in each medium being sampled, so that at least one (1) field duplicate sample can be submitted for laboratory analysis for every ten (10) samples submitted for laboratory analysis
- Calibration checks on field instruments occurred daily prior to the commencement of sampling

5.12.4 Deviations in the Quality Assurance and Quality Control Measures

No deviations from the quality assurance and quality control measures plan occurred.

6.0 REVIEW AND EVALUATION

6.1 Geology

Detailed geological information for the Property is presented on the borehole logs in Appendix D. The geology at the Property is summarized below.

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

Surficial Materials

A surficial layer of topsoil was only encountered at borehole location BH6-19. The thickness of the topsoil was 200 mm. The topsoil layer was underlain by native soils.

Earth Fill

No earth fill was encountered during the Phase Two investigation.

Native Soils

Native soil deposits were encountered underlying the topsoil at borehole location BH6-19 and at surface in all other borehole locations and extended to full depth of investigation (up to 6.1m below ground surface). The native soils generally consisted of silty sand to sand and silt. The native soils were compact to dense, brown to grey and moist to wet.

Bedrock

Bedrock was not encountered during the Phase Two investigation.

6.1.4 Properties of Aquifers and Aquitards

Native Soil

The native soil consisting of cohesionless deposit of silty sand to sand and silt layer is considered to be an aquifer. Recharge into the aquifer will be primarily through rain fall events and migration from the north adjoining properties. The water elevation taken within each of the three monitoring wells indicated that the silty sand to sand layer is an aquifer.

6.1.5 Rationale for Choice of Aquifers and Aquitards Investigated

The native soils were chosen for investigation. This was chosen of investigation because:

- The likelihood of vertical migration of water from the fill material downward
- Possibility of free ground water present through recharge from larger area and up-gradient tributaries.

6.2 Ground Water Elevations and Flow Direction

6.2.1 Rationale for Monitoring Well Locations and Screen Intervals

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

6.2.2 Results of Interface Probe Measurements

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

6.2.3 Thickness of Free Flowing Product

No free flowing product was encountered on the Property.

6.2.4 Ground Water Elevations

Ground water elevations are presented on Table 3.

6.2.5 Interpreted Direction of Ground Water Flow

Based on the October 9, 2019 readings, the interpreted direction of ground water flow is to the south/southeast. It should be noted that the water levels may not have stabilized. The inferred ground water direction is expected to be southeast towards the Lake Ontario. Ground water flow direction and ground water elevation contours are presented on Figure 4.

6.3 Ground Water Hydraulic Gradients

Horizontal hydraulic gradient was estimated for the water table aquifer based on the ground water elevation contour prepared for the Property to assess the ground water flow direction.

The horizontal hydraulic gradient is calculated using the following equation:

$$i = \Delta h / \Delta s$$

Where,

i = horizontal hydraulic gradient;

Δh (m) = groundwater elevation difference; and,

Δs (m) = separation distance.

Based on the available information, horizontal hydraulic gradient of ground water is estimated at 0.003 in a southeast direction.

It is noted that vertical hydraulic gradients were not evaluated for the Property as a second water bearing unit was not encountered at the depths investigated at the Property.

6.4 Soil Texture

Fine-medium soil texture was not used during the Phase Two ESA. All chemical results were compared to the coarse textured standards.

6.5 Soil Field Screening

There were no visual or olfactory observations that would suggest possible impact to the soil. Field screening for soil vapour did not indicate presence of significant concentration of volatile compounds. The maximum headspace reading recorded during this investigation was less than 4.1 ppm. The headspace readings are shown on the borehole logs in Appendix D.

6.6 Soil Quality

6.6.1 Location and Depth of Samples

Soil sampling was conducted during October 1, 2019. Based on scope of work and the field screening, a total of 8 soil samples were submitted for chemical analysis of petroleum hydrocarbons PHCs (F1-F4), benzene, toluene, ethylbenzene, and xylene (BTEX) parameters. A summary of the soil samples and selected analyses is presented below.

No.	Sample ID	Sample Depth		Parameter Analysed (O.Reg. 153/04 as amended)
		(mbgs)*	(masl)*	
1	BH5-19/CS#1B	0.8 – 1.5	292.3 – 291.6	pH
2	BH6-19/CS#3A and DUP2	3 – 3.8	290.5 – 289.7	pH
3	BH4-19/CS#1A and DUP#1	0 – 0.8	293 – 292.3	PHCs (F1 to F4), BTEX
4	BH4-19/CS#4	3.0 – 3.8	290 – 289.2	PHCs (F1 to F4), BTEX
5	BH5-19/CS#1B	0.8 – 1.5	291.6 – 292.3	PHCs (F1 to F4), BTEX
6	BH5-19/CS#3A	3.0 – 3.8	289.3 – 290	PHCs (F1 to F4), BTEX
7	BH6-19/CS#2A	1.5 – 2.3	291.2 – 292	PHCs (F1 to F4), BTEX
8	BH6-19/CS#2B	2.3 – 3.0	290.5 – 291.2	PHCs (F1 to F4), BTEX

Note: mbgs – metre below ground surface; masl – metre above sea level

6.6.2 Comparison to Applicable Standards (Soil)

Select soil samples were analyzed for the Potential Contaminants of Concern (PCoCs). PCoCs include:

- Selected Other Regulated Parameters (ORPs)
 - pH
- Petroleum Hydrocarbons (PHCs)
- Benzene, Toluene, Ethylbenzene, Xylene (BTEX)

The results of the analysis were compared to the applicable MECP site condition standard for the Property (Table 1 R/P/I/I/C/C). The chemical results indicated that all analyzed parameters in the soil samples met the Table 1 R/P/I/I/C/C standards. The laboratory certificates of analysis are provided in Appendix E, and the results of the soil chemical analysis are provided in Tables 4 to 5.

6.6.3 Contaminants of Concern (Soil)

No Contaminants of Concern (CoCs) are associated with the soil on the Property.

6.6.4 Chemical or Biological Transformations

No chemical or biological transformations are likely to occur on the Property.

6.6.5 Contamination Impact On Other Media

It is unlikely that contamination impact on other media will occur on the Property.

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

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

6.7 Ground Water Quality

6.7.1 Location and Depth of Sample Locations (Ground Water)

Ground water sampling was completed for the three monitoring wells (BH4-19, BH5-19 & BH6-19) on the Property. Ground water samples were analysed for parameters including PHCs and BTEX. The laboratory certificates of analysis are provided in Appendix E.

Sample ID	Screen/Sample Depth		Parameter Analysed (O.Reg. 153/04 as amended)
	(mbgs)	(masl)	
BH4-19	2.3 – 5.4	290.7 – 287.6	PHC (F1-F4) + BTEX
BH5-19 and DUP A	2.1 – 5.2	291 – 287.9	PHC (F1-F4) + BTEX

Sample ID	Screen/Sample Depth		Parameter Analysed (O.Reg. 153/04 as amended)
	(mbgs)	(masl)	
BH6-19	2.2 – 5.2	291.3 – 288.3	PHC (F1-F4) + BTEX

Note: mbgs – metre below ground surface; masl – metre above sea level

6.7.2 Field Filtering

No field filtering was required for ground water sampling.

6.7.3 Comparison to Applicable Standards (Ground Water)

Ground water samples were analysed for the PCoCs. PCoCs include:

- Petroleum Hydrocarbons (PHCs)
- Benzene, Toluene, Ethylbenzene, Xylene (BTEX)

The results of the analysis were compared to the applicable site condition standard for the Property (Table 1). The laboratory certificates of analysis are provided in Appendix E, and the results of the ground water chemical analysis are provided in Tables 6 and 7.

6.7.4 Contaminants of Concern (Ground Water)

No Contaminants of Concern associated with the ground water on the Property at the locations investigated.

6.7.5 Chemical or Biological Transformations

No Contaminants of Concern associated with the ground water on the Property at the locations investigated and as such no chemical or biological transformations are expected to occur.

6.7.6 Contamination Impact On Other Media

No Contaminants of Concern associated with the ground water on the Property at the locations investigated.

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

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

6.8 Sediment Quality

No sediment sampling was conducted as part of this investigation.

6.9 Quality Assurance and Quality Control Results

6.9.1 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 MECP standards for quality control under Ontario Regulation 153/04 which require laboratory results to meet specific method detection limit (MDL) requirements. In general, 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. Overall quality of the field data from the investigation was good, and the objectives of the investigation were met.

6.9.2 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 (MECP) - 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 MECP - 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

Storage Requirement

All samples met the storage requirements as specified in MECP - 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

Container Type

All samples met the container type as specified in MECP - 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

6.9.3 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 in full in Appendix E to the Phase Two ESA report.

6.9.4 Results Qualified by Laboratory

The laboratory did not make any significant comments that changed the outcome of the analytical results regarding the soil and ground water samples.

6.9.5 Overall Quality of Field Data

Decision making regard 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.

6.10 Phase Two Conceptual Site Model

This Phase Two Conceptual Site Model (CSM) provides a narrative, graphical and tabulated description integrating information related to the Site geologic and hydrogeologic conditions, Potentially Contaminating Activities (PCAs) and Areas of Potential Environmental Concern (APECs), and the presence and distribution of potential contaminants of concern. The presentation of the Phase Two CSM makes reference to the attached Figures 1 to 7 and is shown in Appendix F.

7.0 CONCLUSIONS

The scope of work for the Phase Two ESA was developed based on the results of the previous Phase One ESA and Phase Two ESA completed at the larger property by Terraprobe in 2017 and the Phase One ESA completed in August 2019. A total of three (3) boreholes were advanced on the Property and all the boreholes were also installed with monitoring wells.

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

- The general stratigraphy at the Property, as observed in the boreholes, consists of a surficial layer of topsoil underlain by native soil deposits of silty sand to sand and silt, which extended to the full depth of investigation.
- The depth to ground water in monitoring wells installed on the Property ranged between approximately 3.4 m to 3.8 m below grade. Based on the groundwater elevation contours, the direction of ground water flow is towards the east/southeast.
- The applicable Site Condition Standards (SCS) are the Ontario Ministry of the Environment, Conservation and Parks Standards identified as Table 1 Full Depth Background Site Condition Standards for Residential/Parkland/Institutional/Industrial/Commercial/Community land use.
- The parameters analysed for soil samples included: petroleum hydrocarbons (fraction F1 to F4), BTEX compounds, and pH.
- All analytical soil sample results met the MECP Table 1 Site Condition Standards (SCS) for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use for the analysed parameters.
- The ground water samples were collected from three (3) monitoring wells and analysed for PHCs and BTEX. The results of the ground water samples met the applicable Table 1 Standards for all analysed parameters.

Based on the results of the Phase Two ESA, there are no soils and ground water samples with contaminants found at levels exceeding the SCS, therefore, no contaminants are found in, at or under the Property. Based on the findings of the Phase Two ESA, the environmental status of the Property is considered to meet the applicable MECP Table 1 SCS. A Record of Site Condition can be filed for the Property at this time.

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.

7.1 Signatures

The Phase Two ESA has been completed under the direction and supervision of Muhammad I. Shahid, P.Geo., 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.

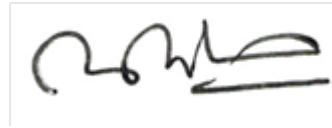
We trust this report meets with your requirements. Should you have any questions regarding the information presented, please do not hesitate to contact our office.

Yours truly,

Terraprobe Inc.



Jessie Hui Chung Wu, M. Env. Sc.,
Project Manager



Muhammad I. Shahid, P.Geo., QP_{ESA}
Senior Project Manager



8.0 REFERENCES

This study was conducted in accordance with the applicable Regulations, Guidelines, Policies, Standards, Protocols and Objectives administered by the Ministry of the Environment. Specific reference is made to the following:

- “*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*,” Ministry of the Environment of Ontario, December 1996;
- *The Ontario Water Resources Act - R.R.O. 1990, Regulation 903 - Amended to O. Reg. 128/03*, August 2003;
- “*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*,” April 15, 2011;
- “*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*,” March 2004 (amended as of July 1, 2011);
- *Ontario Regulation 153/04 (made under the Environmental Protection Act)*, May 2004 (as amended by O. Reg. 511/09 and O. Reg. 179/11);
- *Environmental Protection Act*, R.S.O. 1990, Chapter E.19, as amended, September 2004;
- *Ontario Regulation 511/09 (made under the Environmental Protection Act)*, July 2011 (MOE); and,
- Terraprobe Inc. “*Phase One Environmental Site Assessment Part of Lot 4, Concession 6, Part 1, Plan 43R-20293, Block 4, 5 & 6, Caledon, Ontario*”, August 30, 2019.

9.0 LIMITATIONS

This report was prepared for the exclusive use of Shacca Caledon Holding c/o Glen Schnarr & Associates Inc., and is intended to provide an assessment of the environmental conditions on the Property identified as Block 4, 5 & 6, Caledon, 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.

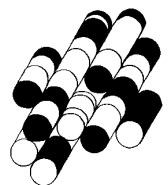
The assessment should not be considered a comprehensive audit that eliminates all risks of encountering environmental problems. The information presented in this report is based on information collected during the completion of the investigation conducted by Terraprobe Inc. It is based on conditions 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.

TABLES

TERRAPROBE INC.



Geological Units
16114 Airport Rd. Caledon
Project #1-16-0543-42.3

[illegible]

TABLE 2

Monitoring Well Construction

16114 Airport Rd., Caledon

Project #1-16-0543-42.3

Well ID	BH/MW4-19		BH/MW5-19		BH/MW6-19	
Stick Up (m)	0.79		0.90		0.86	
Ground Elev. (masl)	293		293.1		293.5	
Well Component	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)
Concrete - Top						
Sand - Top	0.00	293.00	0.00	293.10	0.00	293.50
Bentonite - Top	0.30	292.70	0.30	292.80	0.30	293.20
Bentonite - Bottom	1.83	291.17	1.83	291.27	1.83	291.67
Sand - Top	1.83	291.17	1.83	291.27	1.83	291.67
Screen - Top	2.33	290.67	2.13	290.97	2.19	291.31
Screen - Bottom	5.38	287.62	5.18	287.92	5.23	288.27
Sand - Bottom	5.94	287.06	5.79	287.31	6.10	287.40

Note: N/A = Not available

TABLE 3
Ground Water Elevations
16114 Aiport Rd., Caledon
Project #1-16-0543-42.3

Well ID	BH/MW4-19		BH/MW5-19		BH/MW6-19	
Stick Up (m)	0.79		0.90		0.86	
Depth (mbgs)	5.86		5.95		6.19	
Ground Elev. (masl)	293		293.1		293.5	
Date	WL (m)	Elev. (masl)	WL (m)	Elev. (masl)	WL (m)	Elev. (masl)
2019/10/09	4.18	289.61	4.29	289.71	4.63	289.73

NA - Not Applicable

NM - Not Measured

TABLE 4
ORPs - pH (Soil)
16114 Airport Rd., Caledon
Project #1-16-0543

Sample Name	Unit	Table 1	BH5-19/CS#1B	BH6-19/CS# 3A	DUP2 [BH6-19/CS#3A]
AGAT WO#			19T528822	19T528822	19T528822
AGAT ID#			604281	604282	604283
Date			10/1/2019	10/1/2019	10/1/2019
Parameter/Depth of Sample (mbgs/masl)			0.8-1.5/292.3-291.6	3-3.8/290.5-289.7	3-3.8/290.5-289.7
pH, 2:1 CaCl2 Extraction	NV	NV	7.92	8	7.89

Comments:

Results compared to MECP2011 Table 1 Site Condition Standards for Residential/Park/Institutional Land Use in All -Textured Soil Condition

RDL - Reported Detection Limit; G / S - Guideline / Standard

<150 Detection limit exceeded Standard

150 Sample result exceeded Standard

pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.

