

# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

**PREPARED FOR:**

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**ATTENTION:**

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St. E. | Mississauga, Ontario**

**Grounded Engineering Inc.**

**File No.** 20-088 (Rev.1)

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# 1 Executive Summary

Edenshaw Elizabeth Developments Limited retained Grounded Engineering Inc. to complete a Phase Two Environmental Site Assessment (ESA) of the property located northwest of the intersection of Elizabeth St. N., and Park St. E., Mississauga, Ontario (Property). The Property includes the following municipal addresses:

- 23 Elizabeth Street North
- 42 Park Street East
- 44 Park Street East
- 46 Park Street East

The Phase Two ESA was conducted for purpose of due diligence/refinancing and for filing a Record of Site Condition (RSC). The Phase Two ESA is prepared in accordance with Ontario Regulation 153/04 (O.Reg. 153/04).

The results of the Phase Two ESA are summarized below:

Applicable Site Condition Standards	Ministry of Environment, Conservation and Parks (MECP) Table 3 Standards for Residential, Parkland, Institutional Land Use (Table 3 RPI)
Soil Potential Contaminants of Concern (PCoCs) Investigated	<ul style="list-style-type: none"> <li>• Metals</li> <li>• Hydride-forming Metals <ul style="list-style-type: none"> <li>◦ Antimony (Sb), Arsenic (As), Selenium (Se)</li> </ul> </li> <li>• Selected Other Regulated Parameters (ORPs) <ul style="list-style-type: none"> <li>◦ Electrical Conductivity (EC), Sodium Adsorption Ratio (SAR), Boron-hot water soluble (B-HWS), Cyanide (CN<sup>-</sup>), Mercury (Hg), Hexavalent Chromium (Cr(VI)), low or high pH</li> </ul> </li> <li>• Petroleum Hydrocarbons (PHCs)</li> <li>• Volatile Organic Compounds II (BTEX)</li> </ul>
Groundwater PCoCs Investigated	<ul style="list-style-type: none"> <li>• Metals</li> <li>• Hydride-forming Metals <ul style="list-style-type: none"> <li>◦ Antimony (Sb), Arsenic (As), Selenium (Se)</li> </ul> </li> <li>• Selected Other Regulated Parameters (ORPs) <ul style="list-style-type: none"> <li>◦ Cyanide (CN<sup>-</sup>), Sodium (Na), Chloride (Cl), Mercury (Hg), Hexavalent Chromium (Cr(VI))</li> </ul> </li> <li>• Petroleum Hydrocarbons (PHCs)</li> <li>• Volatile Organic Compounds II (BTEX)</li> </ul>
Applicable Site Condition Standards Met for Soil? (Yes/No)	Yes
Applicable Site Condition Standards Met for Groundwater? (Yes/No)	Yes

A Record of Site Condition (RSC) can be filed for the Property at this time.



## 2 Introduction

### 2.1 Site Description

Edenshaw Elizabeth Developments Limited retained Grounded Engineering Inc. to complete a Phase Two Environmental Site Assessment (ESA) of the property located northwest of the intersection of Elizabeth St. N., and Park St. E., Mississauga, Ontario (Property). The Property includes the following municipal addresses:

- 23 Elizabeth Street North
- 42 Park Street East
- 44 Park Street East
- 46 Park Street East

The site location is presented in Figure 1.

The Property is rectangular in shape, with a total area of 0.18 ha. The Property is bounded by Elizabeth St. N. to the northwest and Park St. E. to the southeast. The Property is currently developed with four (4) residential dwellings each with a basement. The Property is considered to be residential land use by the Ontario Ministry of the Environment, Conservation, and Parks (MECP). The Phase Two ESA has been prepared for purpose of due diligence/financing and for filing a Record of Site Condition (RSC). The Phase Two ESA is prepared in accordance with Ontario Regulation 153/04 (O.Reg. 153/04).

### 2.2 Property Ownership

The Property information is provided below:

<b>Municipal Address</b>	<ul style="list-style-type: none"> <li>• 23 Elizabeth Street North Mississauga</li> <li>• 42 Park Street East Mississauga</li> <li>• 44 Park Street East Mississauga</li> <li>• 46 Park Street East Mississauga</li> </ul>
<b>Legal Description</b>	Plan 300-E Pt Lot 8 Plan 300-E Pt Lot 8 RP 43R2685 Part 1,2,3 and 4
<b>PIN(s)</b>	<ul style="list-style-type: none"> <li>• 13463-0092 (LT)</li> <li>• 13463-0001(LT)</li> <li>• 13463-0002(LT)</li> <li>• 13463-0003(LT)</li> </ul>
<b>Current Land Use</b>	Residential
<b>Property Owner Information</b>	<ul style="list-style-type: none"> <li>• Leslie Calhoun</li> <li>• Tara Prouty and Patrick Alleguede</li> </ul>



	<ul style="list-style-type: none"> <li>• Margaret-Anne Murphy</li> <li>• Edenshaw Elizabeth Developments Limited</li> </ul>
<b>Person who has engaged the Qualified Person to conduct the Phase One ESA</b>	Edenshaw Elizabeth Developments Limited 129 Lakeshore Rd. E., Suite 201, 2nd Floor Mississauga, ON L5G 1E5

## 2.3 Current and Proposed Future Uses

The Property is considered to be residential land use by the Ontario Ministry of the Environment, Conservation and Parks (MECP). It is understood that the Phase Two Property will be redeveloped with a 22-storey high rise residential building and a P6-underground parking. As part of the future development, a 13 m<sup>2</sup> triangular parcel along the intersection of Elizabeth Street North and Park Street East will be conveyed to the City of Mississauga as proposed road-widening.

## 2.4 Applicable Site Condition Standard

The applicable site condition standard for the Phase Two Property is determined to be Table 3 Site Condition Standard for Residential/Parkland/Institutional in non-potable groundwater condition for coarse textured soil due to the following reason:

<b>Current Land Use</b>	Residential Land Use
<b>Future Land Use</b>	Residential Land Use
<b>Soil Texture</b>	Coarse
<b>Potable Water Source</b>	Lake Ontario
<b>Bedrock Depth</b>	Bedrock is located at a depth of greater than 2 m.
<b>Property located within 30 m of a surface water body (Yes/No)</b>	No
<b>Property located in or adjacent to a provincial park or an Area of Natural Significance (Yes/No)</b>	No

Grounded Engineering Inc. notified the Peel Region Clerk of the intention to use non-potable groundwater standards. No objections have been received on July 17, 2020 to the use of non-potable groundwater standards.



## 3 Background Information

### 3.1 Physical Setting

The Ministry of Natural Resources and Forestry (MNRF) and Ministry of Energy, Northern Development and Mines (MENDM) database were searched to obtain topographic and geological maps of Ontario for review. The information obtained are summarized below:

Records	Information
Topographic Maps	The Property is relatively flat lying with an approximate elevation of 80± masl.
Hydrology	The nearest water body is Mary Fix Creek located approximately 150 m to the west of the Property. Credit River is located approximately 390 m to the south of the Property. Lake Ontario is located approximately 450 m to the southeast. As part of the Lake Ontario Waterfront Watershed, groundwater from the Property is expected to flow south towards Credit River then southeast towards Lake Ontario. Surface water is expected to flow into catch basins on and adjacent to the Property.
Geological Maps	<p><u>Overburden:</u></p> <p>The overburden at the Property consisting of half coarse-textured glaciolacustrine deposits is comprised of sand, gravel, minor silt and clay. The other half is modern alluvial deposits comprised of clay, silt, sand, gravel and organic remains.</p> <p><u>Bedrock:</u></p> <p>The bedrock at the Property is of the Georgian Bay Formation, which is comprised of shale, limestone, dolostone and siltstone.</p> <p><u>Depth to Bedrock:</u></p> <p>Based on the subsurface investigation, depth to bedrock on site is approximately 7± m.</p>

Maps from MNRF were reviewed to determine if water bodies were present on the Property and within the Study Area. The Ontario Ministry of Natural Resources National Heritage Information Centre database for Areas of Natural or Scientific Interest (ANSIs) was also reviewed as part of the Phase Two ESA. The information is summarized below:

<b>Water Bodies</b>	<p><u>Property:</u></p> <ul style="list-style-type: none"> <li>No water bodies are located on the Property.</li> </ul> <p><u>Study Area:</u></p> <ul style="list-style-type: none"> <li>Mary Fix Creek located approximately 150 m to the west of the Property.</li> </ul>
<b>Wetlands</b>	<p><u>Property:</u></p> <ul style="list-style-type: none"> <li>No Provincially Significant, Non-Provincially Significant, and Unevaluated wetlands are located on the Property.</li> </ul> <p><u>Study Area:</u></p> <ul style="list-style-type: none"> <li>No Provincially Significant, Non-Provincially Significant, and Unevaluated wetlands are located within the Study Area.</li> </ul>



<b>ANSIs</b>	<p><u>Property:</u></p> <ul style="list-style-type: none"> <li>No Provincially Significant Life Science and Earth Science ANSIs are located on the Property.</li> </ul> <p><u>Study Area:</u></p> <ul style="list-style-type: none"> <li>No Provincially Significant Life Science and Earth Science ANSIs are located within the Study Area.</li> </ul>
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The Areas of Natural Significances (ANSIs) and water bodies on or adjacent to the Property is shown in Figure 2.

## 3.2 Past Investigations

The following environmental report was provided for review for the Property. The findings of the report are summarized below:

### Report 1

<b>Title and File No.</b>	Phase One Environmental Site Assessment, 23 Elizabeth St. N., 44, 42 & 46 Park St. E., Mississauga, Ontario. File No. 20-088
<b>Report Date</b>	May 8, 2020
<b>Prepared By</b>	Grounded Engineering Inc.
<b>Prepared for</b>	Edenshaw Elizabeth Developments Limited
<b>Description of Data, Analysis or Findings</b>	<ul style="list-style-type: none"> <li>The Phase One ESA was conducted in accordance with O.Reg. 153/04</li> <li>Mary Fix Creek located approximately 150 m to the west of the Property.</li> <li>Potentially contaminating activities (PCAs) were found on sites located with the Study Area but not on the Phase One Property.</li> <li>No Area of Potential Environmental Concern (APEC) were identified on the Property.</li> <li>A Phase Two ESA will not be required prior to the submission of a Record of Site Condition (RSC). An RSC can be submitted based on the Phase One ESA alone.</li> </ul>

The PCAs and APEC locations are provided in Figure 2.

## 4 Scope of the Investigation

### 4.1 Overview of Site Investigation

The scope of the Phase Two ESA is as follow:

<b>Boreholes and Monitoring Wells</b>	<ul style="list-style-type: none"> <li>Advancing of 4 boreholes to depths of 8.6 to 23.2 m below ground surface (mbgs)</li> <li>Installation of 4 of monitoring wells</li> </ul>
<b>Parameters Investigated for Soil</b>	<ul style="list-style-type: none"> <li>Metals</li> <li>Hydride-forming Metals <ul style="list-style-type: none"> <li>Antimony (Sb), Arsenic (As), Selenium (Se)</li> </ul> </li> <li>Selected Other Regulated Parameters (ORPs) <ul style="list-style-type: none"> <li>Electrical Conductivity (EC), Sodium Adsorption Ratio (SAR), Boron-hot water soluble (B-HWS), Cyanide (CN-), Mercury (Hg), Hexavalent Chromium (Cr(VI)), low or high pH</li> </ul> </li> </ul>



	<ul style="list-style-type: none"> <li>Petroleum Hydrocarbons (PHCs)</li> <li>Volatile Organic Compounds II (BTEX)</li> </ul>
<b>Parameters Investigated for Groundwater</b>	<ul style="list-style-type: none"> <li>Metals</li> <li>Hydride-forming Metals <ul style="list-style-type: none"> <li>Antimony (Sb), Arsenic (As), Selenium (Se)</li> </ul> </li> <li>Selected Other Regulated Parameters (ORPs) <ul style="list-style-type: none"> <li>Cyanide (CN-), Sodium (Na), Chloride (Cl), Mercury (Hg), Hexavalent Chromium (Cr(VI))</li> </ul> </li> <li>Petroleum Hydrocarbons (PHCs)</li> <li>Volatile Organic Compounds II (BTEX)</li> </ul>
<ul style="list-style-type: none"> <li>3 soil samples were submitted for grain size analysis and soil classification</li> <li>All boreholes and monitoring wells are surveyed to a geodetic benchmark</li> <li>All monitoring wells are developed and sampled</li> <li>Groundwater level measurements are conducted in all monitoring wells to determine groundwater elevation on the Property</li> </ul>	

## 4.2 Media Investigated

### 4.2.1 Rationale for Exclusion and Inclusion of Media

Media	Included/Excluded	Rationale
Soil	Included	Based on the Phase One ESA, no APECs were identified on the Property. Soil sampling was conducted for due diligence/refinancing purpose.
Sediment	Excluded	Surface water bodies were not presented on the Property. No sediment sampling was conducted during the Phase Two ESA.
Groundwater	Included	Based on the Phase One ESA, no APECs were identified on the Property. Soil sampling was conducted for due diligence/refinancing purpose.
Surface Water	Excluded	Surface water bodies were not presented on the Property. No surface water sampling was conducted during the Phase Two ESA.

### 4.2.2 Overview of Field Investigation of Media

Soil sampling was conducted during the drilling investigation. Groundwater sampling was conducted in the monitoring wells installed.

## 4.3 Phase One Conceptual Site Model

The Phase One Conceptual Site Model (CSM) prepared as part of the Phase One ESA report is provided in Appendix A.