NV- No Value

* estimated elevation

NA-Not Analyzed

TABLE 5
PHCs F1 - F4 (&BTEX) (Soil)
16114 Airport Rd., Caledon
Project #1-16-0543

Sample Name	Unit	Table 1	BH 4-19/CS #1A	BH 4-19/CS #4	BH 5-19/CS #1B	BH 5-19/CS #3A	BH 6-19/CS #2A	BH 6-19/CS #2B	DUP #1 [BH 4-19/CS #1A]
AGAT WO#			19T526805	19T526805	19T526805	19T526805	19T526805	19T526805	19T526805
AGAT ID#			588162	588163	588164	588165	588166	588167	588168
Date			10/1/2019	10/1/2019	10/1/2019	10/1/2019	10/1/2019	10/1/2019	10/1/2019
Parameter/Depth of Sample (masl)			0-0.8/293-292.3	3-3.8/290-289.2	0.8-1.5/291.6-292.3	3-3.8/289.3-290	1.5-2.3/291.2-292	2.3-3/290.5-291.2	0-0.8/293-292.3
Benzene	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	0.05	<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	<0.05
F1 (C6 to C10)	µg/g	25	<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	<50	<50	<50
F4 (C34 to C50)	µg/g	120	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%	NV	6.6	7.6	1.6	8.1	2.3	12.5	7.6
Terphenyl	%	NV	108	100	101	96	100	75	88

Comments:

Results compared to MECP2011 Table 1 Site Condition Standards for Residential/Park/Institutional Land Use in All -Textured Soil Condition

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
BTEX (Ground Water)
16114 Airport Rd. Caledon
Project #1-16-0543

Sample Name	Unit	Table 1	BH 4-19	BH 5-19	BH 6-19	DUP A [BH5-19]
AGAT WO#			19T528820	19T528820	19T528820	19T528820
AGAT ID#			604317	604320	604321	604322
Date			10/9/2019	10/9/2019	10/9/2019	10/9/2019
Parameter/Depth of Sample (masl)			288-291	288-291	288-291	288-291
Benzene	µg/L	0.5	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	0.8	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	0.5	<0.10	<0.10	<0.10	<0.10
Xylene Mixture	µg/L	72	<0.20	<0.20	<0.20	<0.20

Comments:

Results compared to MECP 2011 Table 1 Site Condition Standards for All Land Use

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 7
PHCs F1 - F4 (-BTEX) (Groundwater)
16114 Airport Rd. Caledon
Project #1-16-0543

Sample Name	Unit	Table 1	BH 4-19	BH 5-19	BH 6-19	DUP A [BH5-19]
AGAT WO#			19T528820	19T528820	19T528820	19T528820
AGAT ID#			604317	604320	604321	604322
Date			10/9/2019	10/9/2019	10/9/2019	10/9/2019
Parameter/Depth of Screens (masl)			288-291	288-291	288-291	288-291
F1 (C6 to C10)	µg/L	420	<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
F3 (C16 to C34)	µg/L	500	<100	<100	<100	<100
F4 (C34 to C50)	µg/L	500	<100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	NA	NA	NA	NA
Terphenyl	%	NV	107	65	116	66

Comments:

Results compared to MECP 2011 Table 1 Site Condition Standards for Residential/Park/Institutional Land Use in a PGW Coarse-Textured Soil Condition
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.

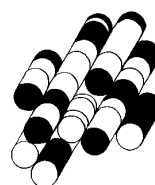
Quality Control Data is available upon request.

NV- No Value

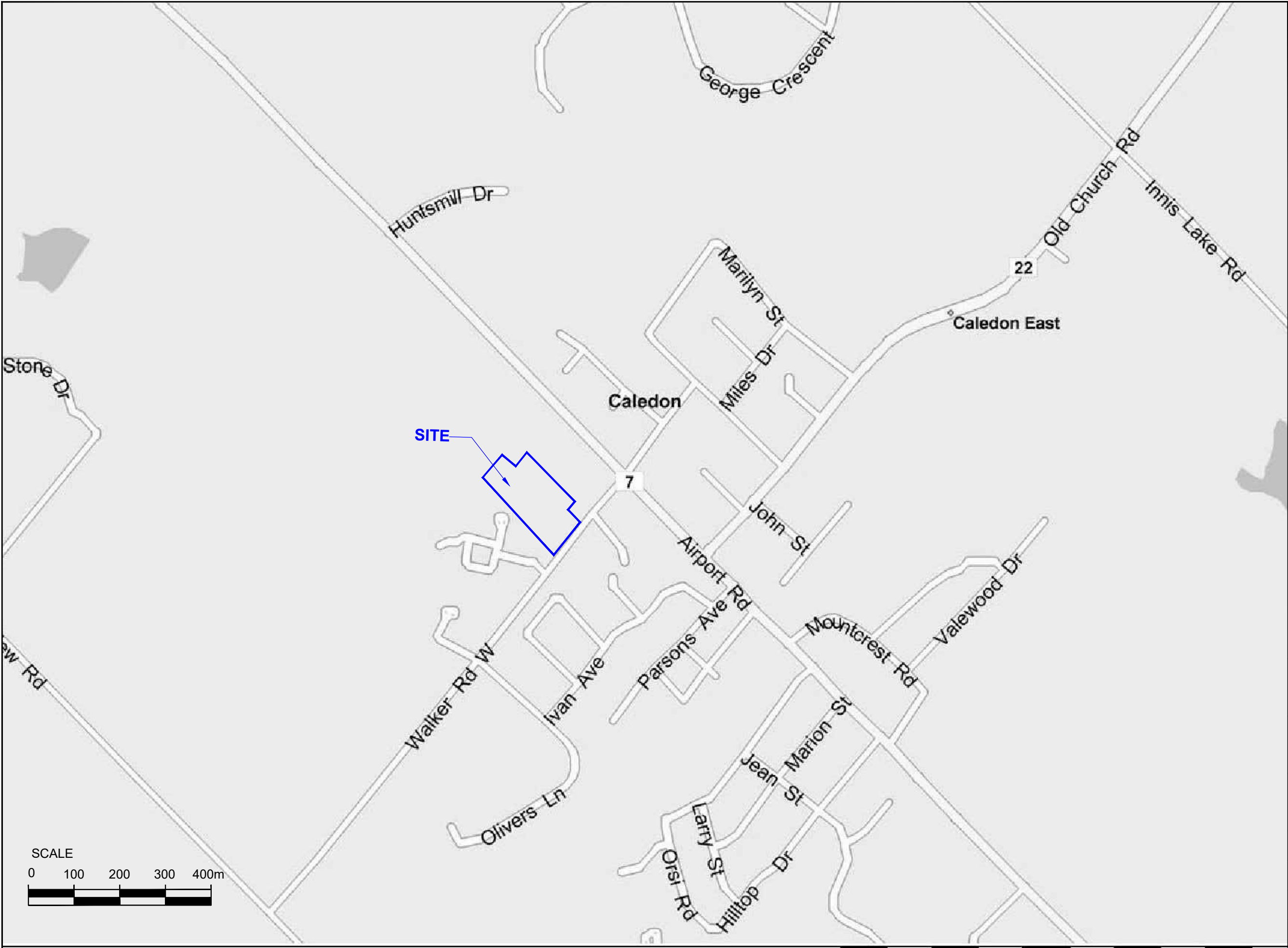
NA-Not Analyzed


FIGURES

TERRAPROBE INC.

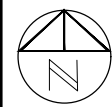


Z:\1-Project Files\2016\1-16-0543-16114 Airport Rd, Caledon\42.2 Phase Two ESA Blocks 4, 5 & 6\A DWG, Logo\AutoCAD\1-16-0543-42.dwg, MV






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



Reference:
Microsoft Streets & Trips 2011

Notes:

Legend:

Phase Two Property Boundary

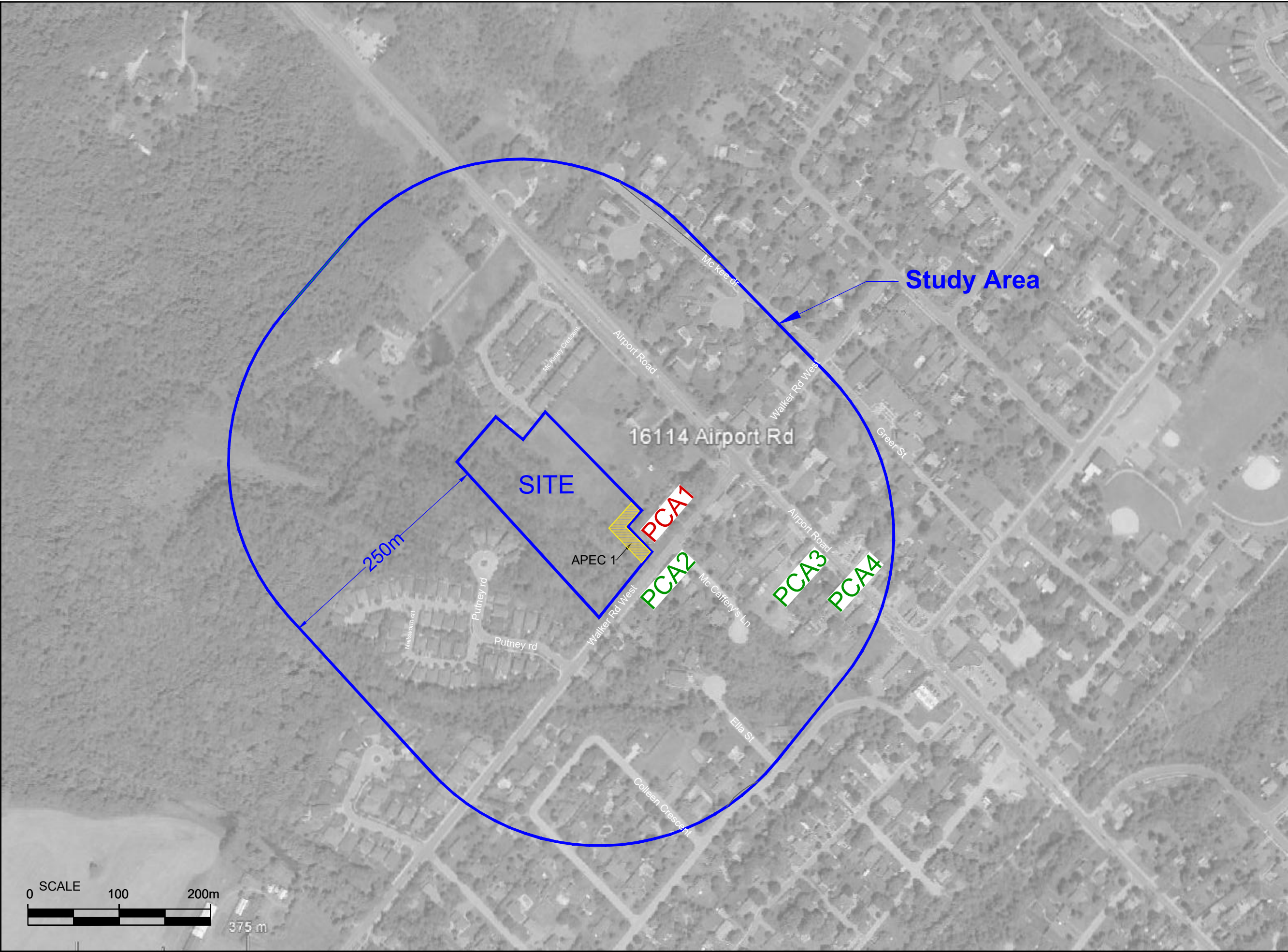
Project Title:
Phase Two Environmental Site Assessment


Site Location:
Blocks 4, 5 and 6 Caledon, Ontario

Figure Title:
SITE LOCATION PLAN


Designed By: JW	File No.: 1-16-0543-42.2
Drawn By: SS	Scale: As Shown
Reviewed By: MS	Figure No.: 1
Date: December 2019	

Z:\1-Project Files\2016\1-16-0543-16114 Airport Rd, Caledon\42-2 Phase Two ESA Blocks 4, 5 & 6\A DWG, Logo\AutoCAD\1-16-0543-42.dwg, MV





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



Reference:

Google Earth

Notes:

APEC - Area of Potential Environmental Concern
PCA - Potentially Contaminating Activity
#00 PCA Causing APEC
#00 PCA Not Causing APEC

Legend:

Phase Two Property Boundary

PCA1

28- Gasoline and Associated Products Storage in Fixed Tanks

PCA2

Other 1- Ontario Spills

PCA3

Other 2- Retail Storage Tank and O.Reg. 347 Waste Generator Summary

PCA4

Other 3- Pesticide Register & O.Reg. 347 Waste Generator Summary

APEC 1 (South East Portion of Property)

Project Title:

Phase Two Environmental Site Assessment

Site Location:

Blocks 4, 5 and 6 Caledon, Ontario

Figure Title:

PCA AND APEC LOCATIONS

Designed By:

JW

Drawn By:

SS

Reviewed By:

MS

Date:

December 2019

File No.:

1-16-0543-42.2


Scale:

As Shown


Figure No.:

2





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





Reference:


Google Earth

Notes:

Legend:

Phase Two Property Boundary

Approximate Borehole Location

Approximate Cross Section Location

Project Title:

Phase Two Environmental Site Assessment

Site Location:

Blocks 4, 5 and 6 Caledon, Ontario

Figure Title:

SITE AND BOREHOLE/MONITORING WELL
LOCATION PLAN

Designed By:
JW

Drawn By:
SS

Reviewed By:
MS

Date:
December 2019

File No.:
1-16-0543-42.2

Scale:
As Shown

Figure No.:
3






Z:\Project Files\2016\1-16-0543-16114 Airport Rd, Caledon\42.2 Phase Two ESA Blocks 4,5 & 6\A DWG, Log/AutoCAD\1-16-0543-42.dwg, MV

Z:\1-Project Files\2016\1-16-0543 - 16114 Airport Rd, Caledon\42.2 - Phase Two ESA Blocks 4, 5 & 6\A. Drawg. Logs\AutoCAD\1-16-0543-42.dwg, MV



	Reference: Google Earth
---	---------------------------------------

Notes:

Legend:     	Phase Two Property Boundary Approximate Borehole Location Approximate Ground Water Elevations; October 9, 2019 Approximate Ground Water Contours Approximate Ground Water Flow Direction
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Project Title: Phase Two Environmental Site Assessment
--

Site Location: Blocks 4, 5 and 6 Caledon, Ontario





Figure Title: GROUND WATER ELEVATION CONTOURS
--

Designed By: JW	File No.: 1-16-0543-42.2
Drawn By: SS	
Reviewed By: MS	Scale: As Shown
Date: December 2019	Figure No.: 4

Reference:

Notes:

Legend:

- Topsoil
- Silty Sand to Sand
- Monitoring Well Screen
- Approximate Elevation of Ground Water Table (masl), October 9, 2019

Project Title:

Phase Two Environmental Site Assessment

Site Location:

Blocks 4, 5 and 6 Caledon, Ontario

Figure Title:

CROSS SECTION A-A'

Designed By:

JW

File No.:

1-16-0543-42.2

Drawn By:

SS

Scale:

As Shown

Reviewed By:

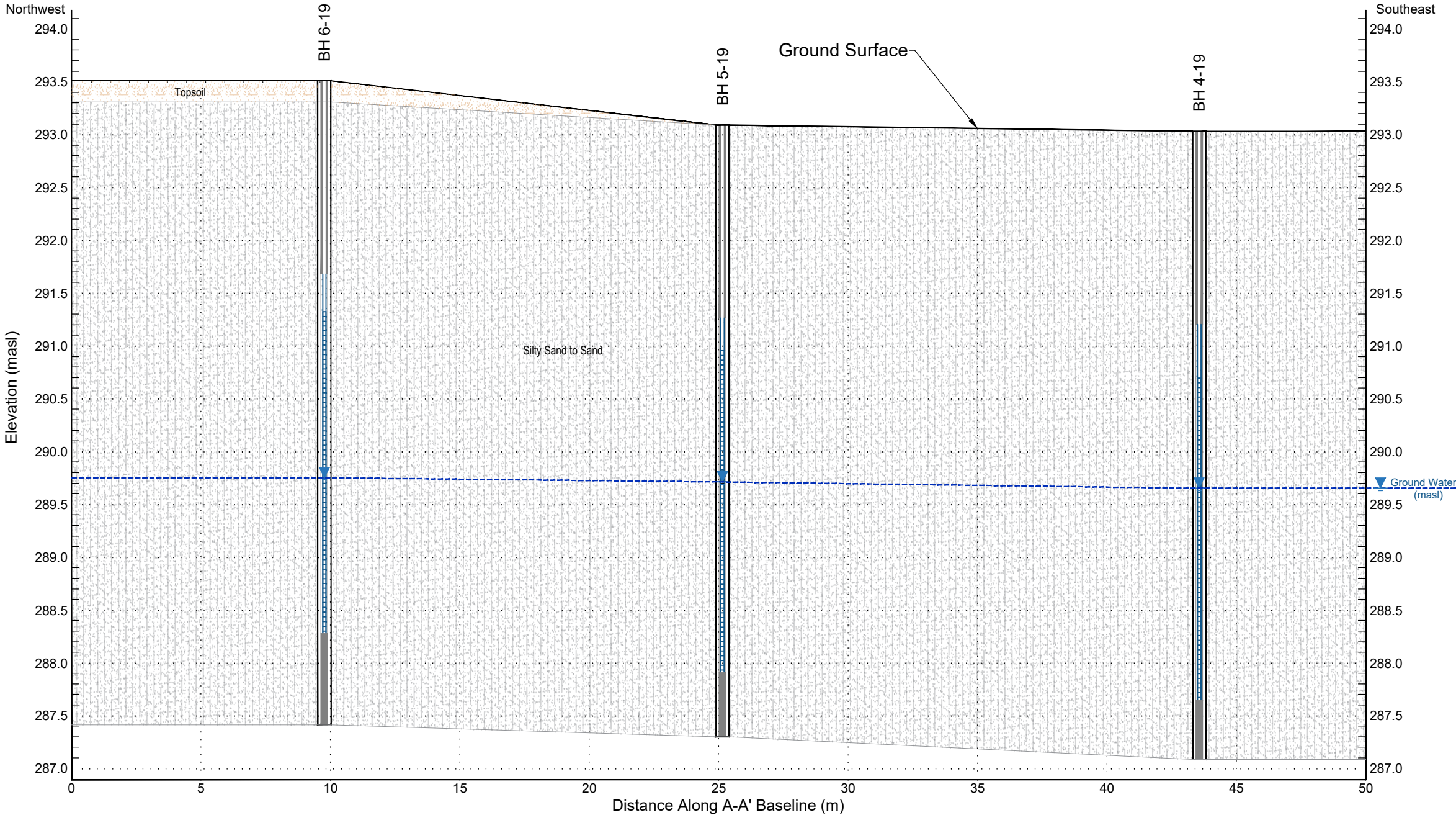
MS

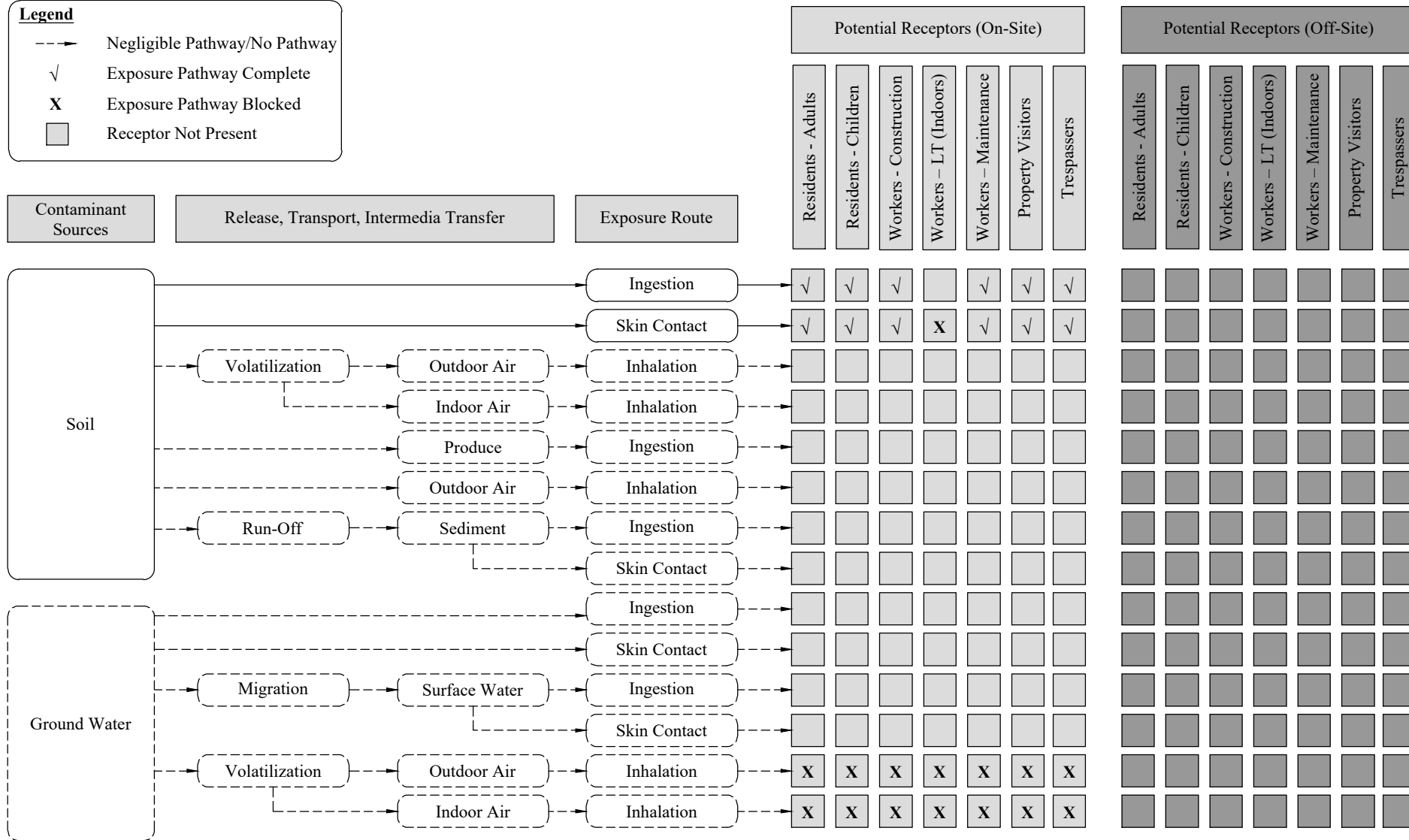
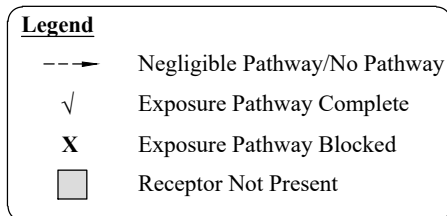
Date:

December 2019

Figure No.:

5





Terraprobe

11 Indell Lane, Brampton, Ontario, L6T 3Y3
Tel: (905) 796-2650 Fax: (905) 796-2250

Title:

HUMAN HEALTH CONCEPTUAL SITE MODEL

File No.

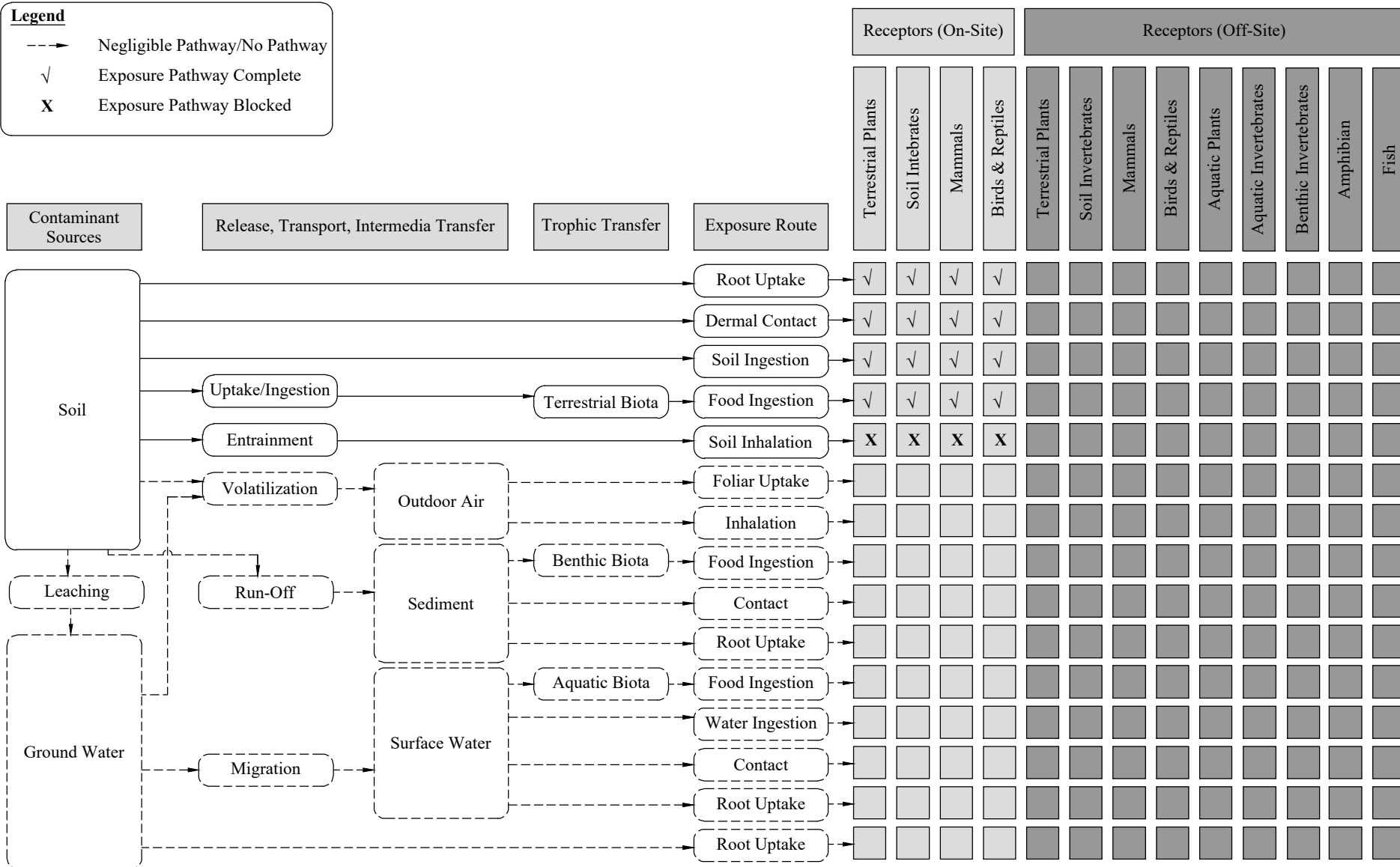
1-16-0543-42.2

FIGURE NO.:

6

Legend

- > Negligible Pathway/No Pathway
 ✓ Exposure Pathway Complete
 X Exposure Pathway Blocked



Terraprobe

11 Indell Lane, Brampton, Ontario, L6T 3Y3
 Tel: (905) 796-2650 Fax: (905) 796-2250

Title:

ECOLOGICAL CONCEPTUAL SITE MODEL

File No.

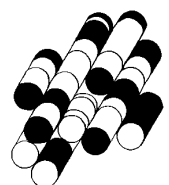
1-16-0543-42.2

FIGURE NO.:

7

APPENDIX A

TERRAPROBE INC.



BLOCK 4, 5 & 6, CALEDON, ONTARIO

PHASE ONE CONCEPTUAL SITE MODEL

Phase One CSM		Information Pertaining to Property
<i>Figures of the Phase One Study Area are provided that:</i>		
i.	Show any existing buildings and structures,	No existing buildings and structures were observed on the Property at the time of the site inspection (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 there is no significant surface water body located within the study area.
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 and Forestry (MNR) NHIC database and contacted the Toronto and Region Conservation Authority (TRCA). Based on the response from Nicholas Carscone from the TRCA, the Property is classified as a Provincially Significant Wetland (PSW) by the TRCA. Based on the MNR NHIC database, an unevaluated wetland is present adjacently to the subject Property towards the south.
iv.	Locate any drinking water wells at the Phase One Property	No drinking water wells were identified on the Property during the site inspection. No records of wells on the Phase One Property were found in the MECP Water Well Information System (WWIS)
v.	Show roads, including names, within the Phase One Study Area	The Property is bounded to the south by Walker Road West. All roads and their corresponding names within the Study Area are presented in 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 surrounding properties are predominantly used for residential, commercial and institutional purposes. Conservation areas are present west and north of the subject Property.
vii.	Identify and locate area where any potentially contaminating activity has occurred, and show tanks in such areas	Potentially Contaminating Activity (PCA) located on the Property and within the Study Area is presented on Figure 4.
viii.	Identify and locate any areas of potential environmental concern	One Areas of Potential Environmental Concern (APEC) was identified on the Property. The location of the APEC is presented on Figure 5, and the description of the APEC and potential Contaminants of Concern are described on the Table of Areas of Potential Environmental Concern.
<i>The following is a description and assessment of:</i>		
i.	Any areas where potentially contaminating activity on or potentially affecting the Phase One Property has occurred,	One PCA's have been identified that are either on or affecting the Phase One Property, and includes: <ul style="list-style-type: none"> • PCA-1: #28 Gasoline and Associated Products Storage in Fixed Tanks. An aboveground storage tank was observed on the adjacent property to the southeast at 7 Walker Road West.
ii.	Any contaminants of potential concern,	Contaminants of Potential Concern (COPCs) identified the Property include: <ul style="list-style-type: none"> • PHCs • BTEX 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,	The Property is currently undeveloped woodlot and is not serviced with any utilities. Fire hydrant is observed at the southeastern corner of the Property. Storm sewer catch basins and manholes are located Walkers Road.
iv. Available regional or site specific geological and hydrogeological information,	<p>Topography</p> <ul style="list-style-type: none"> The approximate elevation of the Property is 295 masl and slopes gently to the east-southeast towards Innis Lake & Widget Lake. <p>Hydrogeology</p> <ul style="list-style-type: none"> The nearest water body is Innis Lake and Widget Lake, which are located approximately 1.9 km southeast and 2.1 km east of the Property, respectively. The groundwater is expected to follow the local topography and flow towards the east-southeast. <p>Geology (overburden)</p> <ul style="list-style-type: none"> The overburden on the Property is comprised of glaciofluvial ice deposits consisting of sand & gravel, with minor amounts of silt, clay and till. <p>Geology (bedrock)</p> <ul style="list-style-type: none"> The bedrock on the Property is comprised of shale, limestone, dolostone and siltstone, part of the Queenston Formation (55a). <p>Geology (depth to bedrock)</p> <ul style="list-style-type: none"> The depth to bedrock in the area is considered to be shallow. Based on the MECP Well Records, bedrock was encountered at approximately 24.0 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

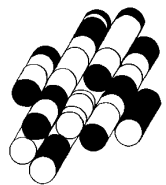
Figure 3 – Phase One Study Area

Figure 4 – PCA Locations

Figure 5 – APEC Locations

APPENDIX B

TERRAPROBE INC.