## 4.4 Deviations From Sampling and Analysis Plan

No deviations from the sampling and analysis plan were observed. The Sampling and Analysis Plan is provided in Appendix B.





## 4.5 Impediments

No impediments were encountered during the Phase Two ESA.

## 5 Investigation Method

### 5.1 General

The Phase Two ESA followed the methods outlined in the 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 did not differ from the associated standard operating procedures.

### 5.2 Drilling

The Phase Two ESA drilling information is provided below:

<b>Boreholes</b>	BH1 to BH4
<b>Date of Work</b>	May 25 to 26, 2020 and June 2 to 3, 2020
<b>Name of the Contractor(s)</b>	Kodiak Drilling and Landshark Drilling
<b>Equipment Used</b>	<ul style="list-style-type: none"><li>• Track Mounted B57</li><li>• Mini Mole</li><li>• Hollow-stem augers (BH1)</li><li>• Solid-stem augers (BH2 to BH4)</li><li>• Mud rotary and rock coring (BH1)</li><li>• 2-inch split spoon soil sampling device</li></ul>
<b>Measures for Cross-contamination Prevention</b>	The split spoon sampling device was washed between each sample to prevent potential cross-contamination
<b>Sampling Frequency</b>	Please refer to the borehole logs in Appendix C for the sampling frequency

The borehole locations are provided in Figure 3.

### 5.3 Soil – Sampling

#### 5.3.1 Equipment Used

Below is the equipment used during the soil sampling.



- Sampling containers supplied by the laboratories
- Nitrile gloves
- Cooler with ice
- RKI EAGLE 2 gas monitor

## 5.4 Soil – Field Screening Measurements

Hydrocarbon vapour concentrations were screened in each soil sampling, using an RKI Eagle 2 gas monitor. The monitor is calibrated to *n*-hexane prior to field screening as per the calibration procedure outlined by RKI Instruments in “*Eagle 2 Operator’s Manual, Part Number:71-0154RK*” released March 12, 2019. The monitor has a range of 0 to 40,000 parts per million (ppm) and an accuracy of +/- 5%.

Based on field screening measurements and visual and olfactory examination of all soil samples, selected samples were submitted for petroleum hydrocarbon (PHCs) and benzene, ethylbenzene, toluene and xylene (BTEX) laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix C.

### 5.4.1 Geological Description

The borehole logs in Appendix C provide an overall geological description of each soil sample collected during the Phase Two ESA.

## 5.5 Groundwater – Field Measurement of Water Quality Parameters

Water quality parameters including temperature, pH, specific conductivity, total dissolved solids were measured using a Hanna Instruments portable meter (Boreholes 1, 2, 3 and 4) prior to sampling.

## 5.6 Groundwater – Monitoring Well Installation

The Phase Two ESA monitoring well installation information is provided below:

<b>Monitoring Wells</b>	BH1 to BH4
<b>Date of Work</b>	May 25 to 26, 2020 and June 2 to 3, 2020
<b>Name of the Contractor(s)</b>	Kodiak Drilling and Landshark Drilling.
<b>Equipment Used</b>	<ul style="list-style-type: none"> <li>• Track Mounted B57</li> <li>• Mini Mole</li> <li>• Hollow-stem augers (BH1)</li> <li>• Solid-stem augers (BH2 to BH4)</li> <li>• Mud rotary and rock coring (BH1)</li> <li>• 2-inch split spoon soil sampling device</li> </ul>



<b>Measures for Cross-contamination Prevention</b>	The split spoon sampling device was washed between each sample to prevent potential cross-contamination
<b>Sampling Frequency</b>	No ground water samples were collected during drilling event.
<b>Well Construction</b>	The wells were constructed with 50 mm (2 in.) ID PVC screens and risers. Filter sand was placed around the well screen to approximately 0.3 to 0.6 m above the top of the screen. The wells were then backfilled with bentonite to approximately 0.3 m below ground surface (mbgs). The wells were finished with flush mounts.
<b>Well Development</b>	The monitoring wells were developed on June 5, 2020. Well development was conducted with a hydrolift pump, Low Density Polyethylene (LDPE) tubing and foot valve. A total volume of 395 L of water was removed during the well development. Stabilization of parameters (pH, conductivity, temperature, etc.) of the purged water was monitored before a sample to ensure the samples are representative of the formation water.

The monitoring well locations are provided in Figure 3.

## 5.7 Groundwater – Sampling

The monitoring well was purged and sampled using a bladder pump. The groundwater was purged before sampling to ensure extraction of representative formation groundwater. Stabilization of water quality parameters of the purged water was monitored before a sample was taken to maintain the equilibrium with the surrounding formation water and produce samples that are representative of the formation water.

Sampling methodology from the Ontario Ministry of the Environment, Conservation and Parks (MECP) *“Guidance on Sampling and Analytical Methods for Use at Contaminated Sites In Ontario”*, MECP *“Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04”* and MECP *“Protocol for Analytical Methods Used in the Assessment of Properties under Par XV.1 of the Environmental Protection Act”* were followed in the collection of the groundwater samples.

## 5.8 Sediment – Sampling

No sediment sampling was conducted as part of this investigation.

## 5.9 Analytical Testing

Analytical Testing of all soil and groundwater samples was conducted by SGS Canada Inc.

## 5.10 Residue Management Procedures

Residues from the filed investigation were managed accordingly as provided below:

<b>Residues</b>	<b>Management Procedures</b>
-----------------	------------------------------



Soil Cuttings	Soil cuttings generated during the drilling activities were placed in drums and were removed from the property by the client.
Groundwater	The purged water generated during the well development was allowed to re-infiltrate into the ground on site.
Fluids from Equipment Cleaning	The fluids from cleaning were removed from the Property and disposed by the drilling contractor.

## 5.11 Elevation Surveying

The elevations of the boreholes on the Property were for horizontal coordinates and geodetic elevations with a Trimble R10 Receiver connected to the Global Navigation Satellite System and the Can-Net Virtual Reference Station Network. The elevation of each borehole on the Property is presented on the borehole logs in Appendix C. The groundwater elevation is presented in Figure 4.

## 5.12 Quality Assurance and Quality Control Measures

### 5.12.1 Containers, Preservation, Labelling, Handling and Chain of Custody

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

Parameter/Group	Containers	
	Soil	Groundwater
Inorganic Parameters: Chromium hexavalent (CrVI), cyanide (CN-), pH, electrical conductivity (EC)  Soil only: boron, hot water soluble (B-HWS), sodium adsorption ratio (SAR)  Water only: chloride	250 g soil jar	500 mL PET 60 mL plastic (CrVI) 120 mL plastic (CN-)
Metals		250 mL HDPE (Metals)
Mercury (Hg)		60 mL amber glass (Hg)
Petroleum hydrocarbons (PHCs) F1/BTEX	100 g soil jar 2 x 40 mL pre-weighed methanol 5 g soil plug	2 x 40 mL amber vial (zero headspace)
PHCs (F2-F4)	100 g soil jar	2 x 100 mL bottles fill to top of label
Toxicity characteristic leaching procedure (TCLP)	250 g soil jar	-

All sampling containers were equipped with laboratory supplied labels. The labels indicated the following information:

- Sample ID



- Company name
- Date
- Project number

Samples were placed in coolers with ice after collection for transportation to the laboratory. Sample hold times were met for all submitted soil and groundwater samples. Laboratory supplied Chain of Custody forms were completed for all samples submitted for analysis.

### 5.12.2 Equipment Cleaning Procedures

Equipment	Cleaning Procedures
Soil sampling	Split spoon sampling device was washed between samples to prevent potential cross-contamination.
Groundwater sampling	Water level meter/ water quality monitoring meter was cleaned between monitoring wells. The bladder of the bladder pump was switched out between monitoring wells.

All other dedicated equipment (nitrile gloves, terracores samplers, tubing) were change between each sample to avoid cross-contamination.

### 5.12.3 Field Quality Control Measures and Deviations

For quality control purpose, the following actions were taken:

- At least one (1) duplicate sample is submitted for laboratory analysis for every ten (10) samples submitted for laboratory analysis for each sampled medium.
- Daily calibration of field instruments prior to sampling.

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

## 6 Review and Evaluation

### 6.1 Geology

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

Geological Unit Thickness (Estimate)	
Borehole	BH1 to BH4
	Thickness Range (m)
Earth Fill	0.8 to 1.5



Silt and Sand	3.0 to 7.6
Silty Clay (Glacial Till)	4.6 to 7.6
Sandy Silt (Glacial Till)	7.6 to 10.4
Bedrock	8.6 to at least 23.2

Geological Unit Elevations		
Borehole	BH1 to BH4	
	Elev. Top Range (masl)	Elev. Bottom Range (masl)
Earth Fill	83.4	80.3
Silt and Sand	82.7	75.9
Silty Clay (Glacial Till)	78.2	75.3
Sandy Silt (Glacial Till)	76.6	72.9
Bedrock	74.2	58

### 6.1.1 Material in Geological Units

Geological Units	Description
Earth Fill	Underlying the surficial materials, the boreholes observed a layer of earth fill that extends to depths of 0.8 to 1.1 metres below grade (Elev. 82.7 to 80.3 metres). The earth fill varies in composition but generally consists of silty sand, with trace gravel and trace rootlets. The earth fill is typically dark brown to brown, and moist.
Native Silt and Sand	Native Silt and Sand was encountered in all borehole locations underlying the Earth Fill. The Native Silty Sand unit extends down to depths of 3.0 to 7.6 m below grade (Elev. 75.9 to 78.2 m). The silty sand unit contains trace gravel and trace clay.
Glacial Till	Underlying the silt and sand unit, all the boreholes encountered an undisturbed native glacial till deposit. The upper portion of the till has a matrix of cohesive silty clay (encountered in all but Borehole 3). The till transitions to a cohesive sandy silt till. The till was encountered at 3.0 to 6.1 metres below grade (Elev. 76.8 to 78.2 m). The upper cohesive till is generally grey, and moist to wet. The upper till contains trace to some gravel and trace sand. The lower cohesionless sandy silt till is generally grey, and moist to wet. This layer contains some clay and some gravel.
Bedrock	The top of inferred bedrock was encountered at depths ranging from 7.6 to 10.4 m in all boreholes across the site (Elev. 72.9 to 74.2± m). Boreholes 2 to 4 inferred the top of weathered bedrock through auger cuttings, split spoon samples, and auger grinding/resistance observations. Boreholes 2 to 4 were terminated due to auger and sampler refusal (at target investigation depth) at elevations ranging





Geological Units	Description
	from Elev. 72.8 to 73.8 m. Borehole 1 recovered rock core from Elev. 71.0 to 58.0 m. The bedrock beneath the site is the Georgian Bay Formation ("GBF"), which broadly comprises thin to medium bedded grey shale and limestone of Ordovician age. The shale is interbedded with calcareous shale, limestone, dolostone, and calcareous sandstone (conventionally grouped together as "limestone") which are typically laterally discontinuous.

### 6.1.2 Properties of Aquifers and Aquitards

Aquifers/Aquitards	Description
Earth Fill	The Earth Fill on the Property is considered to be an unconfined aquifer. The earth fill likely drains into the catch basins onsite or storm water systems adjacent to the Property.
Native Silty Sand	The Native Silty Sand underlying the Earth Fill is considered to be an unconfined aquifer.
Glacial Till	The Glacial till underlying the Native Silty Sand is considered to be an aquitard.
Bedrock	The Bedrock is considered to be an aquitard.

### 6.1.3 Rationale for Choice of Aquifers and Aquitards Investigated

The silt and sand and till units were chosen for investigation. This stratum was chosen for investigation because:

- Possibility of free ground water present.
- The likelihood of horizontal migration of groundwater across the site.
- The likelihood of vertical migration of groundwater.

## 6.2 Groundwater: Elevations and Flow Direction

The monitoring wells were located throughout the Property to satisfy site coverage. Screened intervals of the monitoring wells were selected for the collection of groundwater samples within the desired stratum.

Interface probe measurements were taken and no light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquids (DNAPL) were detected. No free-flowing products was encountered on the Property.

Based on the groundwater elevations measured on the Property, the groundwater was determined to flow locally to the south. Regional groundwater flow is expected to flow to the south towards Credit River then eventually Lake Ontario. Groundwater elevation is provided on the borehole logs



in Appendix C and on Table 1. The groundwater flow direction and contour are present in Figure 4.

Additional groundwater data will be required to assess seasonal variability in water quantity and flow direction. Buried utilities are located on the Property above the static water table. It is unlikely that the buried utilities would influence the groundwater flow.

### 6.3 Groundwater: Hydraulic Gradients

<b>Horizontal Hydraulic Gradients</b>	The horizontal hydraulic gradient at the Property was determined to be approximately 0.1 m/m.
<b>Vertical Hydraulic Gradients</b>	The vertical hydraulic gradient at the Property was determined to be approximately 0.3 m/m downwards.
<b>Hydraulic Conductivity</b>	<ul style="list-style-type: none"> <li>▪ Earth Fill <math>1 \times 10^{-6}</math> m/s</li> <li>▪ Silty Sand <math>1 \times 10^{-7}</math> m/s</li> <li>▪ Silty Clay (Glacial Till) <math>3.1 \times 10^{-8}</math> m/s</li> <li>▪ Sandy Silt (Glacial Till) <math>9.39 \times 10^{-8}</math> m/s</li> </ul>

The grain size analysis and rising head test completed at the Property are provided in Appendix D.

### 6.4 Fine-Medium Soil Texture

Fine-medium soil texture was not used during the Phase Two ESA. All chemical results were compared to the coarse textured standards. Grain size analysis were completed for selected soil samples from the boreholes at the Property. The grain size analysis is provided in Appendix D.