Soil sampling was conducted during October 1, 2019. Based on scope of work and the field screening, a total of 8 soil samples were submitted for chemical analysis of petroleum hydrocarbons PHCs (F1-F4), benzene, toluene, ethylbenzene, and xylene (BTEX) parameters. A summary of the soil samples and selected analyses is presented below.

No.	Sample ID	Sample Depth		Parameter Analysed (O.Reg. 153/04 as amended)
		(mbgs)*	(masl)*	
1	BH5-19/CS#1B	0.8 – 1.5	292.3 – 291.6	pH
2	BH6-19/CS#3A and DUP2	3 – 3.8	290.5 – 289.7	pH
3	BH4-19/CS#1A and DUP#1	0 – 0.8	293 – 292.3	PHCs (F1 to F4), BTEX
4	BH4-19/CS#4	3.0 – 3.8	290 – 289.2	PHCs (F1 to F4), BTEX
5	BH5-19/CS#1B	0.8 – 1.5	291.6 – 292.3	PHCs (F1 to F4), BTEX
6	BH5-19/CS#3A	3.0 – 3.8	289.3 – 290	PHCs (F1 to F4), BTEX
7	BH6-19/CS#2A	1.5 – 2.3	291.2 – 292	PHCs (F1 to F4), BTEX
8	BH6-19/CS#2B	2.3 – 3.0	290.5 – 291.2	PHCs (F1 to F4), BTEX

Note: mbgs – metre below ground surface; masl – metre above sea level

Ground water sampling was completed for the three monitoring wells (BH4-19, BH5-19 & BH6-19) on the Property. Ground water samples were analysed for parameters including PHCs and BTEX. The laboratory certificates of analysis are provided in Appendix G.

Sample ID	Screen/Sample Depth		Parameter Analysed (O.Reg. 153/04 as amended)
	(mbgs)	(masl)	
BH4-19	2.3 – 5.4	290.7 – 287.6	PHC (F1-F4) + BTEX
BH5-19 and DUPA	2.1 – 5.2	291 – 287.9	PHC (F1-F4) + BTEX
BH6-19	2.2 – 5.2	291.3 – 288.3	PHC (F1-F4) + BTEX

Note: mbgs – metre below ground surface; masl – metre above sea level

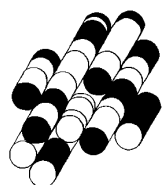
Ground water sampling was completed for the three monitoring wells (BH1-19, BH2-19 & BH3-19) on the Property. Ground water samples were analysed for parameters including PHCs and BTEX.

Sample ID	Screen/Sample Depth		Parameter Analysed (O.Reg. 153/04 as amended)
	(mbgs)	(masl)	
BH1-19	2.3 – 5.3	292.2 – 289.2	PHC (F1-F4) + BTEX
BH2-19 and DUP#1	1.5 – 4.6	291.2 – 288.1	PHC (F1-F4) + BTEX
BH3-19	2.3 – 5.4	289.4 – 286.3	PHC (F1-F4) + BTEX

Note: mbgs – metre below ground surface; masl – metre above sea level

APPENDIX C

TERRAPROBE INC.



SUMMARY OF FIELD INVESTIGATION PROTOCOL

1. Drilling and Soil Sampling Procedures

Drilling and sampling of overburden materials are generally conducted using a mobile power auger. During augering operations, soil samples are recovered using a standard 50 mm diameter split-spoon sampling device. The sampler is generally advanced by a drop hammer to obtain standard penetration values (N values) for assessment of soil consistency.

In some instances, soil samples are obtained by directly pushing a sampling device into the soil using specialized drilling equipment.

Soil samples obtained from the split-spoon are examined in the field by qualified engineering staff. The soil is classified according to: grain size distribution, texture, colour, odour, moisture content, and other pertinent details. Field borehole logs are prepared and notes are made regarding visual or olfactory evidence of potential contamination of soil materials.

Following logging, all samples are placed into laboratory-cleaned 500 mL glass jars, with foil-lined lids. The samples are transported to Terraprobe's laboratory for detailed inspection by the site engineer. Where samples are collected for analysis of volatile organic compounds, they are placed into laboratory-cleaned, 50 mL glass septum jars with Teflon-lined caps. Following review by the project engineer, samples are forwarded to a CAEAL-certified laboratory for analysis.

During the drilling procedure, no lubricants are used on any of the drilling and sampling equipment in order to ensure there is no contamination with hydrocarbon-based or other lubricating materials.

If significant contamination of the soil or ground water is expected, then drill cuttings are placed into 205 L steel drums stored on the site. The drill cuttings and water are later characterized for proper off-site disposal, where necessary.

The sample collection and preservation techniques follow the general requirements of *Table 5.2(d), Required Container Preservation Techniques and Maximum Handling Times for Water Samples*, and from *MOE Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario* (May 1996).

Chain of custody forms are filled out for all samples which are shipped to commercial laboratories. The chain of custody forms are provided by the laboratory and include the following information:

1. Terraprobe's project number
2. Sample number and locations
3. Name of party shipping the samples to the laboratory
4. Required scope of analysis
5. Date of submission
6. Date of receipt by the laboratory
7. Any special notes or items of clarification appropriate to the project

2. Test Pit Excavation and Sampling

Test pits are generally excavated using a hydraulic backhoe of appropriate size and capacity depending on test pit depth and soil consistency. The test pit operations are carried out under the full-time supervision of Terraprobe engineering staff. During excavation, the test pits are logged based on the exposed soil and ground water profile. Soil samples are generally recovered from each soil strata noted during the investigation. Depending on the depth of the test pit, samples are obtained either by a spade or shovel from the side wall, or directly from the backhoe bucket.

In all cases, operations are carried out in strict accordance with the requirements of the Occupational Health and Safety Act. Personnel are not permitted to enter unsupported test pits with depths in excess of 1.2 m below prevailing grade.

3. Equipment Clean-up

All drilling equipment is cleaned by the contractor prior to beginning each project. This includes augers, drill rods, sampling spoons, and the like.

In the event that significant contamination is expected or noted during drilling, then the drilling equipment is also cleaned between each borehole location. The cleaning is conducted using high pressure washing equipment and a phosphate detergent. A decontamination pad or cleaning area is set up well away from the general work area.

All sampling equipment used during the investigation is cleaned between collection of each sample. This includes split-spoon equipment, shovels, trowels, and any other sampling equipment. Sampling equipment is cleaned as follows:

- All sampling equipment is wiped to remove excess soil material.
- Equipment is rinsed in municipal water.
- Equipment is further rinsed with distilled water.
- In the event of significant organic contamination (such as hydrocarbons), the material is rinsed with detergent and/or methanol to remove materials.
- A final rinse with distilled water is carried out prior to utilizing the sampling equipment.

4. Soil Gas Monitoring

Soil gas monitoring is conducted to assess the potential presence of volatile organic compounds in soil materials. The monitoring is conducted by obtaining headspace measurements from soil samples. Headspace measurement is conducted by placing the tip of a photo-ionization detector or flame ionization detector through an aluminum foil cover placed over the 500 mL sample jars. Alternatively, samples may be placed into polyethylene sampling bags and vapour analysis can be conducted through the wall of the sampling bag.

When the ambient air temperature is less than 10°C, samples are generally transported to Terraprobe's laboratory and allowed to remain in sealed containers until reaching room temperature. Vapour analysis is then conducted at room temperature.

All testing equipment is calibrated each day prior to conducting soil vapour measurements. Measurements are generally taken with respect to equivalent hexane concentration (concentration of parts per million), or in relation to the lower explosive limit of hexane. Where appropriate, the results are converted to represent concentrations of other gases such as methane.

The results of vapour monitoring are generally utilized to provide guidance for the selection of samples for later chemical analysis. They may also be used in assessing the presence of volatile organic compounds for the siting of monitoring wells.

5. Monitoring Well Installation

Monitoring wells are generally constructed using new, pre-packaged 50 mm diameter Schedule 40 PVC pipe and screens. The screen length and opening are dependent on the project requirements.

All wells are constructed using threaded joints without glues or solvents.

A silica sand pack is placed around the well screen and typically to a height of approximately 500 mm above the top of the well screen. A well seal, consisting of bentonite clay or cementitious bentonite grout, is then placed to a thickness of at least 1 m above the sand zone. The remainder of the hole is then filled to surface with an appropriate grout material or drill cuttings.

A locking security cap is fitted in areas which may be subject to vandalism or tampering of the well installation.

Specialized drilling procedures and monitoring well installation procedures are used where aquifer zones may be penetrated. All drilling is conducted in accordance with the general requirements of Regulation 903 to ensure that there is no cross-contamination or cross flow between aquifer zones.

6. Ground Water Sampling and Water Level Measurement

Water level measurements are conducted using an electronic water level finder. The water level finder is cleaned with distilled water, detergent, and where appropriate, methanol, prior to insertion into each well.

Measurements of non-aqueous phase liquids are conducted using specialized monitoring equipment which detects the presence of both the water column and non-aqueous phase liquids.

All measurements in the field are taken relative to a fixed point, which is generally the top of the well casing or top of the well protective cap. These are later referenced to appropriate elevations or ground surface.

Ground water sampling is conducted following proper development of the well. Wells are generally developed using a dedicated Waterra inertial pump. The wells are developed by removing a minimum of three casing volumes of water, or by bailing to dryness. Where possible, the wells are developed until clear, sediment-free water is obtained.

Ground water samples are obtained only following well bailing and development, as noted above. Samples are obtained either from a dedicated inertial pump, or a dedicated bailer.

During sampling, measurements are made for selected parameters including pH, conductivity, and temperature.

Samples are collected directly into laboratory-supplied containers. Samples collected for analysis of metals are filtered through a 0.45 micron disposable filter to eliminate suspended solids.

Sample bottles are stored in an insulated cooler to protect from freezing, and to maintain temperatures of less than 10°C.

The sample collection and preservation techniques follow the general requirements of *Table 5.2(d), Required Container Preservation Techniques and Maximum Handling Times for Water Samples*, and from *MOE Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario* (May 1996).

Chain of custody forms are filled out for all samples which are shipped to commercial laboratories. The chain of custody forms are provided by the laboratory and include the following information:

- Terraprobe's project number
- Sample number and locations
- Name of party shipping the samples to the laboratory
- Required scope of analysis
- Date of submission
- Date of receipt by the laboratory
- Any special notes or items of clarification appropriate to the project

7. Sample Quality Assurance and Quality Control

All chemical analysis of soil and ground water samples is carried out only by CAEAL certified laboratories. These laboratories provide internal quality control checks regarding laboratory analytical procedures. This includes the use of sample spikes, surrogate samples, and duplicate analysis.

For each sampling program, one trip blank is included. The trip blank consists of deionized water that is placed in the sample containers provided by the laboratory, and is prepared by the laboratory.

Field duplicate samples are prepared at the rate of approximately one sample per ten soil or ground water samples submitted. The number of duplicate samples depends on site and project-specific requirements. Duplicate samples are provided with a fictitious sample number in order that the laboratory is not aware of the duplicate sample.

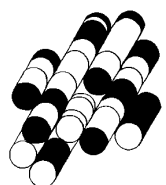
A field blank sample is obtained at the rate of approximately one sample per ten ground water samples submitted. A field blank is obtained by filling the appropriate laboratory containers with the deionized water in the field during the sampling procedure.

The results of all laboratory analysis are carefully examined and compared to the results of visual, olfactory, and soil vapour monitoring conducted in the field. Any unusual results or unexpected results are discussed carefully with the field technician and the laboratory. Where appropriate, resampling is conducted to ensure the veracity of all results.

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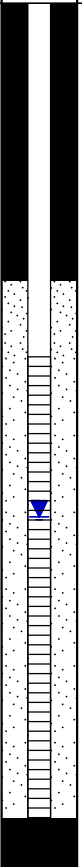
APPENDIX D

TERRAPROBE INC.



Project No. : 1-16-0543	Client : Shacca Caledon Holdings	Originated by : BR
Date started : October 1, 2019	Project : 16114 Airport Road	Compiled by : JW
Sheet No. : 1 of 1	Location : Caledon, Ontario	Checked by : MS

Position : E: 590727, N: 4858171 (UTM 17T)	Elevation Datum : Geodetic
Rig type : Geoprobe, track-mounted	Drilling Method : Direct push

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)				Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments	
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value		Undrained Shear Strength (kPa)				Plastic Limit Natural Water Content Liquid Limit						
								X Dynamic Cone 10 20 30 40										
								O Unconfined + Field Vane ● Pocket Penetrometer ■ Lab Vane 40 80 120 160				PL MC LL 10 20 30						
0	293.0	GROUND SURFACE					293											
1		SILTY SAND to SAND, compact, brown, moist		1A	DP		293								PID: 4.1			
				1B	DP		292											PID: 1.6
2				2	DP		291											PID: 1.1
				3	DP		290											PID: 0.4
3				4	DP		289											PID: 0.1
4		5	DP		288									PID: 0.1				
	288.4 4.6	SILT, some sand, dense, grey, wet		6	DP													
5				7	SS													
	287.1																	

END OF BOREHOLE

Unstabilized water level measured at 3.4 m below ground surface; borehole caved to 5.4 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Oct 9, 2019	3.4	289.6

Project No. : 1-16-0543 Client : Shacca Caledon Holdings Originated by : BR
 Date started : October 1, 2019 Project : 16114 Airport Road Compiled by : JW
 Sheet No. : 1 of 1 Location : Caledon, Ontario Checked by : MS

Position : E: 590715, N: 4858185 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Geoprobe, track-mounted Drilling Method : Direct push

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)				Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value		X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) ○ Unconfined + Field Vane ● Pocket Penetrometer ■ Lab Vane 40 80 120 160				Plastic Limit	Natural Water Content	Liquid Limit			
0	293.1	GROUND SURFACE					293										
1				1A	DP		292										
2				1B	DP		291										
3				2A	DP		290										
4		...trace gravel		2B	DP		289										
5		...gravelly, wet, dense, greyish brown		3A	DP		288										
		...compact		3B	DP												
				4A	DP												
				4B	DP												
	287.3	END OF BOREHOLE															
	5.8																

END OF BOREHOLE

Unstabilized water level measured at 3.8 m below ground surface; borehole caved to 5.2 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS
 Date Water Depth (m) Elevation (m)
 Oct 9, 2019 3.4 289.7

Project No. : 1-16-0543	Client : Shacca Caledon Holdings	Originated by : BR
Date started : October 1, 2019	Project : 16114 Airport Road	Compiled by : JW
Sheet No. : 1 of 1	Location : Caledon, Ontario	Checked by : MS

Position : E: 590713, N: 4858200 (UTM 17T)	Elevation Datum : Geodetic
Rig type : Geoprobe, track-mounted	Drilling Method : Direct push

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)				Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value		X Dynamic Cone				Plastic Limit	Natural Water Content	Liquid Limit			
								10	20	30	40						
								Undrained Shear Strength (kPa)									
								<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>								
0	293.5	GROUND SURFACE															
	293.3	200mm TOPSOIL															
	0.2	SILTY SAND to SAND, loose, brown, moist		1A	DP		293								PID: 0.4		
1		...compact		1B	DP										PID: 0.4		
							292										
2				2A	DP										PID: 1.3		
		...wet		2B	DP		291								PID: 0.4		
3																	
		...dense		3A	DP		290								PID: 0.2		
4																	
		...gravelly		3B	DP		289								PID: 0.3		
5																	
		...compact		4A	DP										PID: 0		
6							288								PID: 0.1		
	287.4			4B	DP												

END OF BOREHOLE

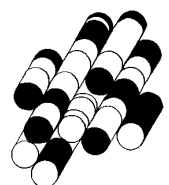
Unstabilized water level measured at 3.0 m below ground surface; borehole caved to 5.2 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS		
Date	Water Depth (m)	Elevation (m)
Oct 9, 2019	3.8	289.7

APPENDIX E

TERRAPROBE INC.