### 6.5 Soil – Field Screening

Hydrocarbon vapour concentrations were screened in each soil sampling, using an RKI Eagle 2 gas monitor. The monitor is calibrated to *n*-hexane prior to field screening as per the calibration procedure outlined by RKI Instruments in “*Eagle 2 Operator’s Manual, Part Number:71-0154RK*” released March 12, 2019. The monitor has a range of 0 to 40,000 parts per million (ppm) and an accuracy of +/- 5%.

Based on field screening measurements and visual and olfactory examination of all soil samples, selected samples were submitted for petroleum hydrocarbon (PHCs) and benzene, ethylbenzene, toluene and xylene (BTEX) laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix C.



## 6.6 Soil – Quality

### 6.6.1 Location and Depth of Samples

Sample ID	Depth		Strata	Metals	H-Metals	ORPs	PHCs/BTEX
	mbgs	masl					
BH1 SS2	0.8 - 1.4	80.4-79.8	Silt and Sand	✓	✓	✓	✓
BH1 SS3	1.5 - 2.1	79.7-79.1	Silt and Sand	✓	✓	✓	
BH1 SS5	3.0 - 3.7	78.1-77.5	Glacial Till				✓
BH2 SS2	0.8 - 1.2	80.6-80.2	Fill	✓	✓	✓	✓
BH2 SS4	2.3 - 2.9	79.1-78.5	Silt and Sand	✓	✓	✓	✓
BH3 SS4	2.3 - 2.6	81.2-80.9	Silt and Sand	✓	✓	✓	✓
BH3 SS6	4.6 - 4.8	78.9-78.7	Silt and Sand	✓	✓	✓	✓
BH4 SS5	3.0 - 3.5	80.3-79.8	Silt and Sand	✓	✓	✓	✓
BH4 SS8	7.6 - 8.1	75.7-75.3	Glacial Till	✓	✓	✓	✓

### 6.6.2 Comparison to Applicable Standards

The Phase One found that there are **no** Potential Contaminants of Concern (PCoCs) in the soils. The following parameters were tested for due diligence/refinancing purposes:

- Metals
- Hydride-forming Metals
  - (Sb), (As), (Se)
- Selected ORPs
  - EC, SAR, B-HWS, CN-, Hg, Cr(VI), pH
- PHCs
- BTEX

The results of the analysis were compared to the applicable Site Condition Standard for the Phase Two Property (Table 3 RPI). The laboratory certificates of analysis are provided in Appendix E, and the results of the soil chemical analysis are provided in Tables 2 to 12 and presented on Figures 6 and 7.

Comparison Table (Table 3 RPI Standard)		
Parameter Analyzed	Exceed/Meet	Note:
Metals	Meet	None



Comparison Table (Table 3 RPI Standard)		
Parameter Analyzed	Exceed/Meet	Note:
Hydride-forming Metals	Meet	None
ORPs	Meet	None
PHCs	Meet	None
BTEX	Meet	None

### 6.6.3 Contaminants of Concern

No Contaminants of Concern were identified within the earth fill and native soil on the Property.

### 6.6.4 Contamination Impact on Other Media

No Contaminants of Concern were identified within the earth fill and native soil on the Property. It is unlikely that other media on the Property will be impacted.

### 6.6.5 Chemical or Biological Transformations

No chemical or biological transformations are likely to occur since no Contaminants of Concern were identified in the soil on the Property.

### 6.6.6 Presence of Light or Dense Non-Aqueous Phase Liquids

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 Samples

Sample ID	Screen Depth		Screen Strata	Metals	H-Metals	ORPs	PHCs/BTEX
	mbgs	masl					
BH1	20.1-23.2	61.0-58.0	Bedrock	✓	✓	✓	✓
BH2	5.5-8.5	75.9-72.9	Glacial Till	✓	✓	✓	✓
BH3	5.6-8.7	77.8-74.8	Silt and Sand to Glacial Till	✓	✓	✓	✓
BH4	5.6-8.7	77.7-74.7	Silty Sand to Glacial Till	✓	✓	✓	✓



Field filtering as per the requirements of the MECP *“Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act”* July 2011, was completed.

### 6.7.2 Comparison to Applicable Standards

Selected groundwater samples were analyzed for Potential Contaminants of Concern (PCoCs) of the following:

- Metals
- Hydride-forming Metals
  - Sb, As, Se
- Selected ORPs
  - CN-, Hg, Cr(VI), Na, Cl
- PHCs
- BTEX

The results of the analysis were compared to the applicable Site Condition Standard for the Phase Two Property (Table 3 RPI). The laboratory certificates of analysis are provided in Appendix E, and the results of the groundwater chemical analysis are provided in Tables 13 to 21.

Comparison Table (Table 3 RPI Standard)		
Parameter Analyzed	Exceed/Meet	Note:
Metals	Meet	None
Hydride-forming Metals	Meet	None
ORPs	Meet	BH1 <ul style="list-style-type: none"> <li>• Cl (Standard 2,300,000 ug/L, Results 21,000,000 ug/L)</li> <li>• Na (Standard 2,300,000 ug/L, Results 8,090,000 ug/L)</li> </ul>
PHCs	Meet	None
BTEX	Meet	None

### 6.7.3 Contaminants of Concern

No Contaminants of Concern were identified in the groundwater on the Property.

The QP deemed the Na and Cl parameter in groundwater to be met as per the O.Reg.153/04 49.1 *“The qualified person determined, based on a phase one environmental site assessment or a phase two environmental site assessment, that a substance has been applied to surface for the safety vehicular or pedestrian traffic under conditions of snow or ice or both”.*



#### **6.7.4 Contamination Impact on Other Media**

No Contaminants of Concern were identified with the groundwater on the Property. It is unlikely that other media on the Property will be impacted.

#### **6.7.5 Chemical or Biological Transformations**

No chemical or biological transformations are likely to occur since no Contaminants of Concern were identified in the groundwater on the Property.

#### **6.7.6 Presence of Light or Dense Non-Aqueous Phase Liquids**

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

### **6.8 Sediment – Quality**

Sediment was not present at the Property thus was not investigated as part of the Phase Two ESA.

### **6.9 Quality Assurance and Quality Control Results**

Quality Assurance (QA) and Quality Control (QC) were maintained as per described in Section 5.12 above. In addition, laboratory results were compared to MECP standards for QA/QC under Ontario Regulation 153/04 which requires laboratory results to meet specific method detection limit (MDL) conditions. The sampling and analysis performed conformed with the following guidelines:

1. Ministry of the Environment, Conservation and Parks Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario.
2. Protocol of Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act of Ontario.

Duplicated samples were submitted at a rate of 10% for both soil and groundwater samples.

All the samples collected and submitted for analysis adhered to the holding times, preservation methods, storage requirement and container type as specified by the guidelines listed above.

#### **6.9.1 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 in full in an appendix to the Phase Two ESA report.





### 6.9.2 Laboratory Qualification of Results

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

### 6.9.3 Overall Quality of Field Data

The overall quality of the field data was deemed to be acceptable by the Qualified Person.

## 6.10 Phase Two Conceptual Site Model

Phase Two Conceptual Site Model (CSM) is prepared for the Property and is provided in Appendix F.

## 7 Conclusions

The location and concentration of contamination is provided below:

<b>Land</b>	No exceedances of the applicable Site Condition Standards were identified in the soil on the Property.
<b>Groundwater</b>	No exceedances of the applicable Site Condition Standards were identified in the ground water on the Property.

No exceedances of the applicable Site Condition Standards were identified for the soil and groundwater on the Property. As such, no remediation or a risk assessment (RA) will be required. A Record of Site Condition (RSC) can be field for the Property.

Whether applicable Site Condition Standards and standards specified in a risk assessment for contaminants on, in or under the Phase Two Property were met as of the certification date is provided below:

<b>Soil</b>	<b>Earth Fill</b>	The applicable Site Condition Standards were met in the earth fill located on the Property.
	<b>Native</b>	The applicable Site Condition Standards were met in the native located on the Property.
<b>Groundwater</b>		The applicable Site Condition Standards were met in the groundwater located on the Property.



## 7.1 Signatures

The Phase Two ESA has been completed in accordance with O. Reg. 153/04 by, Jessie Hui Chung Wu, M.Env.Sc., under the direction and supervision of Matthew Bielaski, P. Eng., QP<sub>RA-ESA</sub>. The findings and conclusions presented in this report have been determined based on the information that was obtained and reviewed from previous investigations provided and on the current investigation for the Phase Two Property.

We trust that this report meets your requirements at present.

For and on behalf of our team,



Jessie Hui Chung Wu, M.Env.Sc.



Matthew Bielaski, P.Eng., QP<sub>RA-ESA</sub>  
Principal



## 8 References

1. Armstrong, D.K. and Dodge, J.E.P. 2007. Paleozoic Geology Map of Southern Ontario. Ontario Geological Survey. Miscellaneous Release--Data 219.
2. Chapman, L.J. and Putnam, D.F. 2007. The Physiography of Southern Ontario. Ontario Geological Survey. Miscellaneous Release--Data 228.
3. Gao, C., Shiota, J., Kelly, R. I., Brunton, F.R., van Haaften, S. 2006. Bedrock topography and overburden thickness mapping, southern Ontario. Ontario Geological Survey. Miscellaneous Release--Data 207.
4. Ontario Geological Survey 2011. 1:250,000 scale bedrock geology of Ontario. Ontario Geological Survey. Miscellaneous Release--Data 126-Revision 1.
5. Ontario Geological Survey. 2010. Surficial geology of Southern Ontario. Ontario Geological Survey. Miscellaneous Release--Data 128-Revised.
6. Ontario Geological Survey. 2000. Quaternary geology, seamless coverage of the Province of Ontario. Ontario Geological Survey. Data Set 14--Revised.
7. Grounded Engineering Inc. *Phase One Environmental Site Assessment, 20 Elizabeth St., N., 44, 42 & 46 Park St. E., Mississauga, Ontario*. File No. 20-088 (Rev.1). May 8, 2020.

## 9 Limitations and Restrictions

The Phase Two ESA 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 groundwater at the Property may have been adversely affected by past or present practices at the Property, and/or those of the adjacent properties prior to development of the Property. Any use of which a third party makes of this report, or any reliance on or decision to be made based on it, are the responsibility of such third parties. Grounded Engineering Inc. does not assume any responsibility for errors, omissions, damages or other limitation pertaining to third parties.

The information presented in this report is based on information collected during the completion of the subsurface investigation conducted by Grounded Engineering Inc. It is based on conditions at the Property at the time of the inspection. The subsurface conditions were assessed based on information collected at specific borehole and monitoring well locations. The actual subsurface conditions between sampling points may be different.

The conclusions presented in this report are based on work undertaken by trained professional and technical staff and are the product of professional care and competence. The report cannot be construed as legal advice or as an absolute guarantee.

If new information regarding the environmental condition of the Phase Two Property is identified during future work, or outstanding responses from regulatory agencies indicate outstanding issues on file with respect to the Phase Two Property, Grounded Engineering Inc. should be notified so that we may re-evaluate the findings of this assessment and provide amendments.



## **9.1 Report Use**

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# TABLES



Table 1: GROUNDWATER ELEVATION  
23 Elizabeth St. N.

Consultant	Monitoring Well ID	05-Jun-20	10-Jun-20	12-Jun-20	18-Jun-20	20-Jul-20
		GW Elevation (masl)	GW Elevation (masl)	GW Elevation (masl)	GW Elevation (masl)	GW Elevation (masl)
Grounded Engineering	BH1	76.3	73.4	68.4	68.5	68.6
	BH2	76.4	76.4	76.5	76.5	76.7
	BH3	80.2	79.7	79.4	79.8	79.5
	BH4	80.5	80.4	80.4	80.3	79.9

NA – Monitoring wells could not be located or monitored

NM – Not Measured



TABLE 2  
SOIL QUALITY ANALYSIS  
METALS  
23 Elizabeth St N  
Mississauga, Ontario  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria RPI CT	RDL	Maximum	BH1-SS2	BH1-SS3	BH2/SS2	BH2/SS4	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP-BH4-SS5
COC ID #					CA14778- JUN20	CA14778- JUN20	CA14830- JUN20	CA14830- JUN20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20
Date					8	9	8	9	8	9	10	11	12
Depth of Sample (m)					2-Jun-20	2-Jun-20	8-Jun-20	9-Jun-20	25-May-20	25-May-20	25-May-20	25-May-20	25-May-20
Elev of Sample (masl)					1.4	2.1	1.2	2.9	2.6	4.8	3.5	8.1	3.5
Parameter					79.8	79	80.2	78.5	80.9	78.7	79.8	75.3	79.8
Barium	µg/g	390	0.01	60	43	35	50	55	25	12	13	60	13
Beryllium	µg/g	4	0.02	0.62	0.33	0.27	0.36	0.33	0.15	0.12	0.13	0.62	0.15
Boron	µg/g	120	1	12	3	2	4	6	3	2	3	12	3
Cadmium	µg/g	1.2	0.02	0.12	0.07	0.05	0.10	0.07	0.03	0.04	0.04	0.12	0.03
Chromium	µg/g	160	0.5	22	13	12	16	16	6.8	5.8	5.4	22	6.5
Cobalt	µg/g	22	0.01	14	7.7	5.9	7.9	7.4	3.7	2.7	3.4	14	4.1
Copper	µg/g	140	0.1	29	18	15	19	18	9	9	9	29	9
Lead	µg/g	120	0.1	11	6.2	4.8	11	5.6	3.3	2.5	2.6	7.3	3.2
Molybdenum	µg/g	6.9	0.1	0.4	0.2	0.3	0.4	0.2	0.1	0.1	0.1	0.3	0.2
Nickel	µg/g	100	0.1	31	16	12	16	15	7	5	6	31	7
Silver	µg/g	20	0.01	< 0.01	< 0.05	<0.05	< 0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Thallium	µg/g	1	0.02	0.14	0.09	0.08	0.09	0.09	0.04	0.03	0.03	0.14	0.04
Uranium	µg/g	23	0.002	0.66	0.38	0.35	0.38	0.41	0.46	0.36	0.31	0.66	0.31
Vanadium	µg/g	86	3	27	22	19	27	24	12	12	11	27	12
Zinc	µg/g	340	0.7	67	35	26	47	33	15	11	14	67	16

**Comments:**  
Results compared to MECP 2011 Table 3 Site Condition Standards for Residential/Parkland/Institutional Land Use in a Coarse-Textured Soil Condition  
RDL - Reported Detection Limit; G / S - Guideline / Standard  

<150	Detection limit exceeded Standard
150	Sample result exceeded Standard

NV- No Value  
NA-Not Analyzed

TABLE 3  
SOIL QUALITY ANALYSIS  
HYDRIDE METALS  
23 Elizabeth St N  
Mississauga, Ontario  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria RPI CT	RDL	Maximum	BH1-SS2	BH1-SS3	BH2/SS2	BH2/SS4	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP-BH4-SS5
COC ID #					CA14778- JUN20	CA14778- JUN20	CA14830- JUN20	CA14830- JUN20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20
Date					8	9	8	9	8	9	10	11	12
Depth of Sample (m)					2-Jun-20	2-Jun-20	8-Jun-20	9-Jun-20	25-May-20	25-May-20	25-May-20	25-May-20	25-May-20
Elev of Sample (masl)					1.4	2.1	1.2	2.9	2.6	4.8	3.5	8.1	3.5
Parameter					79.8	79	80.2	78.5	80.9	78.7	79.8	75.3	79.8
Antimony	µg/g	7.5	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	18	0.5	4.6	2.7	2.3	2.8	2	2.2	1.1	1.1	4.6	1.2
Selenium	µg/g	2.4	0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7

Comments:  
Results compared to MECP 2011 Table 3 Site Condition Standards for Residential/Parkland/Institutional Land Use in a Coarse-Textured Soil Condition  
RDL - Reported Detection Limit; G / S - Guideline / Standard  

<150

Detection limit exceeded Standard  

150

Sample result exceeded Standard

NV- No Value  
NA-Not Analyzed

TABLE 4  
SOIL QUALITY ANALYSIS  
BORON - HOT WATER SOLUBLE  
23 Elizabeth St N  
Mississauga, Ontario  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria RPI CT	RDL	Maximum	BH1-SS2	BH1-SS3	BH2/SS2	BH2/SS4	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP-BH4-SS5
COC ID #					CA14778- JUN20	CA14778- JUN20	CA14830- JUN20	CA14830- JUN20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20
Date					8	9	8	9	8	9	10	11	12
Depth of Sample (m)					2-Jun-20	2-Jun-20	8-Jun-20	9-Jun-20	25-May-20	25-May-20	25-May-20	25-May-20	25-May-20
Elev of Sample (masl)					1.4	2.1	1.2	2.9	2.6	4.8	3.5	8.1	3.5
Parameter					79.8	79	80.2	78.5	80.9	78.7	79.8	75.3	79.8
Boron (Hot Water Soluble)	µg/g	1.5	0.5	0.8	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.8	< 0.5

**Comments:**  
Results compared to MECP 2011 Table 3 Site Condition Standards for Residential/Parkland/Institutional Land Use in a Coarse-Textured Soil Condition  
RDL - Reported Detection Limit;    G / S - Guideline / Standard  

<150

 Detection limit exceeded Standard  

150

 Sample result exceeded Standard

NV- No Value  
NA-Not Analyzed

TABLE 5  
SOIL QUALITY ANALYSIS  
HEXAVALENT CHROMIUM  
23 Elizabeth St N  
Mississauga, Ontario  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria RPI CT	RDL	Maximum	BH1-SS2	BH1-SS3	BH2/SS2	BH2/SS4	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP-BH4-SS5
COC ID #					CA14778- JUN20	CA14778- JUN20	CA14830- JUN20	CA14830- JUN20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20
Date					8	9	8	9	8	9	10	11	12
Depth of Sample (m)					2-Jun-20	2-Jun-20	8-Jun-20	9-Jun-20	25-May-20	25-May-20	25-May-20	25-May-20	25-May-20
Elev of Sample (masl)					1.4	2.1	1.2	2.9	2.6	4.8	3.5	8.1	3.5
Parameter					79.8	79	80.2	78.5	80.9	78.7	79.8	75.3	79.8
Chromium VI					µg/g	8	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2

**Comments:**  
Results compared to MECP 2011 Table 3 Site Condition Standards for Residential/Parkland/Institutional Land Use in a Coarse-Textured Soil Condition  
RDL - Reported Detection Limit;    G / S - Guideline / Standard  

<150

 Detection limit exceeded Standard  

150

 Sample result exceeded Standard

NV- No Value  
NA-Not Analyzed

TABLE 6  
SOIL QUALITY ANALYSIS  
CYANIDE  
23 Elizabeth St N  
Mississauga, Ontario  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria RPI CT	RDL	Maximum	BH1-SS2	BH1-SS3	BH2/SS2	BH2/SS4	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP-BH4-SS5
COC ID #					CA14778- JUN20	CA14778- JUN20	CA14830- JUN20	CA14830- JUN20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20
Date					8	9	8	9	8	9	10	11	12
Depth of Sample (m)					2-Jun-20	2-Jun-20	8-Jun-20	9-Jun-20	25-May-20	25-May-20	25-May-20	25-May-20	25-May-20
Elev of Sample (masl)					1.4	2.1	1.2	2.9	2.6	4.8	3.5	8.1	3.5
Parameter	79.8	79	80.2	78.5	80.9	78.7	79.8	75.3	79.8				
Cyanide (CN-)	µg/g	0.051	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Comments:  
Results compared to MECP 2011 Table 3 Site Condition Standards for Residential/Parkland/Institutional Land Use in a Coarse-Textured Soil Condition  
RDL - Reported Detection Limit; G / S - Guideline / Standard  

<150

Detection limit exceeded Standard

150

Sample result exceeded Standard

NV- No Value  
NA-Not Analyzed

TABLE 7  
SOIL QUALITY ANALYSIS  
ELECTRICAL CONDUCTIVITY  
23 Elizabeth St N  
Mississauga, Ontario  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria RPI CT	RDL	Maximum	BH1-SS2	BH1-SS3	BH2/SS2	BH2/SS4	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP-BH4-SS5
COC ID #					CA14778- JUN20	CA14778- JUN20	CA14830- JUN20	CA14830- JUN20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20
Date					8	9	8	9	8	9	10	11	12
Depth of Sample (m)					2-Jun-20	2-Jun-20	8-Jun-20	9-Jun-20	25-May-20	25-May-20	25-May-20	25-May-20	25-May-20
Elev of Sample (masl)					1.4	2.1	1.2	2.9	2.6	4.8	3.5	8.1	3.5
Parameter					79.8	79	80.2	78.5	80.9	78.7	79.8	75.3	79.8
Electrical Conductivity	mS/cm	0.7	0.002	0.51	0.46	0.51	0.15	0.16	0.16	0.14	0.15	0.22	0.22

**Comments:**  
Results compared to MECP 2011 Table 3 Site Condition Standards for Residential/Parkland/Institutional Land Use in a Coarse-Textured Soil Condition  
RDL - Reported Detection Limit;    G / S - Guideline / Standard  

<150

 Detection limit exceeded Standard  

150

 Sample result exceeded Standard

NV- No Value  
NA-Not Analyzed

TABLE 8  
SOIL QUALITY ANALYSIS  
MERCURY  
23 Elizabeth St N  
Mississauga, Ontario  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria RPI CT	RDL	Maximum	BH1-SS2	BH1-SS3	BH2/SS2	BH2/SS4	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP-BH4-SS5
COC ID #					CA14778-JUN20	CA14778-JUN20	CA14830-JUN20	CA14830-JUN20	CA14915-MAY20	CA14915-MAY20	CA14915-MAY20	CA14915-MAY20	CA14915-MAY20
					8	9	8	9	8	9	10	11	12
Date					2-Jun-20	2-Jun-20	8-Jun-20	9-Jun-20	25-May-20	25-May-20	25-May-20	25-May-20	25-May-20
Depth of Sample (m)					1.4	2.1	1.2	2.9	2.6	4.8	3.5	8.1	3.5
Elev of Sample (masl)					79.8	79	80.2	78.5	80.9	78.7	79.8	75.3	79.8
Parameter													
Mercury					< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Comments:  
Results compared to MECP 2011 Table 3 Site Condition Standards for Residential/Parkland/Institutional Land Use in a Coarse-Textured Soil Condition  
RDL - Reported Detection Limit;    G / S - Guideline / Standard

<150	Detection limit exceeded Standard
150	Sample result exceeded Standard

NV- No Value  
NA-Not Analyzed

TABLE 9  
SOIL QUALITY ANALYSIS  
SODIUM ADSORPTION RATIO  
23 Elizabeth St N  
Mississauga, Ontario  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria RPI CT	RDL	Maximum	BH1-SS2	BH1-SS3	BH2/SS2	BH2/SS4	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP-BH4-SS5
COC ID #					CA14778- JUN20	CA14778- JUN20	CA14830- JUN20	CA14830- JUN20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20
Date					8	9	8	9	8	9	10	11	12
Depth of Sample (m)					2-Jun-20	2-Jun-20	8-Jun-20	9-Jun-20	25-May-20	25-May-20	25-May-20	25-May-20	25-May-20
Elev of Sample (masl)					1.4	2.1	1.2	2.9	2.6	4.8	3.5	8.1	3.5
Parameter					79.8	79	80.2	78.5	80.9	78.7	79.8	75.3	79.8
Sodium Adsorption Ratio	---	5	0.2	3.5	3.2	3.5	< 0.2	0.6	0.4	0.3	0.3	1.1	0.4

**Comments:**  
Results compared to MECP 2011 Table 3 Site Condition Standards for Residential/Parkland/Institutional Land Use in a Coarse-Textured Soil Condition  
RDL - Reported Detection Limit;    G / S - Guideline / Standard  

<150

 Detection limit exceeded Standard  

150

 Sample result exceeded Standard  
SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).

NV- No Value  
NA-Not Analyzed



TABLE 10  
SOIL QUALITY ANALYSIS  
pH  
23 Elizabeth St N  
Mississauga, Ontario  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria RPI CT	RDL	Maximum	BH1-SS2	BH1-SS3	BH2/SS2	BH2/SS4	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP-BH4-SS5
COC ID #					CA14778- JUN20	CA14778- JUN20	CA14830- JUN20	CA14830- JUN20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20
Date					8	9	8	9	8	9	10	11	12
Depth of Sample (m)					2-Jun-20	2-Jun-20	8-Jun-20	9-Jun-20	25-May-20	25-May-20	25-May-20	25-May-20	25-May-20
Elev of Sample (masl)					1.4	2.1	1.2	2.9	2.6	4.8	3.5	8.1	3.5
Parameter					79.8	79	80.2	78.5	80.9	78.7	79.8	75.3	79.8
pH	-	-	0.05	8.22	7.84	7.79	7.85	7.83	8.06	8.14	7.86	8.22	8.06

Comments:  
Results compared to MECP 2011 Table 3 Site Condition Standards for Residential/Parkland/Institutional Land Use in a Coarse-Textured Soil Condition  
RDL - Reported Detection Limit;    G / S - Guideline / Standard  

<150

 Detection limit exceeded Standard  

150

 Sample result exceeded Standard  
SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).