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

ATTENTION TO: Jessie Wu

PROJECT: 1-16-0543-42.2

AGAT WORK ORDER: 19T526805

TRACE ORGANICS REVIEWED BY: Navdeep Kaur Kansera, Senior Lab Technician

DATE REPORTED: Oct 09, 2019

PAGES (INCLUDING COVER): 5

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.



Certificate of Analysis

AGAT WORK ORDER: 19T526805

PROJECT: 1-16-0543-42.2

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: Jessie Wu

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-10-04

DATE REPORTED: 2019-10-09

		SAMPLE DESCRIPTION: BH 4-19/CS #1A		BH 4-19/CS #4	BH 5-19/CS #1B	BH 5-19/CS #3A	BH 6-19/CS #2A	BH 6-19/CS #2B	Dup #1	
		SAMPLE TYPE: Soil		Soil	Soil	Soil	Soil	Soil	Soil	
		DATE SAMPLED: 2019-10-01		2019-10-01	2019-10-01	2019-10-01	2019-10-01	2019-10-01	2019-10-01	
Parameter	Unit	G / S	RDL	588162	588163	588164	588165	588166	588167	588168
Benzene	µg/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	0.2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	0.05	0.05	<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	<0.05	<0.05
F1 (C6 to C10)	µg/g	25	5	<5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	240	50	<50	<50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	120	50	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	6.6	7.6	1.6	8.1	2.3	12.5	7.6
Surrogate	Unit	Acceptable Limits								
Terphenyl	%	60-140		108	100	101	96	100	75	88

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - 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.

588162-588168 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6-C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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 contribution.
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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Navdeep Kansera

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

PROJECT: 1-16-0543-42.2

SAMPLING SITE:

AGAT WORK ORDER: 19T526805

ATTENTION TO: Jessie Wu

SAMPLED BY:

Trace Organics Analysis

RPT Date: Oct 09, 2019

			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) - PHCs F1 - F4 (Soil)

Benzene	588168	588168	< 0.02	< 0.02	NA	< 0.02	101%	60%	130%	75%	60%	130%	75%	60%	130%
Toluene	588168	588168	< 0.05	< 0.05	NA	< 0.05	96%	60%	130%	81%	60%	130%	76%	60%	130%
Ethylbenzene	588168	588168	< 0.05	< 0.05	NA	< 0.05	99%	60%	130%	90%	60%	130%	74%	60%	130%
Xylene Mixture	588168	588168	< 0.05	< 0.05	NA	< 0.05	107%	60%	130%	97%	60%	130%	88%	60%	130%
F1 (C6 to C10)	588168	588168	< 5	< 5	NA	< 5	75%	60%	130%	96%	85%	115%	95%	70%	130%
F2 (C10 to C16)	580697		< 10	< 10	NA	< 10	83%	60%	130%	90%	80%	120%	74%	70%	130%
F3 (C16 to C34)	580697		< 50	< 50	NA	< 50	85%	60%	130%	97%	80%	120%	80%	70%	130%
F4 (C34 to C50)	580697		< 50	< 50	NA	< 50	95%	60%	130%	107%	80%	120%	98%	70%	130%

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:

Navdeep Kansera

Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 19T526805

PROJECT: 1-16-0543-42.2

ATTENTION TO: Jessie Wu

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	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	BALANCE
Terphenyl	VOL-91-5009		GC/FID



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 Inc.
Contact: Jessie Wu
Address: Brampton ON.
Phone: _____ Fax: _____
Reports to be sent to: jwu@terraprobe.ca.
1. Email: _____
2. Email: _____

Project Information:

Project: 1-16-0543-42.2
Site Location: 16114 Airport Rd.
Sampled By: B. Racher
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: Lorena Rossi
Contact: Lorena Rossi
Address: Lrossie@terraprobe.ca
Email: Lrossie@terraprobe.ca

Regulatory Requirements:

(Please check all applicable boxes)

☒ Regulation 153/04

Table 1 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

Field Filtered - Metals, Hg, CrVI

0. 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 ☐ NH₃ ☐ TKN

☐ NO₃ ☐ NO₂ ☐ NO₃+NO₂

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

Potentially Hazardous or High Concentration (Y/N)

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N	Metals a	All Metals	Hydride	ORPs:	Cr6+	pH	Full Metals	Regulatory	Nutrients	NO3	Volatiles:	PHCs F1	ABNs	PAHs	PCBs:	Organoch	TCLP:	Sewer Use	Potentially
BH 4/CS#1A	OCT 1/19		2	S													X	X							
BH 4/CS#4																	X	X							
BH 5/CS #1B																	X	X							
BH 5/CS #3A																	X	X							
BH 6/CS #2A																	X	X							
BH 6/CS #2B																	X	X							
Dup #1																	X	X							

Samples Relinquished By (Print Name and Sign): <u>Bob Racher</u> <u>R Racher</u>	Date: <u>Oct 2/19</u> Time: <u>14:00 hrs</u>	Samples Received By (Print Name and Sign): <u>Ken</u> <u>Ken</u>	Date: <u>Oct 4/19</u> Time: <u>1:54</u>
Samples Relinquished By (Print Name and Sign): <u>Ken</u> <u>Ken</u>	Date: <u>Oct 4/19</u> Time: <u>3:31</u>	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 094810**

Laboratory Use Only

Work Order #: 19T526805

Cooler Quantity: 2

Arrival Temperatures: 48 45 47
35 33 3

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

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

ATTENTION TO: Jessie Wu

PROJECT: 1-16-0543-42.2

AGAT WORK ORDER: 19T528822

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

DATE REPORTED: Oct 16, 2019

PAGES (INCLUDING COVER): 5

VERSION*: 2

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

***NOTES**

VERSION 2: Revised report issued October 17, 2019.

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



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 19T528822

PROJECT: 1-16-0543-42.2

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: Jessie Wu

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-10-09

DATE REPORTED: 2019-10-16

		SAMPLE DESCRIPTION:		BH5-19 CS1B	BH6-19 CS# 3A	DUP2
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2019-10-01	2019-10-01	2019-10-01
Parameter	Unit	G / S	RDL	604281	604282	604283
pH, 2:1 CaCl ₂ Extraction	pH Units		NA	7.92	8.00	7.89

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

604281-604283 pH was determined on the 0.01M CaCl₂ extract obtained from 2:1 leaching procedure (2 parts extraction fluid:1 part wet soil).

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Divine Basily



Quality Assurance

CLIENT NAME: TERRAPROBE INC.

PROJECT: 1-16-0543-42.2

SAMPLING SITE:

AGAT WORK ORDER: 19T528822

ATTENTION TO: Jessie Wu

SAMPLED BY:

Soil Analysis

RPT Date: Oct 16, 2019			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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

pH, 2:1 CaCl ₂ Extraction	608229		11.4	11.4	0.3%	NA	100%	90%	110%
--------------------------------------	--------	--	------	------	------	----	------	-----	------

Comments: NA signifies Not Applicable.

pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.

Certified By:

Divine Basily

Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 19T528822

PROJECT: 1-16-0543-42.2

ATTENTION TO: Jessie Wu

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis pH, 2:1 CaCl ₂ Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	pH METER

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

ATTENTION TO: Jessie Wu

PROJECT: 1-16-0543-42.2

AGAT WORK ORDER: 19T528820

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Oct 16, 2019

PAGES (INCLUDING COVER): 5

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.



Certificate of Analysis

AGAT WORK ORDER: 19T528820

PROJECT: 1-16-0543-42.2

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

CLIENT NAME: TERRAPROBE INC.

SAMPLING SITE:

ATTENTION TO: Jessie Wu

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (Water)

DATE RECEIVED: 2019-10-09

DATE REPORTED: 2019-10-16

		SAMPLE DESCRIPTION:		BH 4-19	BH 5-19	BH 6-19	DUP A
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2019-10-09	2019-10-09	2019-10-09	2019-10-09
Parameter	Unit	G / S	RDL	604317	604320	604321	604322
Benzene	µg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	0.8	0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10
Xylene Mixture	µg/L	72	0.20	<0.20	<0.20	<0.20	<0.20
F1 (C6 - 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	<100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA	NA	NA	NA
Surrogate	Unit	Acceptable Limits					
Terphenyl	%	60-140		107	65	116	66

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - 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.

604317-604322 The C6-C10 fraction is calculated using Toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6-C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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 contribution.
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 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

PROJECT: 1-16-0543-42.2

SAMPLING SITE:

AGAT WORK ORDER: 19T528820

ATTENTION TO: Jessie Wu

SAMPLED BY:

Trace Organics Analysis

RPT Date: Oct 16, 2019

RPT Date: Oct 16, 2019			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

O. Reg. 153(511) - PHCs F1 - F4 (Water)

Benzene	585584		< 0.20	< 0.20	NA	< 0.20	116%	50%	140%	93%	60%	130%	82%	50%	140%
Toluene	585584		< 0.20	< 0.20	NA	< 0.20	100%	50%	140%	91%	60%	130%	92%	50%	140%
Ethylbenzene	585584		< 0.10	< 0.10	NA	< 0.10	94%	50%	140%	86%	60%	130%	90%	50%	140%
Xylene Mixture	585584		< 0.20	< 0.20	NA	< 0.20	86%	50%	140%	82%	60%	130%	84%	50%	140%
F1 (C6 - C10)	585584		< 25	< 25	NA	< 25	95%	60%	140%	89%	60%	140%	93%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	106%	60%	140%	84%	60%	140%	77%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	99%	60%	140%	103%	60%	140%	81%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	103%	60%	140%	102%	60%	140%	112%	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:



Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 19T528820

PROJECT: 1-16-0543-42.2

ATTENTION TO: Jessie Wu

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
Toluene	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
F1 (C6 - 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	MOE PHC-E3421	GC/FID



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 Inc.
Contact: Jessie Wu
Address: Brampton ON.
Phone: _____ Fax: _____
Reports to be sent to:
1. Email: jwu@terraprobe.ca
2. Email: _____

Project Information:

Project: 1-16-0543-42.2
Site Location: 16114 Airport Rd
Sampled By: B. Racher
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: L Rossi
Contact: L Rossi
Address: L Rossi
Email: lrossi@terraprobe.ca

Regulatory Requirements:

(Please check all applicable boxes)

☒ Regulation 153/04

Table 1 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

Field Filtered - Metals, Hg, CrVI

O. Reg 153

Metals and Inorganics

☐ All Metals ☐ 153 Metals (excl. Hydrides)
☐ Hydride Metals ☐ 153 Metals (incl. Hydrides)

ORPs: ☐ B-HWS ☐ Cl⁻ ☐ CN
☐ C⁶⁺ ☐ EC ☐ FOC ☐ Hg
☐ pH ☐ SAR

Full Metals Scan

Regulation/Custom Metals

Nutrients: ☐ TP ☐ NH₃ ☐ TKN
☐ NO₃ ☐ NO₂ ☐ NO₃+NO₂

Volatiles: ☐ VOC ☐ BTEX ☐ THM

PHCs F1 - F4

ABNs

PAHs

PCBs: ☐ Total ☐ Aroclors

Organochlorine Pesticides

TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ Bgl/P ☐ PCBs

Sewer Use

Potentially Hazardous or High Concentration (Y/N)

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N	Metals and Inorganics	ORPs	Full Metals Scan	Regulation/Custom Metals	Nutrients	Volatiles	PHCs F1 - F4	ABNs	PAHs	PCBs	Organochlorine Pesticides	TCLP	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
BH 4-19	Oct 9/19		4	GW																
BH 5-19			4																	
BH 6-19			4																	
DUP A			3		1 vial broken															

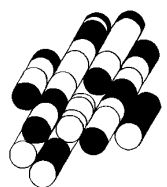
Samples Relinquished By (Print Name and Sign): <u>Rob Racher</u>	Date: <u>Oct 9/19</u>	Time: <u>1400 hrs</u>	Samples Received By (Print Name and Sign): <u>Simone</u>	Date: <u>15/10/19</u>	Time: <u>445</u>
Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:
Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:

Page 1 of 1

Nº: **T 096028**

APPENDIX F

TERRAPROBE INC.





Terraprobe

Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing

**CONCEPTUAL SITE MODEL
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 6, PART 1, PLAN 43R-20293,
BLOCK 4, 5 & 6, CALEDON, ONTARIO**

The following are included in this Conceptual Site Model

- **Phase Two Conceptual Site Model** – From Terraprobe Report “*Phase Two Environmental Site Assessment, Part of Lot 4, Concession 6, Part 1, Plan 43R-20293, Block 4,5,6, Caledon, Ontario*” (Terraprobe 2019)

Terraprobe Inc.

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1.0 INTRODUCTION

The following document is the Phase Two Conceptual Site Model (Phase Two CSM) for the Phase Two Property (Property) identified as Part of Lot 4, Concession 6, Part 1, Plan 43R-20293, Block 4, 5 and 6, Caledon, Ontario (Property).

The Phase Two CSM comprises Section 6.10 of the report titled "Phase Two Environmental Site Assessment Part of Lot 4, Concession 6, Part 1, Plan 43R-20293, Block 4, 5, and 6, Caledon, Ontario". The Phase Two CSM and larger report, of which it is a part, was prepared by Terraprobe Inc. for Trig Investments Inc. c/o Glen Schnarr & Associates Inc. The investigations were conducted under the direction and supervision of Muhammad I. Shahid, P.Geo., QP_{ESA}, who was acting as the Qualified Person for the Property, as defined under Ontario Regulation 153/04 (O.Reg. 153/04).

1.1 Property Description

The Property is irregular in shape, and covers an area of approximately 2.5 ha (approximately 6.1 acres). The Property is currently an undeveloped vacant land comprised of wetland and wooded areas. The surrounding area is predominantly used for residential purposes. The Property is currently undeveloped/vacant land and considered to be "Agricultural or Other Use" as per Ontario Regulation 153/04 (O.Reg. 153/04).

The Property information is as below.

Legal Description	Part Lot 4 Con 6, EHS, Part 1, Plan 43R-20293, Block 4, 5 & 6, Town of Caledon, Regional Municipality of Peel
PIN	14289-0188 (LT) and 14289-0186 (LT)
Municipal Address	NA
Assessment Roll No.	NA
Area	2.5 ha

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

Property Owner Information	Shacca Caledon Holdings, 210 Drumline Circle, Unit #1, Concord, Ontario Contact: Ugo Gulia
-----------------------------------	---

Current Land Use

The Property is currently an undeveloped vacant land comprised of wetland and wooded areas. The Property is to be conveyed to the Town of Caledon (the "Town") as part of the proposed development of the larger property. The Property is currently undeveloped/vacant land and considered to be "Agricultural or Other Use" as per Ontario Regulation 153/04 (O.Reg. 153/04).



Future Land Use

It is understood that the Property will be used as parkland after conveyance to the Town.

1.2 Summary of Previous Investigations

Previous investigations for the Property, which were completed by Terraprobe, are summarized below:

Report Title	Phase One Environmental Site Assessment 16114 Airport Road, Caledon, Ontario
Report Date	January 5, 2017
Prepared By	Terraprobe Inc. (Report Authors- Shama M. Qureshi, P.Eng., P.Geo., QP _{RA} , Muhammad Shahid, P. Geo, QP _{ESA} , and Ahmad Sarwar, B.Sc., G.I.T.)
Prepared For	Shacca Caledon Holdings c/o Glen Schnarr & Associates Inc.

- A Phase One ESA was completed for a larger property including the current Block 4, 5 & 6 Property as per the requirement of O.Reg. 153/04. The Phase One Environmental Site Assessment (ESA) identified the following Areas of Potential Environmental Concern (APEC) on the Phase One Property:

APEC	Location of APEC on the property	Details	Potential Contaminants of Concern (PCoCs)	Media Potentially Impacted
APEC 1	Eastern Portion of the property	PCA # 30 - Importation of Fill Material of Unknown Quality	Metals & Inorganics	Soil
APEC 2	South Central Portion of property	Other 1 - Ontario Spills	Petroleum Hydrocarbons (PHCs) + BTEX	Soil & Ground Water

- A Phase Two ESA would be required to investigate the APECs that have been identified on the property. A Record of Site Condition (RSC) cannot be filed, if required, based on the Phase One ESA alone.

Report Title	Phase Two Environmental Site Assessment 16114 Airport Road, Caledon, Ontario
Report Date	February 8, 2017
Prepared By	Terraprobe Inc. (Report Authors- Shama M. Qureshi, P.Eng., P.Geo., QP _{RA} , Muhammad Shahid, P. Geo, QP _{ESA} , and Ahmad Sarwar, B.Sc., G.I.T.)
Prepared For	Shacca Caledon Holdings c/o Glen Schnarr & Associates Inc.



- The Phase Two Environmental Site Assessment (ESA) was completed for a larger property including the current Block 4, 5 & 6 Property as per the requirement of O.Reg. 153/04. The Phase Two ESA was conducted to investigate the two APECs identified the Property during the Phase One ESA.
- The investigation consisted of drilling of twenty-one (21) boreholes and installation of nine (9) monitoring wells on the Property. The soil stratigraphy generally consisted of surficial layer of topsoil underlain by silty sand to sandy silt earth fill, which is underlain by native deposits of sand, sandy silt to silt and sand.
- The ground water elevation contours indicated that the direction of ground water flow is towards east/southeast.
- The applicable Site Condition Standards (SCS) are the Ontario Ministry of the Environment, Conservation and Parks (MECP) Standards identified as Table 2 Standards for Residential/Parkland/Institutional Property Use in a potable ground water condition.
- The parameters analysed for soil samples included: petroleum hydrocarbons (fraction F1 to F4), BTEX compounds, metals and inorganics and pH.
- All analytical soil sample results met the MECP Table 2 (and Table 1) Site Condition Standards (SCS) for Residential Property Use for the analysed parameters.
- The ground water samples were collected from three (3) monitoring wells and analysed for PHCs and BTEX. The results of the ground water samples met the applicable Table 2 (and Table 1) Standards for all analysed parameters.
- Based on the findings of the Phase Two ESA, the environmental status of the Property was considered to meet the applicable MECP Table 2 (and Table 1) SCS.

Report Title	Phase One Environmental Site Assessment Part of Lot 4, Concession 6, Part 1, Plan 43R-20293, Block 4, 5 & 6, Caledon, Ontario
Report Date	August 30, 2019
Prepared By	Terraprobe Inc. (Report Authors- Muhammad Shahid, P. Geo, QP _{ESA} , and Jessie Hui Chung Wu, M. Env. Sc.)
Prepared For	Shacca Caledon Holdings c/o Glen Schnarr & Associates Inc.

- A Phase One Environmental Site Assessment (ESA) was completed for Block 4, 5 and 6 as per the requirement of O.Reg. 153/04. The following Potentially Contaminating Activity (PCA) was identified within the Phase One Study Area (Study Area). No PCAs were identified on the Property.
- Off-site PCA - #28 - Gasoline and Associated Products Storage in Fixed Tanks. An above ground storage tank was observed adjacent to the southeast of the Property at 7 Walker Road.



- The off-site PCA cause an Area of potential Environmental Concern (APEC) on the Property that need to be investigated through a Phase Two ESA prior to filing of a Record of Site Condition (RSC).

2.0 INFORMATION FROM THE PHASE ONE ENVIRONMENTAL SITE ASSESSMENT

2.1 Areas Where Potentially Contaminating Activity has occurred

Potentially Contaminating Activities (PCAs) were identified in the Phase One Study Area. One of the PCAs was considered to have the potential to impact the Property. The detailed locations of the PCAs are shown in Figure 2.

2.2 Areas of Potential Environmental Concern

The following Area of Potential Environmental Concern (APEC) resulting from PCA was identified by the Qualified Person in the Phase One ESA. The location of APEC, the Contaminants of Potential Concern (COPCs) and the media affected are described below. The specific location of the APEC is shown in Figure 2 and 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	Southeastern Portion of the Property	PCA # 28 – Gasoline and Associated Products Storage in Fixed Tanks	Off-Site (PCA1)	Petroleum Hydrocarbons (PHCs) + Benzene, Toluene, Ethylbenzene, Xylene (BTEX)	Soil & ground water

2.3 Subsurface Structures and Utilities

The Phase One inspection of the Property found the following information regarding utilities and services at the Property. There were underground utilities (water, gas, telephone, storm and sanitary sewer) located on the Property, which have a potential to transport contaminants at the Phase One Property. However, no contaminants remain on the Property, therefore the subsurface structure and utilities are unlikely to cause the contaminant distribution and transport in future.



3.0 PHYSICAL SETTING OF THE PHASE TWO PROPERTY

3.1 Site Stratigraphy

Detailed geological information for the site is summarized below. The borehole locations are presented in Figure 3. The geological stratigraphy is shown in Figures 5 and 6.

3.1.1 Geological Units – Thickness and Elevations

The geological unit elevations and original thicknesses are summarized below.

Borehole	BH 4-19		
	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)
Asphaltic concrete/Top Soil	-	-	-
Earth Fill	-	-	-
Native Soil (Silty Sand to Sand)	293	288.4	4.6
Native Soil (Silt)	288.4	287.1	1.3
Bedrock (weathered)	-	-	-

Borehole	BH 5-19			BH 6-19		
	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)
Asphaltic concrete/Top Soil	-	-	-	293.5	293.3	0.2
Earth Fill	-	-	-	-	-	-
Native Soil (Silty Sand to Sand)	293.1	287.3	5.8	293.3	287.4	5.9
Bedrock (weathered)	-	-	-	-	-	-

3.1.2 Material in Geological Units

Surficial Materials

A surficial layer of topsoil was only encountered at borehole location BH6-19. The thickness of the topsoil was 200 mm. The topsoil layer was underlain by native soils.

Earth Fill

No earth fill was encountered during the Phase Two investigation.



Native Soils

Native soil deposits were encountered underlying the topsoil at borehole location BH6-19 and at surface in all other borehole locations and extended to full depth of investigation (up to 6.1m below ground surface). The native soils generally consisted of silty sand to sand and silt. The native soils were compact to dense, brown to grey and moist to wet.

Bedrock

Bedrock was not encountered during the Phase Two investigation.

3.2 Approximate Depth to Water Table

Ground water levels were measured in all the monitoring wells. All ground water levels were taken with a Solinst interface probe. The monitoring well location is presented in Figure 3. The ground water levels for all monitoring wells are presented below and on Figure 5.

Well ID	BH/MW4-19		BH/MW5-19		BH/MW6-19	
Stick Up (m)	0.79		0.90		0.86	
Depth (mbgs)	5.86		5.95		6.19	
Ground Elev. (masl)	293		293.1		293.5	
Date	WL (m)	Elev. (masl)	WL (m)	Elev. (masl)	WL (m)	Elev. (masl)
2019/10/09	4.18	289.61	4.29	289.71	4.63	289.73

A total of three (3) monitoring wells installed by Terraprobe were used to identify the general direction of the ground water flow. The locations of the wells were placed with sufficient spatial variation across the Property to estimate the ground water flow direction. The well screens installed by Terraprobe were positioned in similar elevations within the native soils to capture the water table within the aquifer of interest. The well construction details are presented below.

Well ID	BH/MW4-19		BH/MW5-19		BH/MW6-19	
Stick Up (m)	0.79		0.90		0.86	
Ground Elev. (masl)	293		293.1		293.5	
Well Component	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)
Concrete – Top						
Sand – Top	0.00	293.00	0.00	293.10	0.00	293.50
Bentonite - Top	0.30	292.70	0.30	292.80	0.30	293.20
Bentonite - Bottom	1.83	291.17	1.83	291.27	1.83	291.67
Sand - Top	1.83	291.17	1.83	291.27	1.83	291.67
Screen - Top	2.33	290.67	2.13	290.97	2.19	291.31
Screen - Bottom	5.38	287.62	5.18	287.92	5.23	288.27
Sand - Bottom	5.4	287.06	5.79	287.31	6.10	287.40



Based on the October 9, 2019 readings, the interpreted direction of ground water flow is to the southeast. The inferred ground water direction is expected to be southeast towards the Lake Ontario. Ground water flow direction and ground water elevation contours are presented on Figure 4. Locally, near-surface ground water flow may be influenced by underground structures (e.g. basement, service trenches).

The local ground water flow direction may fluctuate seasonally depending on the magnitude of precipitation and surface runoff, which will affect infiltration of surface water in particular at times such as significant snowmelt and rainfall events. Based on the local topography and development level of the Property and the surrounding properties, minor fluctuations of the natural ground water flow direction were possible.

Based upon the ground water elevations there appears to be one aquifer present on the Property. The aquifer is an unconfined aquifer in the native silty sand to sand layer. Based on the current ground water levels, the ground water within the aquifer is encountered at an elevation of approximately 289.7 masl.

3.3 Site Hydrogeological Characteristics

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

- Native Soil (Silty Sand to Sand) 10^{-4} m/s to 10^{-7} m/s

3.3.1 Horizontal Hydraulic Gradients

The ground water table is within the native sand and silt aquifer. Based on the current measured ground water levels, the horizontal hydraulic gradient of the ground water within the native soil layer at the Property from monitoring well BH/MW4-19 to BH/MW6-19 was determined to be approximately 0.003 m/m from the northwest towards the southeast. It was noted that the current water levels may not be stabilized.

$$\text{Hydraulic Gradient} = \text{Difference in water levels/distance apart} = 0.003$$

3.3.2 Vertical hydraulic Gradients

The vertical hydraulic gradient could not be reliably determined from the available data.

3.4 Approximate Depth to Bedrock

Bedrock was not encountered during the Phase Two ESA; however, bedrock in the area consists of shale, limestone, dolostone and siltstone of the Queenston Formation. Based on the published information, bedrock is located approximately 24 to 38 m below ground surface.



3.5 Section 41 or 43.1

Section 41 of the Regulation does apply to the Phase Two Property based on the following rationale:

- The Property is located within an area of natural significance
- The Property does include or is not adjacent to an area of natural significance
- The Property does not include land that is within 30 meters of an area of natural significance or part of such area.
- The soil pH was between 5 and 9 for surficial soils, and between 5 and 11 for subsurface soils.

Section 43.1 of the Regulation does not apply to the Phase Two Property as the Property is not considered a shallow soil property; it does not include all or part of a water body; it is not adjacent to a water body, and it does not include land that is within 30 m of a water body.

3.6 Soils Placed On, In or Under the Phase Two Property

No soils have been imported or placed on, in or under the Phase Two Property since the start of environmental investigations on the Property (July, 2016).

3.7 Proposed Buildings

It is understood that the Property will not be developed and will be conveyed to the Town of Caledon (the "Town").



4.0 CONTAMINATION IN OR UNDER THE PHASE TWO PROPERTY

4.1 Applicable Site Condition Standard

The applicable soil and ground water Standards for the Property were determined to be those in Table 1 of the April 15, 2011 Ontario Ministry of Environment, Conservation and Parks (MECP) “*Soil, Ground Water and Sediment Standards for use under part XV.1 of the Environmental Protection Act*” for Full Depth Background Site Condition Standards for Residential/ Parkland/ Institutional/ Industrial/ Commercial/ Community land uses (Table 1 Standards).

These are considered to be the applicable Standards for the following reasons:

- The Property is located within an area of natural significance
- The intended use for the Property is parkland.
- The Property is located within a rural area, where domestic water use may be supplied from local groundwater
- The Property is not located within 30 m of a surface water body.
- Bedrock across the Property is found at depths of greater than 2 m.
- Soil at the property was found to be coarse textured based on a review of the soil samples collected from the boreholes and the results of grain size analyses of representative soil samples on the Property.
- The soil pH was between 5 and 9 for surficial soils, and between 5 and 11 for subsurface soils.
- TRCA classified the western portion of the Property as a Locally Significant Wetland associated with the Caledon East Wetland Complex of the Humber River Watershed.

As such, MECP Table 1 Standards are applicable.

4.2 Media Investigated

Sampling was conducted for soil and ground water on the subject Property. No surface water was present on the Property; therefore, surface water or sediment sampling was not conducted. Soil sampling was conducted during the drilling program by Percussion Dual Tube Sampler (PDTS). Ground water samples were obtained from the monitoring wells using conventional sampling techniques. The seasonal variation in concentrations was not monitored, as only one set of ground water samples was collected during this investigation. However, no significant variations in concentration are anticipated.

4.3 Sampling Rationale and Areas Where Contaminants are Present

The table below lists all APECs that were identified in the Phase One ESA. The type of activity is indicated, along with the contaminants of potential concern and the media potentially impacted. Boreholes that were used to evaluate each APEC are indicated, along with the findings with respect to any contaminant noted.