NV- No Value  
NA-Not Analyzed

TABLE 11  
SOIL QUALITY ANALYSIS  
BENZENE, TOULENE, ETHYLBENZENE, XYLENE  
23 Elizabeth St N  
Mississauga, Ontario  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria RPI CT	RDL	Maximum	BH1-SS2	BH1-SS5	BH2/SS2	BH2/SS4	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP-BH4-SS5
COC ID #					CA14778- JUN20	CA14778- JUN20	CA14830- JUN20	CA14830- JUN20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20	CA14915- MAY20
Date					8	10	8	9	8	9	10	11	12
Depth of Sample (m)					2-Jun-20	2-Jun-20	8-Jun-20	9-Jun-20	25-May-20	25-May-20	25-May-20	25-May-20	25-May-20
Elev of Sample (masl)					1.4	3.7	1.2	2.9	2.6	4.8	3.5	8.1	3.5
Parameter					79.8	77.5	80.2	78.5	80.9	78.7	79.8	75.3	79.8
Moisture	%	-	1	21.6	15.6	21.6	14.3	8.4	3.1	15.6	17.3	9.9	16.7
Benzene	µg/g	0.21	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Ethylbenzene	µg/g	2	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	µg/g	2.3	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Xylene Mixture	µg/g	3.1	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
m/p-xylene	µg/g	-	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
o-xylene	µg/g	-	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

**Comments:**  
Results compared to MECP 2011 Table 3 Site Condition Standards for Residential/Parkland/Institutional Land Use in a 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.  
Linearity is within 15%.  
Extraction and holding times were met for this sample.  
Quality Control Data is available upon request.  
NV- No Value  
NA-Not Analyzed

TABLE 12  
SOIL QUALITY ANALYSIS  
PETROLEUM HYDROCARBONS  
23 Elizabeth St N  
Mississauga, Ontario  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria RPI CT	RDL	Maximum	BH1-SS2	BH1-SS5	BH2/SS2	BH2/SS4	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP-BH4-SS5
COC ID #					CA14778-JUN20	CA14778-JUN20	CA14830-JUN20	CA14830-JUN20	CA14915-MAY20	CA14915-MAY20	CA14915-MAY20	CA14915-MAY20	CA14915-MAY20
Date					8	10	8	9	8	9	10	11	12
Depth of Sample (m)					2-Jun-20	2-Jun-20	8-Jun-20	9-Jun-20	25-May-20	25-May-20	25-May-20	25-May-20	25-May-20
Elev of Sample (masl)					1.4	3.7	1.2	2.9	2.6	4.8	3.5	8.1	3.5
Parameter					79.8	77.5	80.2	78.5	80.9	78.7	79.8	75.3	79.8
Moisture	%	-	1	21.6	15.6	21.6	14.3	8.4	13.1	15.6	17.3	9.9	16.7
F1 (C6 to C10)	µg/g	55	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
F1-BTEX (C6-C10)	µg/g	55	10	< 10	<10	<10	< 10	< 10	<10	<10	<10	<10	<10
F2 (C10 to C16)	µg/g	98	10	22	<10	<10	< 10	< 10	<10	<10	<10	22	<10
F3 (C16 to C34)	µg/g	300	50	57	< 50	< 50	< 50	< 50	< 50	< 50	< 50	57	< 50
F4 (C34 to C50)	µg/g	2800	50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Total Hydrocarbons (C6-C50)	µg/g	-											
Gravimetric Heavy Hydrocarbons	µg/g	2800	200	< 200									
Chromatogram returned to baseline at nC50	-	-	-		YES	YES	YES	YES	YES	YES	YES	YES	YES

Comments:  
Results compared to MECP 2011 Table 3 Site Condition Standards for Residential/Parkland/Institutional Land Use in a 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.

TABLE 13  
GROUND WATER QUALITY ANALYSIS  
METALS  
SITE 23 Elizabeth St N  
Mississauga, ONTARIO  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria CT	RDL	Maximum	BH1	BH2	BH3	BH4	DUP
COC ID #					CA14202-JUN20	CA14202-JUN20	CA14202-JUN20	CA14202-JUN20	CA14202-JUN20
Date					12-Jun-20	12-Jun-20	10-Jun-20	10-Jun-20	12-Jun-20
Depth of Sample (m)					20.1-23.2	5.5-8.5	5.6-8.7	5.6-8.7	20.1-23.2
Elev of Sample (masl)					61.0-58.0	75.9-72.9	77.8-74.8	77.7-74.7	61.0-58.0
Parameter									
Barium	µg/L	29000	0.02	365	349	49	160	93	365
Beryllium	µg/L	67	0.007	0.01	0.01	<0.007	<0.007	<0.007	0.01
Boron (total)	µg/L	45000	2	1490	1440	1050	250	111	1490
Cadmium	µg/L	2.7	0.003	0.13	0.130	0.004	< 0.003	0.008	0.110
Chromium Total	µg/L	810	0.03	1.13	1.13	0.17	0.24	0.24	0.98
Cobalt	µg/L	66	2	1.73	1.730	0.059	0.276	0.635	1.690
Copper	µg/L	87	0.02	6.9	6.60	1.80	0.80	3.20	6.90
Lead	µg/L	25	0.01	0.07	0.01	0.04	0.04	0.05	0.07
Molybdenum	µg/L	9200	0.01	16.4	10.90	16.40	3.97	2.05	11.00
Nickel	µg/L	490	0.1	5.3	5.200	0.300	1.400	3.800	5.300
Silver	µg/L	1.5	0.002	0.07	< 0.05	< 0.05	< 0.05	< 0.05	0.070
Thallium	µg/L	510	0.005	0.06	0.060	0.019	0.005	0.024	0.060
Uranium	µg/L	420	0.002	3.06	1.26	0.70	1.45	3.06	1.35
Vanadium	µg/L	250	0.01	1.5	0.46	1.50	0.48	0.35	0.45
Zinc	µg/L	1100	2	14	14	3	2	4	14

**Comments:**

Results compared to MECP 2011 Table 3 Site Condition Standards for All Property Use in a Coarse Textured Soil Condition

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

<150	Detection limit exceeded Standard
150	Sample result exceeded Standard

NV-No Value

NA-Not Analyzed

TABLE 14  
GROUND WATER QUALITY ANALYSIS  
HYDRIDE METALS  
SITE 23 Elizabeth St N  
Mississauga, ONTARIO  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria CT	RDL	Maximum	BH1	BH2	BH3	BH4	DUP
COC ID #					CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20
Date					12-Jun-20	12-Jun-20	10-Jun-20	10-Jun-20	12-Jun-20
Depth of Sample (m)					20.1-23.2	5.5-8.5	5.6-8.7	5.6-8.7	20.1-23.2
Elev of Sample (masl)					61.0-58.0	75.9-72.9	77.8-74.8	77.7-74.7	61.0-58.0
Parameter									
Antimony	µg/L	20000	0.02	1.5	1.01	1.5	1.05	0.63	1.02
Arsenic	µg/L	1900	0.2	2.6	0.5	2.6	1.8	0.6	0.4
Selenium	µg/L	63	0.04	0.77	0.77	0.17	0.04	0.36	0.46

**Comments:**

Results compared to MECP 2011 Table 3 Site Condition Standards for All Property Use in a Coarse Textured Soil Condition

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

**<150** Detection limit exceeded Standard

**150** Sample result exceeded Standard

NV-No Value

NA-Not Analyzed

TABLE 15  
GROUND WATER QUALITY ANALYSIS  
HEXAVALENT CHROMIUM  
SITE 23 Elizabeth St N  
Mississauga, ONTARIO  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria CT	RDL	Maximum	BH1	BH2	BH3	BH4	DUP
COC ID #					CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20
Date					12-Jun-20	12-Jun-20	10-Jun-20	10-Jun-20	12-Jun-20
Depth of Sample (m)					20.1-23.2	5.5-8.5	5.6-8.7	5.6-8.7	20.1-23.2
Elev of Sample (masl)					61.0-58.0	75.9-72.9	77.8-74.8	77.7-74.7	61.0-58.0
Parameter									
Chromium VI	µg/L	140	0.2	< 0.2	< 20	< 0.2	< 0.2	< 0.2	< 20

**Comments:**

Results compared to MECP 2011 Table 3 Site Condition Standards for All Property Use in a Coarse Textured Soil Condition

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

<b>&lt;150</b>	Detection limit exceeded Standard
<b>150</b>	Sample result exceeded Standard

NV-No Value

NA-Not Analyzed

TABLE 16  
GROUND WATER QUALITY ANALYSIS  
CYANIDE  
SITE 23 Elizabeth St N  
Mississauga, ONTARIO  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria CT	RDL	Maximum	BH1	BH2	BH3	BH4	DUP
COC ID #					CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20
Date					12-Jun-20	12-Jun-20	10-Jun-20	10-Jun-20	12-Jun-20
Depth of Sample (m)					20.1-23.2	5.5-8.5	5.6-8.7	5.6-8.7	20.1-23.2
Elev of Sample (masl)					61.0-58.0	75.9-72.9	77.8-74.8	77.7-74.7	61.0-58.0
Parameter									
Cyanide (CN-)	µg/L	66	2	< 2	<2	<2	<2	<2	<2

**Comments:**

Results compared to MECP 2011 Table 3 Site Condition Standards for All Property Use in a Coarse Textured Soil Condition

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

<150 Detection limit exceeded Standard

150 Sample result exceeded Standard

NV-No Value

NA-Not Analyzed

TABLE 17  
GROUND WATER QUALITY ANALYSIS  
MERCURY  
SITE 23 Elizabeth St N  
Mississauga, ONTARIO  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria CT	RDL	Maximum	BH1	BH2	BH3	BH4	DUP
COC ID #					CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20
Date					12-Jun-20	12-Jun-20	10-Jun-20	10-Jun-20	12-Jun-20
Depth of Sample (m)					20.1-23.2	5.5-8.5	5.6-8.7	5.6-8.7	20.1-23.2
Elev of Sample (masl)					61.0-58.0	75.9-72.9	77.8-74.8	77.7-74.7	61.0-58.0
Parameter									
Mercury	µg/L	0.29	0.01	< 0.01	<0.01	<0.01	<0.01	<0.01	<0.01

**Comments:**

Results compared to MECP 2011 Table 3 Site Condition Standards for All Property Use in a Coarse Textured Soil Condition

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

<150 Detection limit exceeded Standard

150 Sample result exceeded Standard

NV-No Value

NA-Not Analyzed



TABLE 18  
GROUND WATER QUALITY ANALYSIS  
CHLORIDE  
SITE 23 Elizabeth St N  
Mississauga, ONTARIO  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria CT	RDL	Maximum	BH1	BH2	BH3	BH4	DUP
COC ID #					CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20
Date					12-Jun-20	12-Jun-20	10-Jun-20	10-Jun-20	12-Jun-20
Depth of Sample (m)					20.1-23.2	5.5-8.5	5.6-8.7	5.6-8.7	20.1-23.2
Elev of Sample (masl)					61.0-58.0	75.9-72.9	77.8-74.8	77.7-74.7	61.0-58.0
Parameter									
Chloride	ug/L	2300000	200	21000000	21000000	140000	120000	64000	20000000

**Comments:**

Results compared to MECP 2011 Table 3 Site Condition Standards for All Property Use in a Coarse Textured Soil Condition

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

Detection limit raised, RDL = 2500µg/L, Dilution required due to high concentration of test analyte(s)

<150 Detection limit exceeded Standard

150 Sample result exceeded Standard

NV-No Value

NA-Not Analyzed

TABLE 19  
GROUND WATER QUALITY ANALYSIS  
SODIUM  
SITE 23 Elizabeth St N  
Mississauga, ONTARIO  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria CT	RDL	Maximum	BH1	BH2	BH3	BH4	DUP
COC ID #					CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20
Date					12-Jun-20	12-Jun-20	10-Jun-20	10-Jun-20	12-Jun-20
Depth of Sample (m)					20.1-23.2	5.5-8.5	5.6-8.7	5.6-8.7	20.1-23.2
Elev of Sample (masl)					61.0-58.0	75.9-72.9	77.8-74.8	77.7-74.7	61.0-58.0
Parameter									
Sodium	µg/L	490,000	10	8090000	8090000	97200	43600	30100	7880000

Comments:

Results compared to MECP 2011 Table 3 Site Condition Standards for All Property Use in a Coarse Textured Soil Condition

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

Detection limit raised, RDL = 5000µg/L, Dilution required due to high concentration of test analyte(s)

<150 Detection limit exceeded Standard

150 Sample result exceeded Standard

NV-No Value

NA-Not Analyzed

TABLE 20  
GROUND WATER QUALITY ANALYSIS  
PETROLEUM HYDROCARBONS  
SITE 23 Elizabeth St N  
Mississauga, ONTARIO  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria CT	RDL	Maximum	BH1	BH2	BH3	BH4	DUP
COC ID #					CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20
Date					12-Jun-20	12-Jun-20	10-Jun-20	10-Jun-20	12-Jun-20
Depth of Sample (m)					20.1-23.2	5.5-8.5	5.6-8.7	5.6-8.7	20.1-23.2
Elev of Sample (masl)					61.0-58.0	75.9-72.9	77.8-74.8	77.7-74.7	61.0-58.0
Parameter									
F1 (C6 to C10)	ug/L	750	25	< 25	<25	<25	<25	<25	<25
F1-BTEX (C6-C10)	ug/L	750	25	< 25	<25	<25	<25	<25	<25
F2 (C10 to C16)	ug/L	150	100	< 100	<100	<100	<100	<100	<100
F2-Naphthalene (C10-C16)	ug/L	150	100						
F3 (C16 to C34)	ug/L	500	200	< 200	<200	<200	<200	<200	<200
F3-PAHs (C16 to C34)	ug/L	500	200						
F4 (C34 to C50)	ug/L	500	200	< 200	<200	<200	<200	<200	<200
Reached Baseline at C50	Y/N			-	YES	YES	YES	YES	YES

**Comments:**

Results compared to MECP 2011 Table 3 Site Condition Standards for All Property Use in a Coarse Textured Soil Condition

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

<150 Detection limit exceeded Standard

150 Sample result exceeded Standard

The C6-C10 fraction is calculated using Toluene response factor.

The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and 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 indicated that hydrocarbons >C50 are present.

Total C6-C50 results are corrected for BTEX and PAH contributions.

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC6 and nC10 response factors are within 30% of Toluene response factor.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

+ - Insufficient water for sampling

NA-Not Analyzed

TABLE 21  
GROUND WATER QUALITY ANALYSIS  
BENZENE, TOLUENE, ETHYL BENZENE AND XYLENE  
SITE 23 Elizabeth St N  
Mississauga, ONTARIO  
PROJECT #20-088

Sample Name	Units	MECP Table 3 2011 Criteria CT	RDL	Maximum	BH1	BH2	BH3	BH4	Trip Blank	DUP
COC ID #					CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20	CA14202- JUN20
Date					12-Jun-20	12-Jun-20	10-Jun-20	10-Jun-20	12-Jun-20	12-Jun-20
Depth of Sample (m)					20.1-23.2	5.5-8.5	5.6-8.7	5.6-8.7	N/A	20.1-23.2
Elev of Sample (masl)					61.0-58.0	75.9-72.9	77.8-74.8	77.7-74.7	N/A	61.0-58.0
Parameter										
Benzene	µg/L	44	0.5	1	1	<0.5	<0.5	<0.5	<0.5	1
Ethylbenzene	µg/L	2300	0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	18000	0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylene Mixture	µg/L	4200	0.5	< 0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

**Comments:**

Results compared to MECP 2011 Table 3 Site Condition Standards for All Property Use in a Coarse Textured Soil Condition

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

<150 Detection limit exceeded Standard

150 Sample result exceeded Standard

Extraction and holding times were met for this sample.