APEC	Location of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil and/or Sediment)
APEC-1	Southeastern Portion of the Property	PCA # 28 – Gasoline and Associated Products Storage in Fixed Tanks	Off-Site (PCA1)	Petroleum Hydrocarbons (PHCs) + Benzene, Toluene, Ethylbenzene, Xylene (BTEX)	Soil & ground water

BH 4-19, BH5-19, BH6-19 – were drilled to address the APEC identified on the property, as shown on Figure 3.

4.3.1 Location and Depth of Soil Samples

Soil sampling was conducted during October 1, 2019. Based on scope of work and the field screening, a total of 8 soil samples were submitted for chemical analysis of petroleum hydrocarbons PHCs (F1-F4), benzene, toluene, ethylbenzene, and xylene (BTEX) parameters. A summary of the soil samples and selected analyses is presented below.

No.	Sample ID	Sample Depth		Parameter Analysed (O.Reg. 153/04 as amended)
		(mbgs)*	(masl)*	
1	BH5-19/CS#1B	0.8 – 1.5	292.3 – 291.6	pH
2	BH6-19/CS#3A and DUP2	3 – 3.8	290.5 – 289.7	pH
3	BH4-19/CS#1A and DUP#1	0 – 0.8	293 – 292.3	PHCs (F1 to F4), BTEX
4	BH4-19/CS#4	3.0 – 3.8	290 – 289.2	PHCs (F1 to F4), BTEX
5	BH5-19/CS#1B	0.8 – 1.5	291.6 – 292.3	PHCs (F1 to F4), BTEX
6	BH5-19/CS#3A	3.0 – 3.8	289.3 – 290	PHCs (F1 to F4), BTEX
7	BH6-19/CS#2A	1.5 – 2.3	291.2 – 292	PHCs (F1 to F4), BTEX
8	BH6-19/CS#2B	2.3 – 3.0	290.5 – 291.2	PHCs (F1 to F4), BTEX

Note: mbgs – metre below ground surface; masl – metre above sea level



4.3.2 Location and Depth of Ground Water Samples

Ground water sampling was completed for the three monitoring wells (BH4-19, BH5-19 & BH6-19) on the Property. Ground water samples were analysed for parameters including PHCs and BTEX.

Sample ID	Screen/Sample Depth		Parameter Analysed (O.Reg. 153/04 as amended)
	(mbgs)	(masl)	
BH4-19	2.3 – 5.4	290.7 – 287.6	PHC (F1-F4) + BTEX
BH5-19 and DUP#1	2.1 – 5.2	291 – 287.9	PHC (F1-F4) + BTEX
BH6-19	2.2 – 5.2	291.3 – 288.3	PHC (F1-F4) + BTEX

Note: mbgs – metre below ground surface; masl – metre above sea level

4.4 Contaminants Associated with Each Area

APEC 1

No contaminants in the soil are associated with this area (APEC 1).

No Contaminants of Concern associated with the ground water were found on the Property at the locations investigated.

4.5 Medium in Which Contaminant are Associated

Contaminants are not associated with the soil and ground water on the Property.

4.6 Information Known about Each Contaminated Area

Contaminants are not associated with the soil and ground water on the Property.

4.7 Distribution of Contaminant

Contaminants are not associated with the soil and ground water on the Property.



4.8 Reasons for Discharge of Contaminant

Contaminants are not associated with the soil and ground water on the Property.

4.9 Migration of Contaminant

Migration of contaminant on the Property is likely due to leaching from rain fall events. However, no exceedances were identified in the soils.

4.10 Climatic or Meteorological Influences on Migration

Contaminants are not associated with the soil and ground water on the Property.

4.11 Soil Vapour Intrusion into Buildings

There is no possibility of soil vapour intrusion into buildings because there will be no development.

4.12 Relevant Construction Features of Buildings

There are no relevant construction features of buildings because there will be no development.

4.13 Building HVAC

There is no building HVAC because there will be no development.

4.14 Subsurface Structures and Utilities

There were underground utilities (water, telephone, gas, storm and sanitary sewer) located on the Property, which have a potential to transport contaminants at the Phase Two Property. However, no contaminants remain on the Property, therefore, the subsurface structure and utilities are unlikely to cause the contaminant distribution and transport.



5.0 POTENTIAL EXPOSURE PATHWAYS AND RECEPTORS

5.1 Description of All Components

Following is the list of all risk based components of the potential exposure pathways and receptors. These components are used in this section as well as the graphical representation of the pathways and receptors presented on Figures 17 and 18.

GW1 – Ground water for drinking water purposes

GW2 – Ground water for protection from movement to indoor air

GW3 – Ground water for protection of aquatic life

S1 – Soil for protection of a residential receptor from direct contact with surface soil

S2 – Soil for protection from direct soil contact for a lower frequency and intensity exposure than residential surface soil, such as commercial or industrial scenarios

S3 – Soil for direct soil contact for a low-frequency, high-intensity, human health exposure scenario without children present that is protective of a worker digging in the soil

S-IA – Soil for protection of movement to indoor air and human exposure

S-OA – Soil for protection of movement to outdoor air and human exposure

S-Odour – Soil for protection of excessive odours

S-GW1 – Soil for protection from movement to ground water for drinking water purposes

S-GW3 – Soil for protection from movement to ground water and then to aquatic life

Plants and Soil Organisms – Soil for protection against adverse effects to plants and soil dwelling organisms

Mammals and Birds – Soil for protection against adverse effects through direct soil and food ingestion to mammals and birds



5.2 Receptor Human Health

Potential Pathway	Potential Risks Sources	Potential Contaminant of Concern from Phase One ESA	Potential Risks
GW1	Contamination not present in ground water	PHCs, BTEX	No Risk – No Source No Risk – No Pathway Risk – Receptor present
GW2	Contamination not present in ground water	PHCs, BTEX	No Risk – No Source No Risk – No Pathway Risk – Receptor present
S1	Contamination not present in soil	PHCs, BTEX, pH	No Risk – No Source No Risk – No Pathway Risk – Receptor present
S2	Contamination not present in soil	PHCs, BTEX, pH	No Risk – No Source No Risk – No Pathway No Risk – No Receptor
S3	Contamination not present in soil	PHCs, BTEX, pH	No Risk – No Source No Risk – No Pathway Risk – Receptor present
S-IA	Contamination not present in soil	PHCs, BTEX, pH	No Risk – No Source No Risk – No Pathway Risk – Receptor present
S-OA	Contamination not present in soil	PHCs, BTEX, pH	No Risk – No Source No Risk – No Pathway Risk – Receptor present
S-Odour	Contamination not present in soil	PHCs, BTEX, pH	No Risk – No Source No Risk – No Pathway Risk – Receptor present
S-GW1	Contamination not present in soil	PHCs, BTEX, pH	No Risk – No Source No Risk – Pathway Incomplete Risk – Receptor present



5.3 Receptor Terrestrial Environment

Potential Pathway	Potential Risks Sources	Contaminant of Concern from Phase One ESA	Potential Risks
Plants and Soil Organisms	Contamination not present in soil	PHCs, BTEX, pH	No Risk – No Source No Risk – No Pathway Risk – Receptor present
Mammals and Birds	Contamination not present in soil	PHCs, BTEX, pH	No Risk – No Source No Risk – No Pathway Risk – Receptor present

5.4 Receptor Aquatic Environment

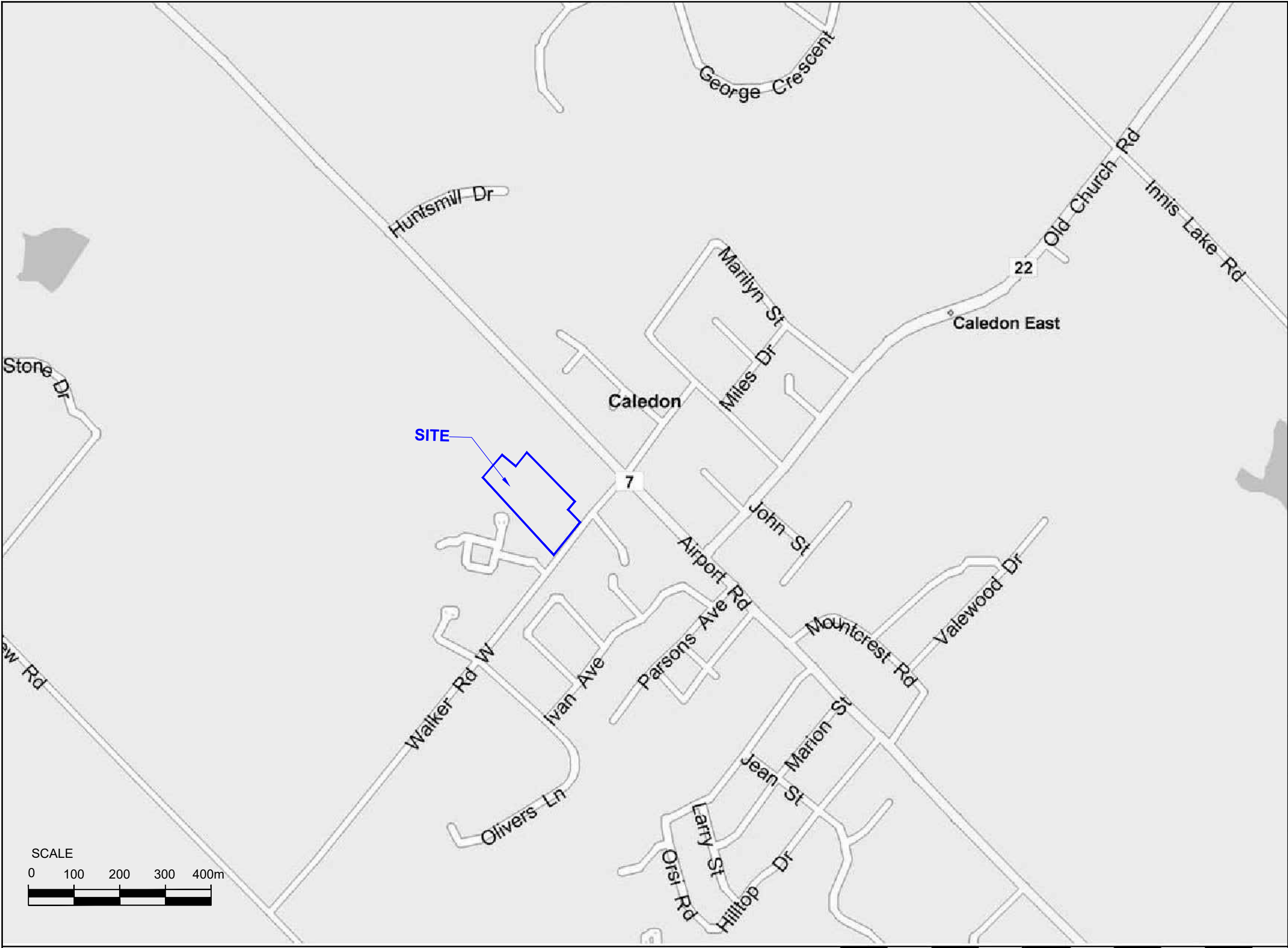
Potential Pathway	Potential Risks Sources	Contaminant of Concern from Phase One ESA	Potential Risks
GW3	Contamination not present in ground water	None	No Risk – No Source No Risk – No Pathway No Risk – No Receptor present
S-GW3	Contamination not present in soil	None	No Risk – No Source No Risk – Pathway Incomplete No Risk – No Receptor


5.5 Summary of Potential Receptor Risks

The potential Contaminants of Concern identified in the Phase One ESA were not found to be present on the Property above the applicable full depth Generic Site Condition Standards. It is concluded by the Qualified Person that there are no potential risks associated with the Property in relation to the Human Receptor, the Terrestrial Environment or the Aquatic Environment.

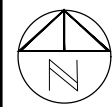


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Reference:
Microsoft Streets & Trips 2011

Notes:

Legend:

Phase Two Property Boundary

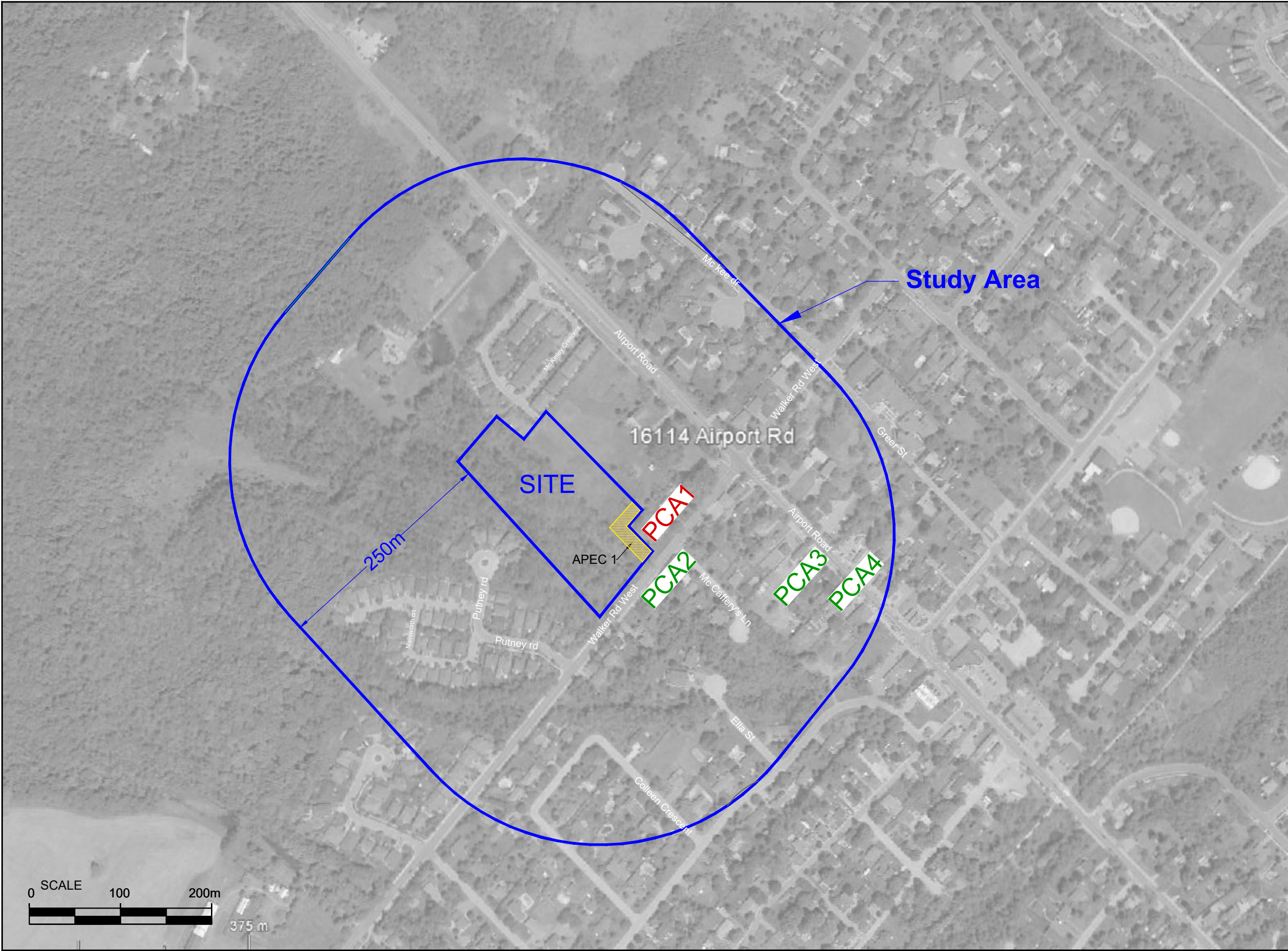
Project Title:
Phase Two Environmental Site Assessment


Site Location:
Blocks 4, 5 and 6 Caledon, Ontario

Figure Title:
SITE LOCATION PLAN


Designed By: JW	File No.: 1-16-0543-42.2
Drawn By: SS	Scale: As Shown
Reviewed By: MS	Figure No.: 1
Date: December 2019	

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Reference:

Google Earth

Notes:

APEC - Area of Potential Environmental Concern
PCA - Potentially Contaminating Activity
#00 PCA Causing APEC
#00 PCA Not Causing APEC

Legend:

Phase Two Property Boundary

PCA1

28- Gasoline and Associated Products Storage in Fixed Tanks

PCA2

Other 1- Ontario Spills

PCA3

Other 2- Retail Storage Tank and O.Reg. 347 Waste Generator Summary

PCA4

Other 3- Pesticide Register & O.Reg. 347 Waste Generator Summary

APEC 1 (South East Portion of Property)

Project Title:

Phase Two Environmental Site Assessment

Site Location:

Blocks 4, 5 and 6 Caledon, Ontario

Figure Title:

PCA AND APEC LOCATIONS

Designed By:

JW

Drawn By:

SS

Reviewed By:

MS

Date:

December 2019

File No.:

1-16-0543-42.2


Scale:

As Shown


Figure No.:

2







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Reference:
Google Earth

Notes:

Phase Two Property Boundary

Approximate Borehole Location

Approximate Cross Section Location

Legend:

Project Title:
Phase Two Environmental Site Assessment

Site Location:
Blocks 4, 5 and 6 Caledon, Ontario

Figure Title:
SITE AND BOREHOLE/MONITORING WELL LOCATION PLAN

Designed By:
JW

Drawn By:
SS

Reviewed By:
MS

Date:
December 2019

File No.:
1-16-0543-42.2

Scale:
As Shown

Figure No.:
3

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Reference:

Google Earth

Notes:

Legend:

- Phase Two Property Boundary
- Approximate Borehole Location
- Approximate Ground Water Elevations;
October 9, 2019
- Approximate Ground Water Contours
- Approximate Ground Water Flow Direction

Project Title:

Phase Two Environmental Site Assessment

Site Location:

Blocks 4, 5 and 6 Caledon, Ontario

Figure Title:

GROUND WATER ELEVATION
CONTOURS

Designed By:

JW

File No.:

1-16-0543-42.2

Drawn By:

SS

Scale:

As Shown

Reviewed By:

MS

Date:

December 2019





Figure No.:

4

Reference:

Notes:

Legend:

- Topsoil
- Silty Sand to Sand
- Monitoring Well Screen
- Approximate Elevation of Ground Water Table (masl), October 9, 2019

Project Title:

Phase Two Environmental Site Assessment

Site Location:

Blocks 4, 5 and 6 Caledon, Ontario

Figure Title:

CROSS SECTION A-A'

Designed By:

JW

File No.:

1-16-0543-42.2

Drawn By:

SS

Scale:

As Shown

Reviewed By:

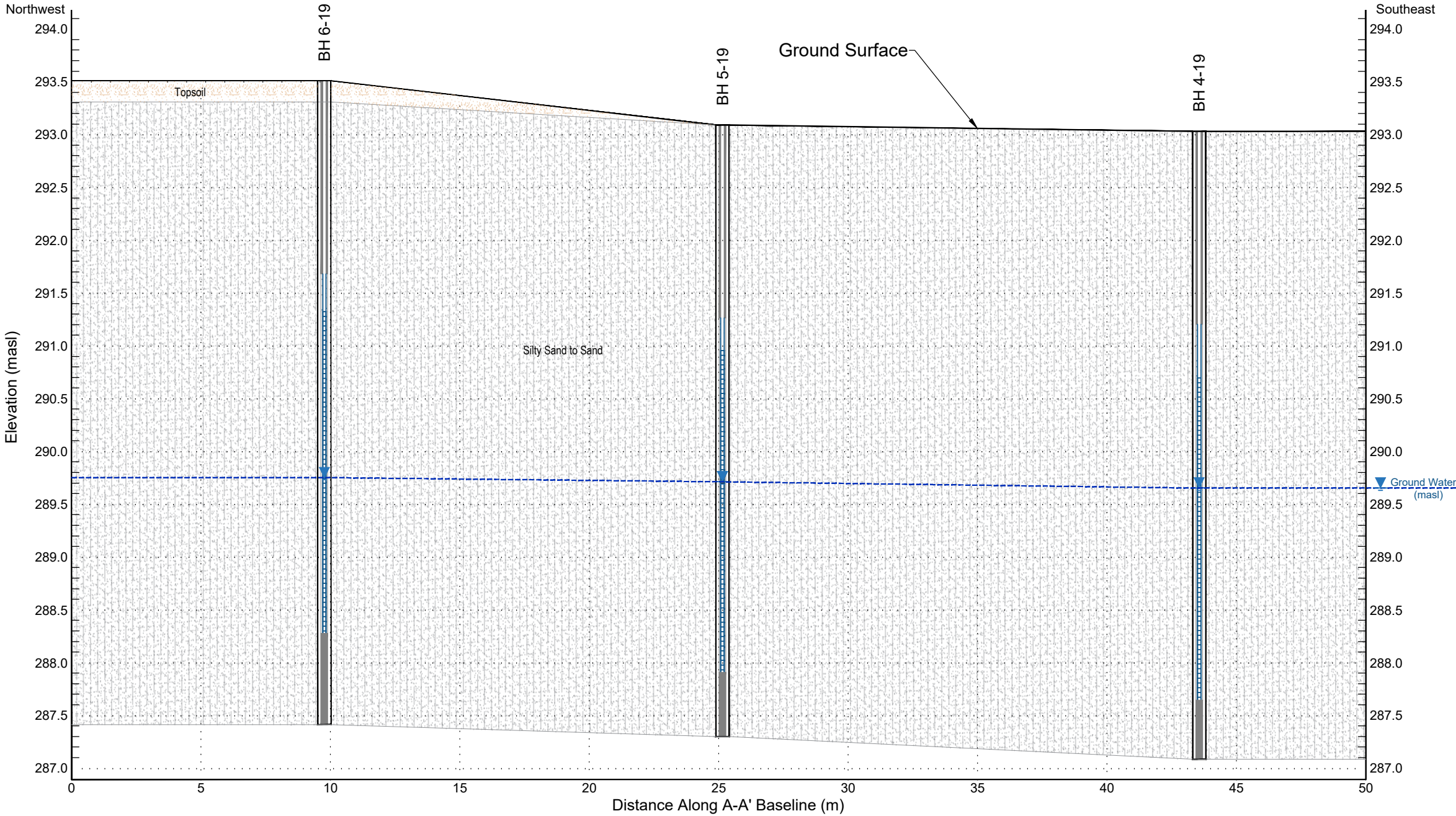
MS

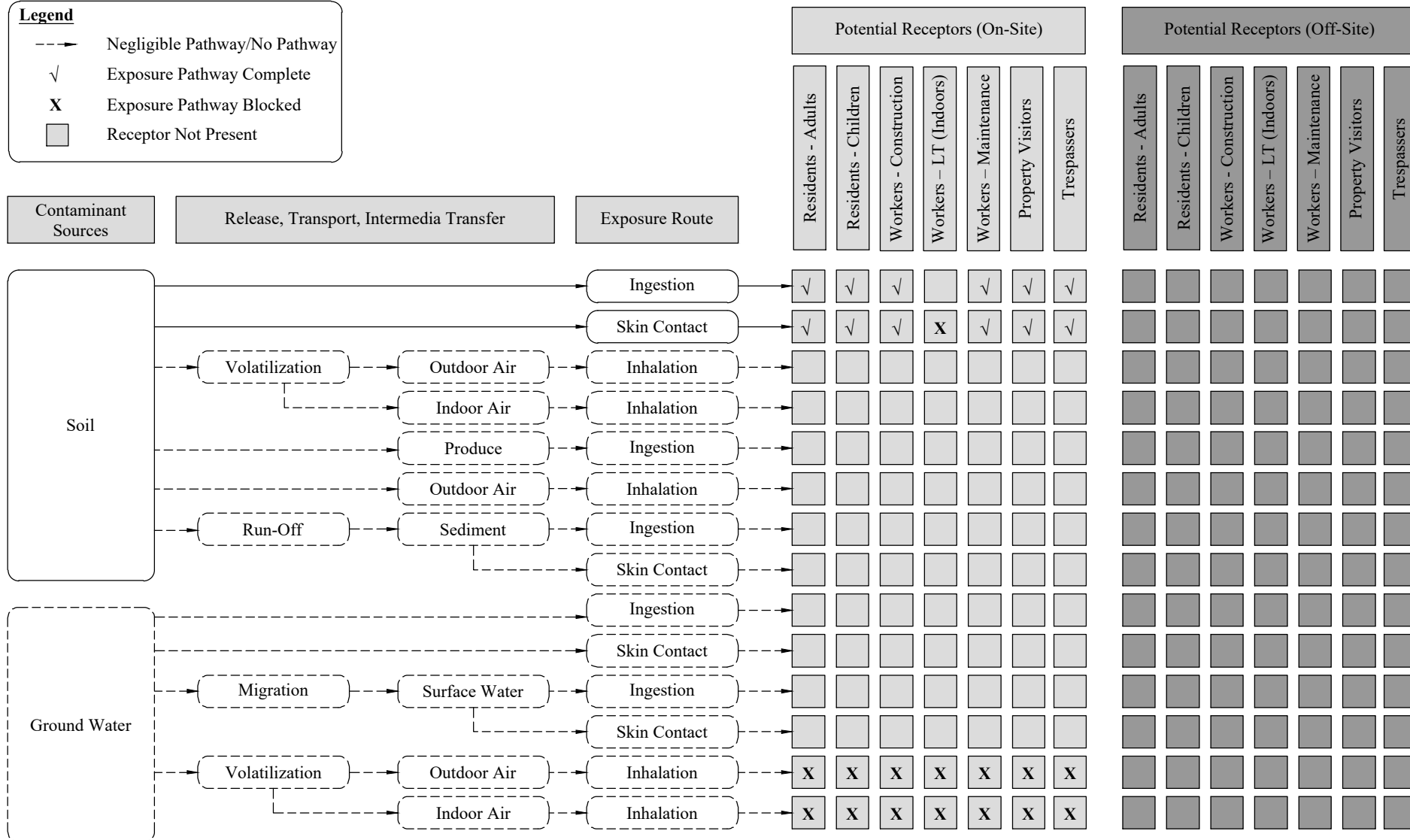
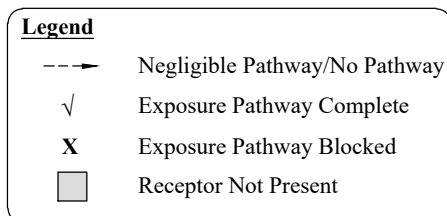
Date:

December 2019

Figure No.:

5





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Title:

HUMAN HEALTH CONCEPTUAL SITE MODEL

File No.

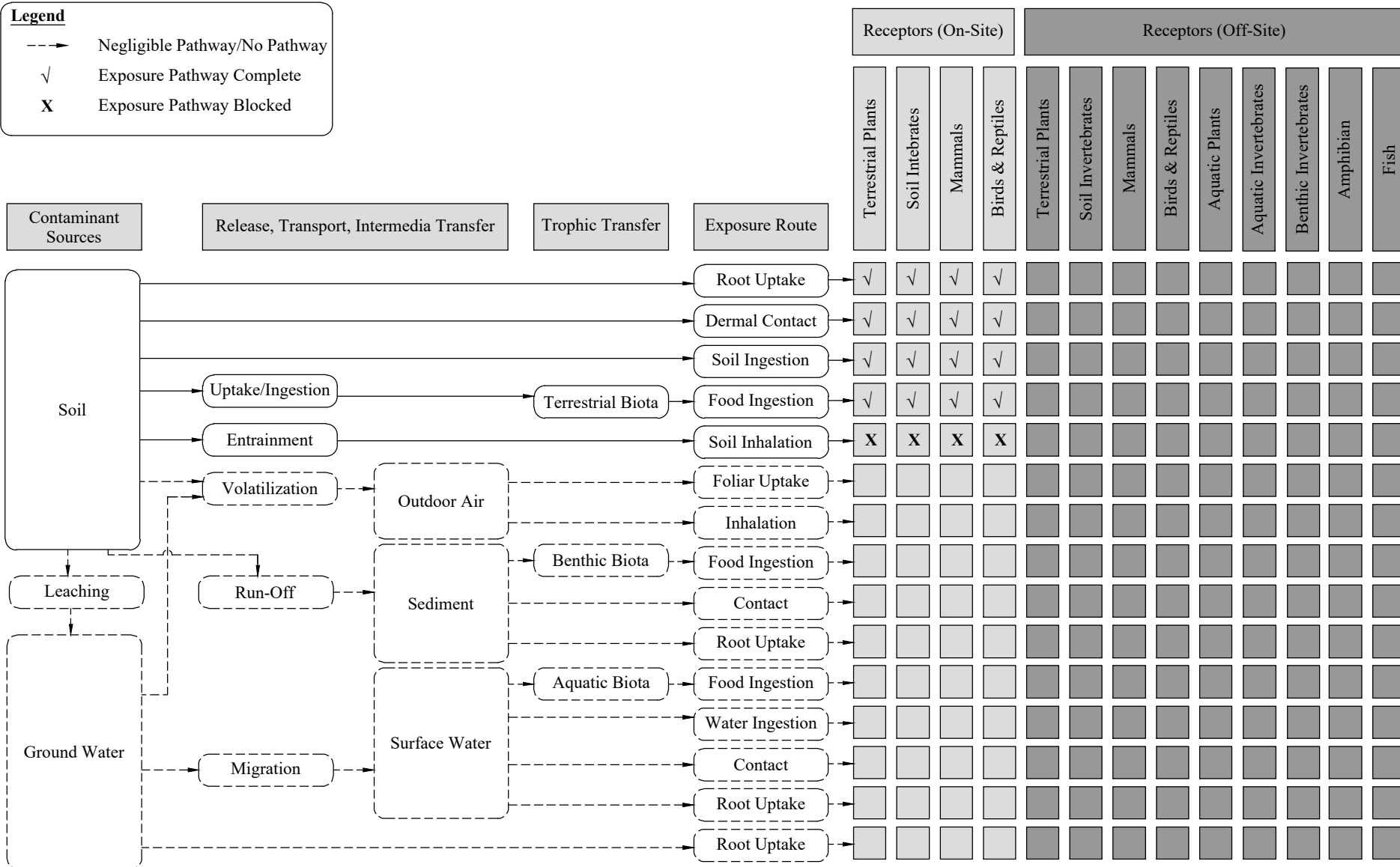
1-16-0543-42.2

FIGURE NO.:

6

Legend

- > Negligible Pathway/No Pathway
 ✓ Exposure Pathway Complete
 X Exposure Pathway Blocked



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Title:

ECOLOGICAL CONCEPTUAL SITE MODEL

File No.

1-16-0543-42.2

FIGURE NO.:

7