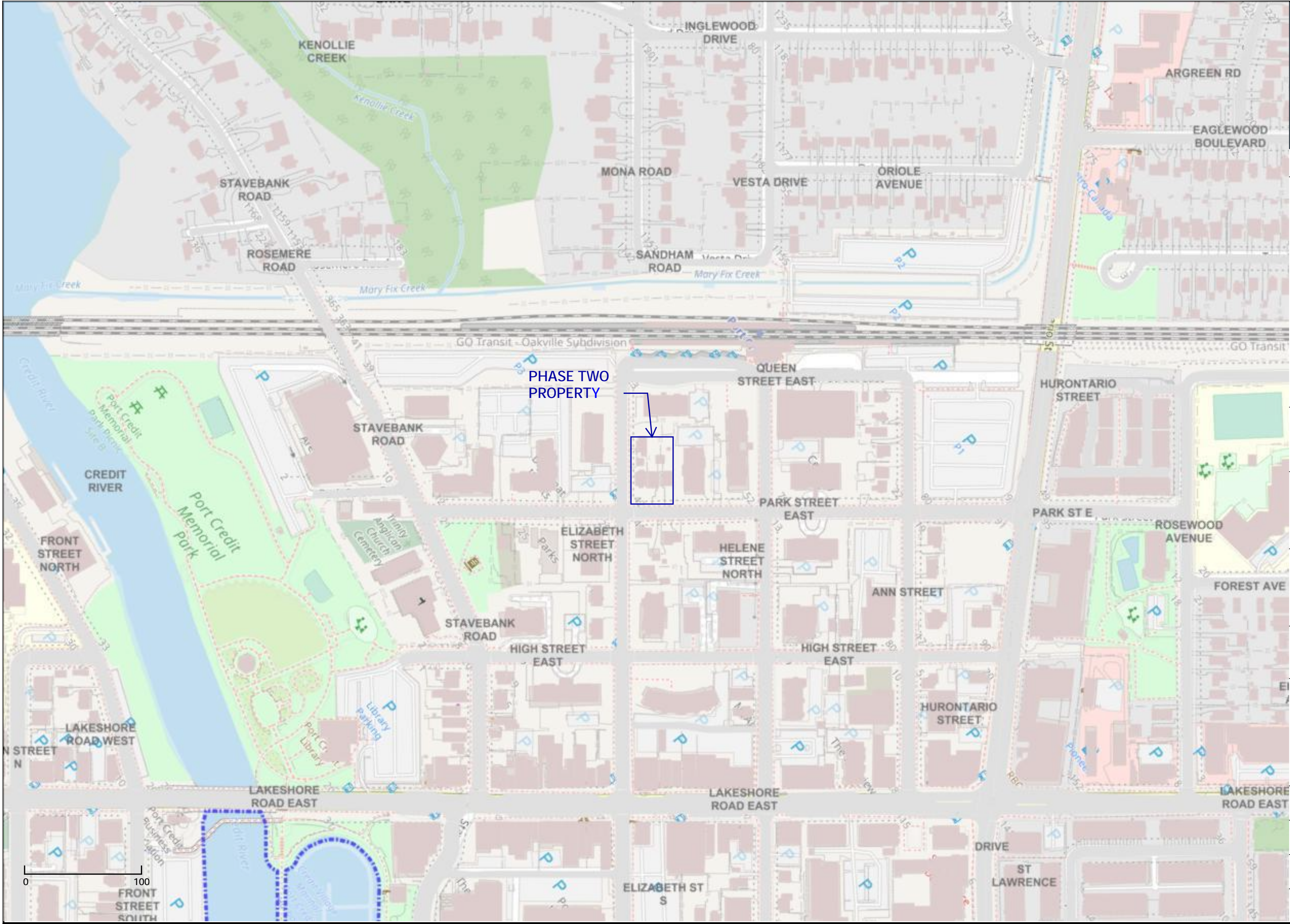
NV-No Value

NA-Not Analyzed

# FIGURES







**GROUND**  
ENGINEERING

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www.groundedeng.ca

**LEGEND**

— PROPERTY BOUNDARY

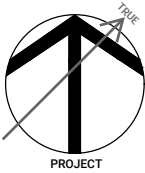
Note

Reference  
City of Mississauga Interactive Map

Project **PHASE TWO  
ENVIRONMENTAL SITE  
ASSESSMENT**  
23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title  
**SITE LOCATION  
PLAN**

North



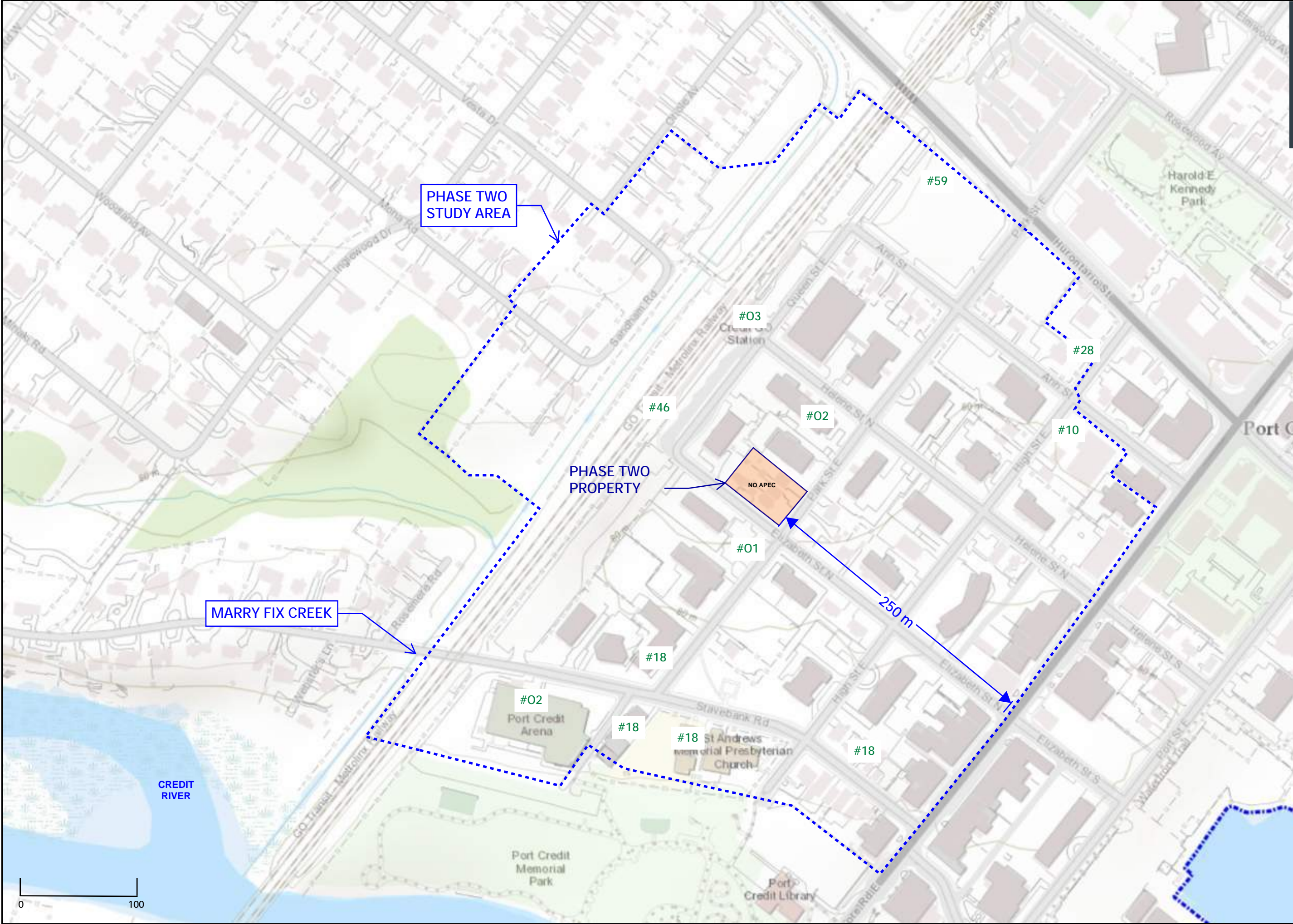
Date  
JULY 2020

Scale  
AS INDICATED

Job No  
20-088

Figure No  
**FIGURE 1**





**GROUND**  
ENGINEERING

1 Banigan Drive, Toronto, Ont., M4H1G3  
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**LEGEND**

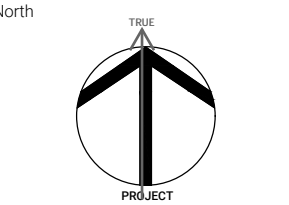
- PROPERTY BOUNDARY
- PHASE ONE STUDY AREA
- #01 ONTARIO SPILLS
- #02 O.REG.347 WASTE GENERATOR
- #03 COAL STORAGE
- #10 COMMERCIAL AUTOBODY SHOPS
- #18 ELECTRICITY GENERATION, TRANSFORMATION AND POWER STATIONS
- #28 GASOLINE AND ASSOCIATED PRODUCTS STORAGE IN FIXED TANKS
- #46 RAIL YARDS, TRACKS AND SPURS
- #59 WOOD TREATING AND PRESERVATIVE FACILITY AND BULK STORAGE OF TREATED AND PRESERVED WOOD PRODUCTS

Note  
GREEN - PCA NOT CAUSING APEC

Reference  
City of Mississauga Interactive Map

Project **PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**  
23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title  
**PCA AND APEC LOCATIONS**



Date  
JULY 2020

Scale  
AS INDICATED

Job No  
20-088

Figure No  
**FIGURE 2**



**LEGEND**

PROPERTY BOUNDARY

GROUND BOREHOLE WITH  
MONITORING WELLS (2020)

GAS GAS

O/H OVERHEAD HYDRO

WM WATER

CATCH BASIN

SANITARY SEWER

CONVEYANCE LAND

Note

Reference

Survey Drawing No. 3296-OT.DWG Project  
No. 3296-0  
Certificate date: July 23, 2019. Prepared by  
R. Avis Surveying Inc. Received on July 3,  
2020 as part of the ROWE package  
prepared by IBI Group Architects

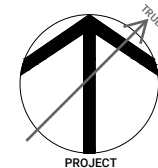
Project **PHASE TWO  
ENVIRONMENTAL SITE  
ASSESSMENT**

23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title

**BOREHOLE AND  
MONITORING WELL  
LOCATIONS**

North



Date

JULY 2020

Scale

1 : 200

Job No

20-088

Figure No

**FIGURE 3**







**GROUND  
ENGINEERING**

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#### LEGEND

- PROPERTY BOUNDARY
- GROUND BOREHOLE WITH MONITORING WELLS (2020)
- GAS
- O/H OVERHEAD HYDRO
- WM WATER
- CATCH BASIN
- SANITARY SEWER
- CONVEYANCE LAND
- 80.3 GROUNDWATER ELEVATION JUNE 18, 2020
- GROUNDWATER FLOW DIRECTION

Note

#### Reference

Survey Drawing No. 3296-OT.DWG Project No. 3296-0  
Certificate date: July 23, 2019. Prepared by R. Avis Surveying Inc. Received on July 3, 2020 as part of the ROWE package prepared by IBI Group Architects

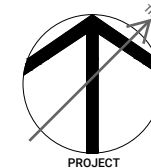
#### Project PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

#### Figure Title

#### GROUNDWATER ELEVATION AND CONTOURS

North



Date

JULY 2020

Scale

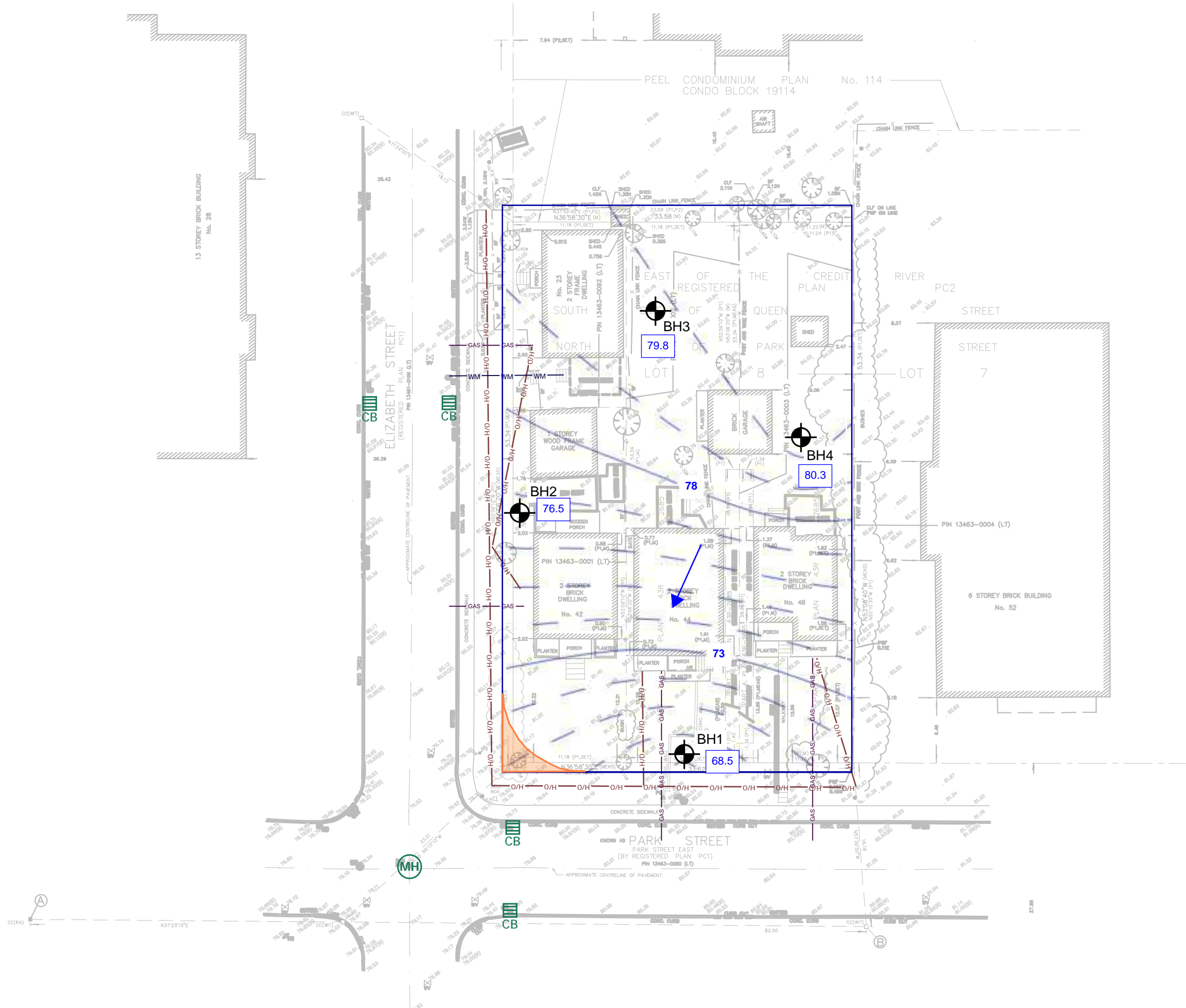
1 : 200

Job No

20-088

Figure No

FIGURE 4





**GROUND**  
ENGINEERING

1 Banigan Drive, Toronto, Ont., M4H1G3  
www.groundedeng.ca

**LEGEND**

- PROPERTY BOUNDARY
- GROUNDING BOREHOLE WITH MONITORING WELLS (2020)
- GAS
- O/H OVERHEAD HYDRO
- WM WATER
- CATCH BASIN
- SANITARY SEWER
- CROSS-SECTION LOCATION
- CONVEYANCE LAND

Note

Reference  
Survey Drawing No. 3296-OT.DWG Project  
No. 3296-0  
Certificate date: July 23, 2019. Prepared by  
R. Avis Surveying Inc. Received on July 3,  
2020 as part of the ROWE package  
prepared by IBI Group Architects

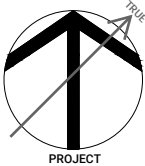
Project **PHASE TWO  
ENVIRONMENTAL SITE  
ASSESSMENT**

23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title

**CROSS -SECTION  
LOCATIONS**

North



Date

JULY 2020

Scale

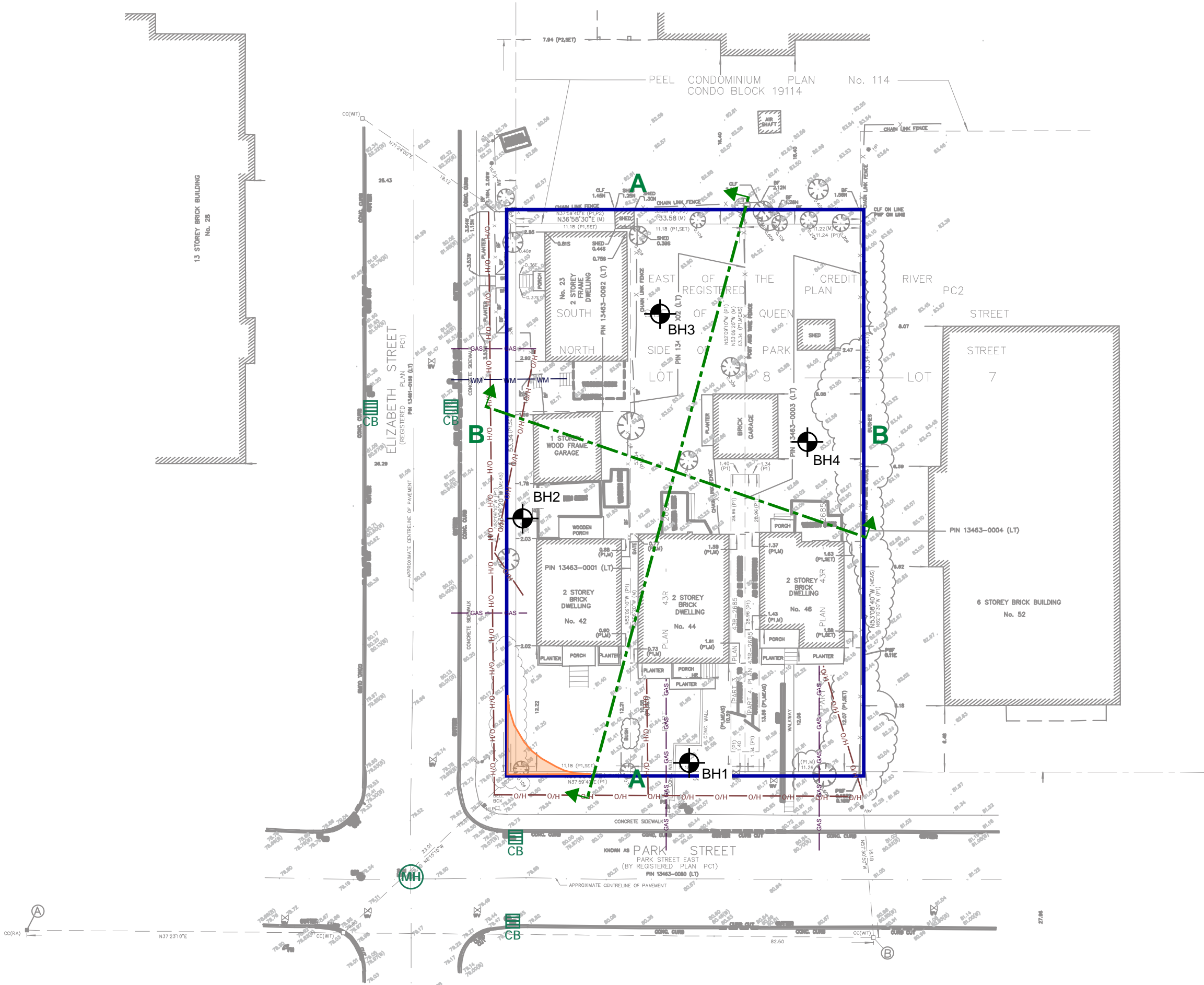
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Job No

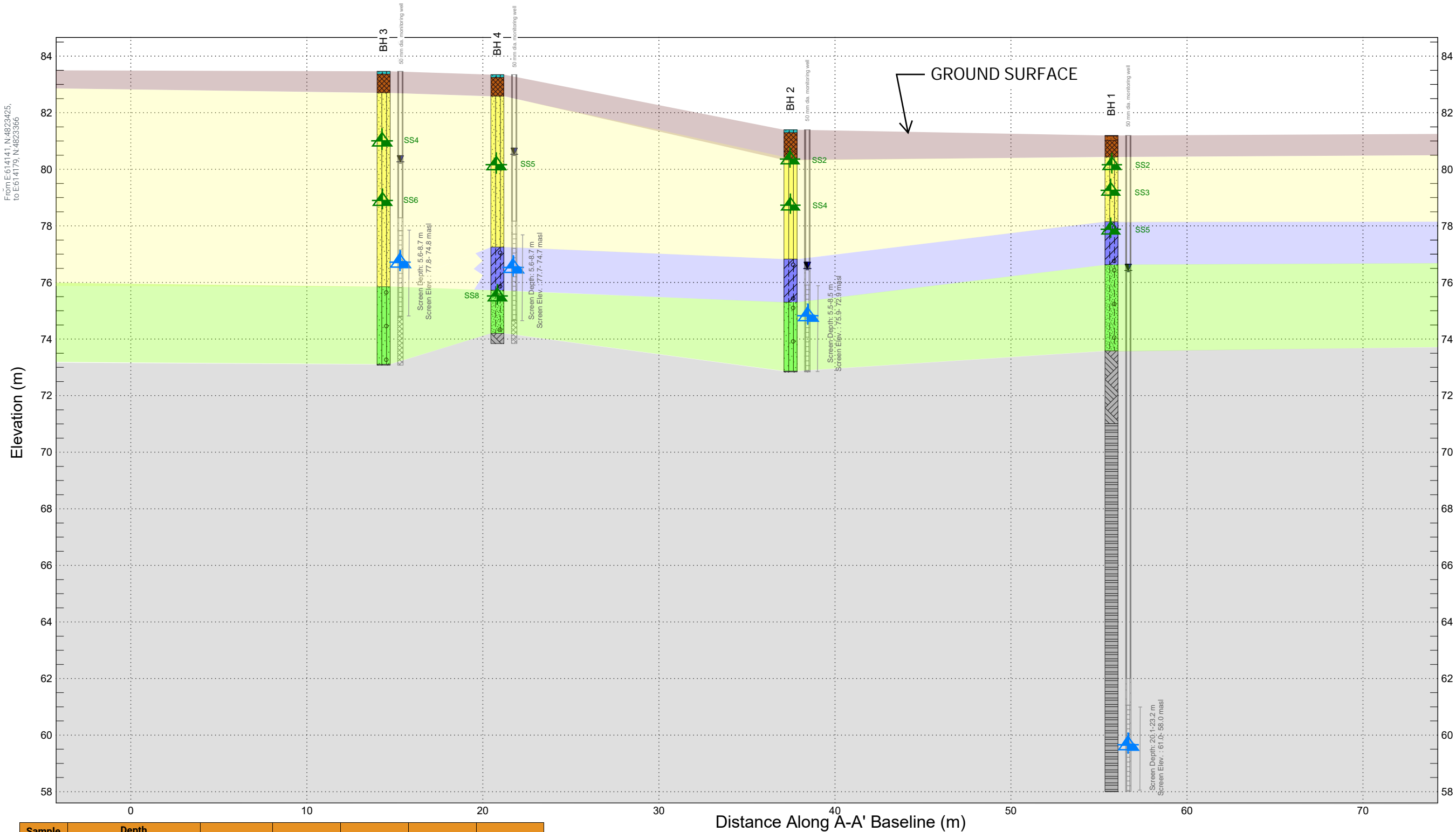
20-088

Figure No

**FIGURE 5**



From E614141, N4823425,  
to E614179, N4823366



Sample ID	Depth		Strata	Metals	H-Metals	ORPs	PHCs/BTEX
	mbgs	masl					
BH1 SS2	0.8 - 1.4	80.4-79.8	Silt and Sand	✓	✓	✓	✓
BH1 SS3	1.5 - 2.1	79.7-79.1	Silt and Sand	✓	✓	✓	
BH1 SS5	3.0 - 3.7	78.1-77.5	Glacial Till				✓
BH2 SS2	0.8 - 1.2	80.6-80.2	Fill	✓	✓	✓	✓
BH2 SS4	2.3 - 2.9	79.1-78.5	Silt and Sand	✓	✓	✓	✓
BH3 SS4	2.3 - 2.6	81.2-80.9	Silt and Sand	✓	✓	✓	✓
BH3 SS6	4.6 - 4.8	78.9-78.7	Silt and Sand	✓	✓	✓	✓
BH4 SS5	3.0 - 3.5	80.3-79.8	Silt and Sand	✓	✓	✓	✓
BH4 SS8	7.6 - 8.1	75.7-75.3	Glacial Till	✓	✓	✓	✓

Sample ID	Screen Depth		Screen Strata	Metals	H-Metals	ORPs	PHCs/BTEX
	mbgs	masl					
BH1	20.1-23.2	61.0-58.0	Bedrock	✓	✓	✓	✓
BH2	5.5-8.5	75.9-72.9	Glacial Till	✓	✓	✓	✓
BH3	5.6-8.7	77.8-74.8	Silt and Sand to Glacial Till	✓	✓	✓	✓
BH4	5.6-8.7	77.7-74.7	Silty Sand to Glacial Till	✓	✓	✓	✓



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#### LEGEND

- FILL
- SILT TO SAND (not till)
- COHESIVE SOILS (clayey silt to clay, incl. tills)
- COHESIONLESS TILLS
- BEDROCK
- SS1 SAMPLE LOCATION MEETS STANDARD - SOIL
- SS2 SAMPLE LOCATION MEETS STANDARD - GROUNDWATER
- water level, stabilized

Note  
The soil stratigraphy shown on the cross section between borehole locations is interpreted. The actual soil condition may vary

Reference

Project  
**PHASE TWO  
ENVIRONMENTAL SITE  
ASSESSMENT**  
23 Elizabeth St. N., 42, 44, 46  
Park St. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title  
**CROSS SECTION  
A-A'**

North

Date  
JULY 2020

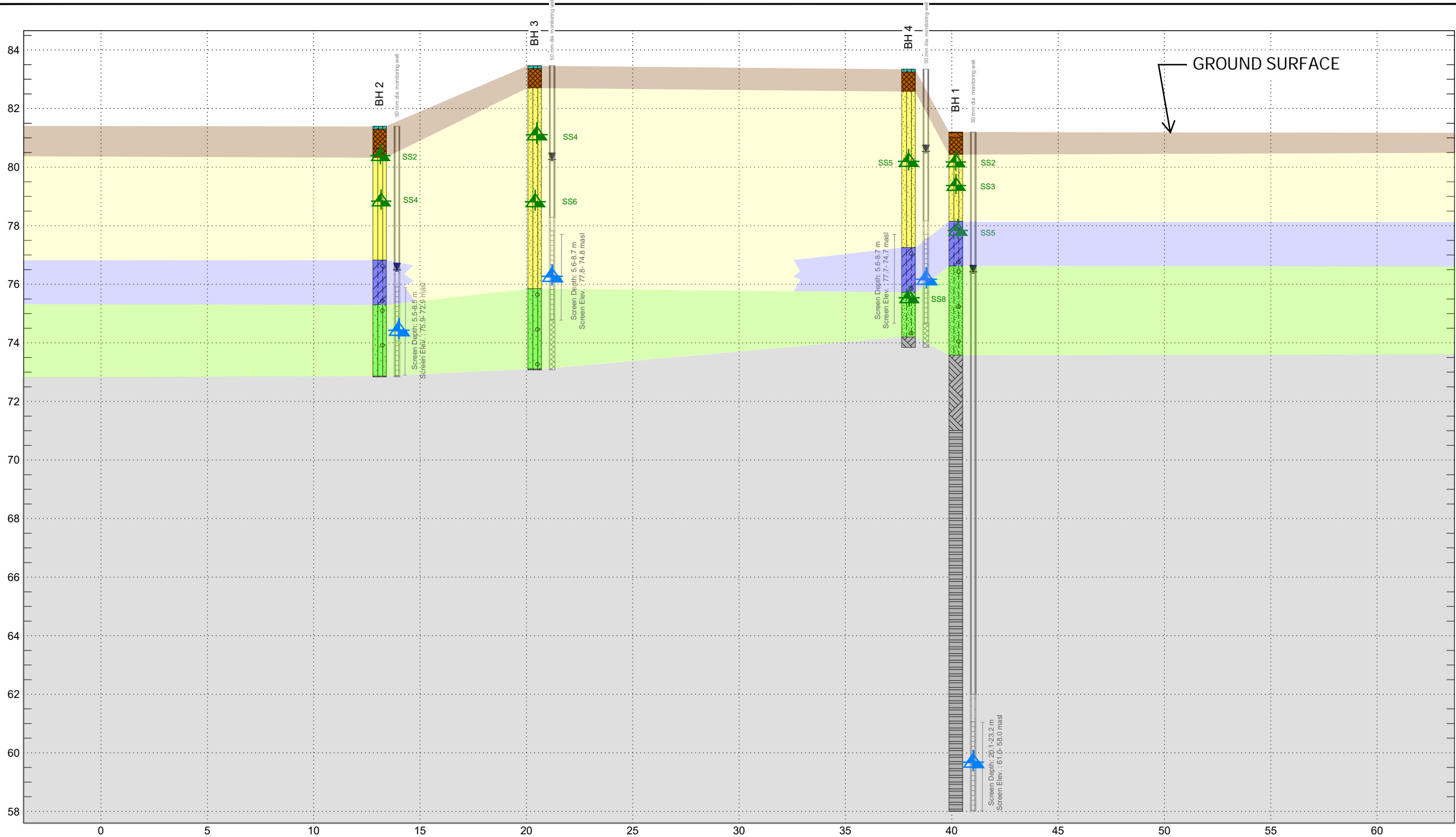
Scale  
AS INDICATED

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20-088

Figure No  
**FIGURE 6**

Alignment: B-B'  
From E614132, N4823384,  
to E614184, N4823414

Elevation (m)



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LEGEND

- FILL
- SILT TO SAND (not till)
- COHESIVE SOILS (clayey silt to clay, incl. tills)
- COHESIONLESS TILLS
- BEDROCK
- SS1 SAMPLE LOCATION MEETS STANDARD - SOIL
- GROUNDWATER
- water level, stabilized

Note  
The soil stratigraphy shown on the cross section between borehole locations is interpreted. The actual soil condition may vary

Reference

Project  
**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**  
23 Elizabeth St. N., 42, 44, 46  
Park St. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title  
**CROSS SECTION B-B'**

North

Sample ID	Depth		Strata	Metals	H-Metals	ORPs	PHCs/BTEX
	mbgs	masl					
BH1 SS2	0.8 - 1.4	80.4-79.8	Silt and Sand	✓	✓	✓	✓
BH1 SS3	1.5 - 2.1	79.7-79.1	Silt and Sand	✓	✓	✓	
BH1 SS5	3.0 - 3.7	78.1-77.5	Glacial Till				✓
BH2 SS2	0.8 - 1.2	80.6-80.2	Fill	✓	✓	✓	✓
BH2 SS4	2.3 - 2.9	79.1-78.5	Silt and Sand	✓	✓	✓	✓
BH3 SS4	2.3 - 2.6	81.2-80.9	Silt and Sand	✓	✓	✓	✓
BH3 SS6	4.6 - 4.8	78.9-78.7	Silt and Sand	✓	✓	✓	✓
BH4 SS5	3.0 - 3.5	80.3-79.8	Silt and Sand	✓	✓	✓	✓
BH4 SS8	7.6 - 8.1	75.7-75.3	Glacial Till	✓	✓	✓	✓

Sample ID	Screen Depth		Screen Strata	Metals	H-Metals	ORPs	PHCs/BTEX
	mbgs	masl					
BH1	20.1-23.2	61.0-58.0	Bedrock	✓	✓	✓	✓
BH2	5.5-8.5	75.9-72.9	Glacial Till	✓	✓	✓	✓
BH3	5.6-8.7	77.8-74.8	Silt and Sand to Glacial Till	✓	✓	✓	✓
BH4	5.6-8.7	77.7-74.7	Silty Sand to Glacial Till	✓	✓	✓	✓

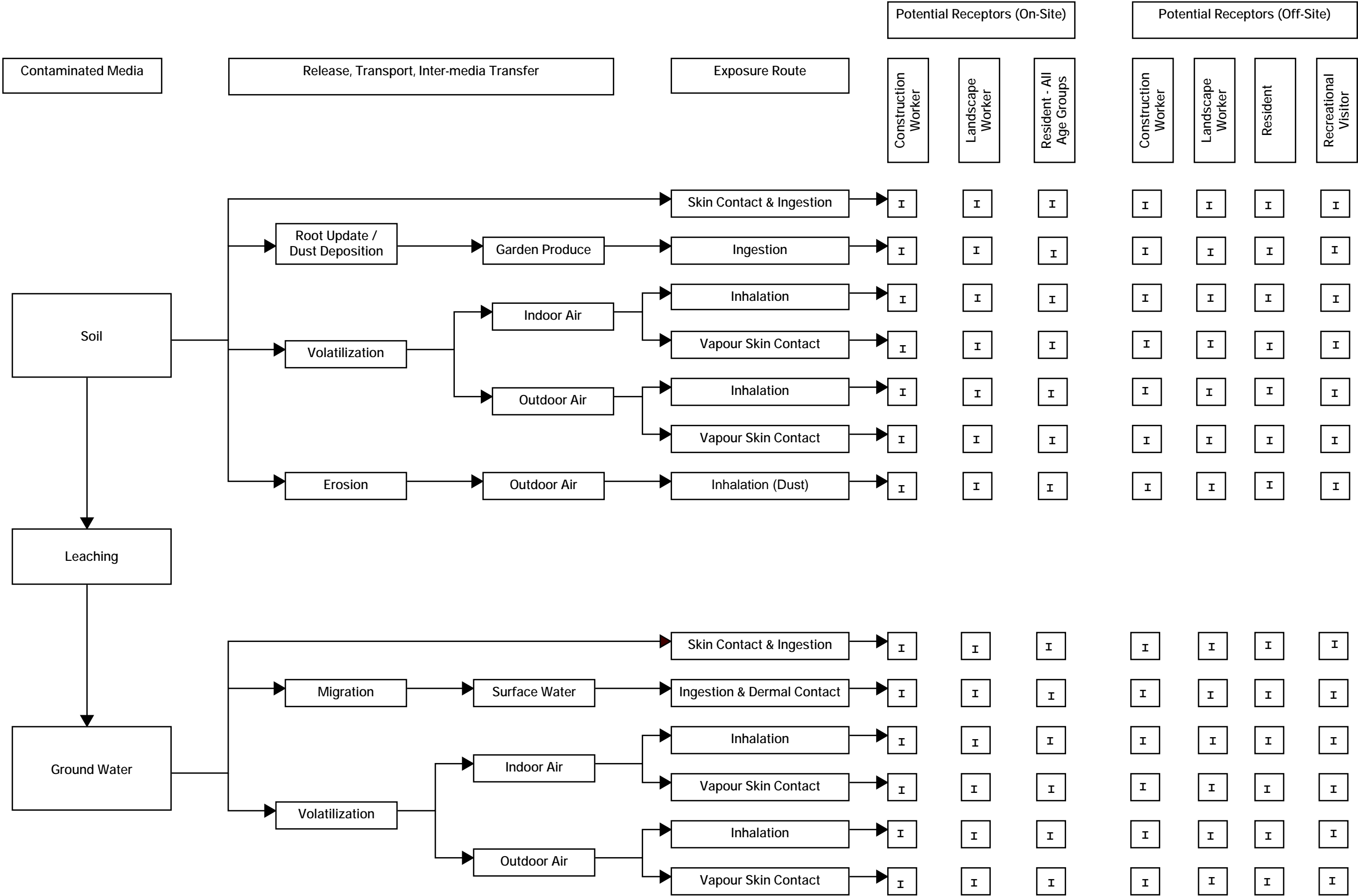
Date  
JULY 2020

Scale  
AS INDICATED

Job No  
20-088

Figure No  
FIGURE 7





LEGEND

C

Pathway Complete

I

Pathway Incomplete

X

Pathway Blocked

N/A

Pathway Not Applicable for Receptor

Note

1. Constructions Workers are considered protective of Utility Workers

2.Landscape Workers are considered protective of Trespassers

3. Residents are considered protective of Long Term Workers, Short Term Works and Site Visitors

Project **PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**

23 Elizabeth St. N., 42, 44, 46  
Park St. E.,MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title

**HUMAN HEALTH CSM**

Reference

Date

JULY, 2020

Scale

N/A

Job No

20-088

Figure No

**FIGURE 8**



# APPENDIX



# APPENDIX A





## Phase One Environmental Conceptual Site Model

23 Elizabeth St. N., 42, 44 & 46 Park St. E., Mississauga, Ontario

Phase One ESA including Figures of the Phase One Study Area, which identify the following:	Phase One ESA Information:
Existing buildings and structures	Four (4), 2-storey bricks and wood panels residential buildings were observed on the Property. The Phase One Property is presented in Figure 2.
Water bodies located in whole or in part on the Phase One Study Area	No water bodies were observed on the Phase One Property and Phase One Study Area as shown on Figure 3.
Areas of Natural Significance located in whole or in part on the Phase One Study Area	No Areas of Natural Significance were in whole or in part on the Phase One Study Area.
Roads (including names) within the Phase One Study Area	All roads within the Phase One Study Area are shown on Figure 3.
Use of properties adjacent to the Phase One Property	The land use of properties adjacent to the Phase One Property is shown on Figure 3.
Location of drinking water wells on the Phase One Property	No drinking water wells were observed on the Phase One Property.
Areas where any PCA has occurred, and locations of tanks in the Phase One Study Area	The location of PCAs is shown on Figure 4.
APECs on the Phase One Property	No APECs were identified on the Phase One Property.
Narrative Description and Assessments	
Any areas where Potentially Contaminating Activity (PCAs) on, or potentially affecting, the Phase One Property have occurred	No PCAs were observed on the Property. Based on the review of PCAs within the Study Area, no APECs were identified on the Property.
Any Potential Contaminants of Concerns (PCoCs)	No PCoCs were identified on the Property.
The potential of underground utilities (if any present) to affect contaminant distribution and transport	Buried watermain enters the Property via Elizabeth Street to the south and via Park Street East to the east; however, no PCoCs were identified on the Property thus underground utilities had no effect on contaminant distribution and transport.



<p>Available regional or site specific geological and hydrogeological information</p>	<ul style="list-style-type: none"> <li>• The approximate elevation of the Property is approximately 80 masl and is relatively flat with a slight slope to the southeast.</li> <li>• The nearest water body – Mary Fix Creek, approximately 150 m to the west of the Property.</li> <li>• Locally the ground water is expected to flow south towards Credit River and regionally the ground water is expected to flow southeast towards Lake Ontario.</li> <li>• The overburden is consisting of half coarse-textured glaciolacustrine deposits comprise of sand, gravel, minor silt and clay and half modern alluvial deposits comprise of clay, silt, sand, gravel and organic remains.</li> <li>• The bedrock at the Property is of the Georgian Bay Formation, which is comprised of shale, limestone, dolostone and siltstone.</li> <li>• According to published well record database, the depth to bedrock in the vicinity of the Property is approximately 6 m.</li> </ul>
<p>Any uncertainty or absence of information obtained in the Phase One ESA that could affect the validity of the CSM</p>	<p>No uncertainty or absence of information obtained in the Phase One ESA is identified to influence the validity of the CSM.</p>

Figure 1 – Site Location Plan

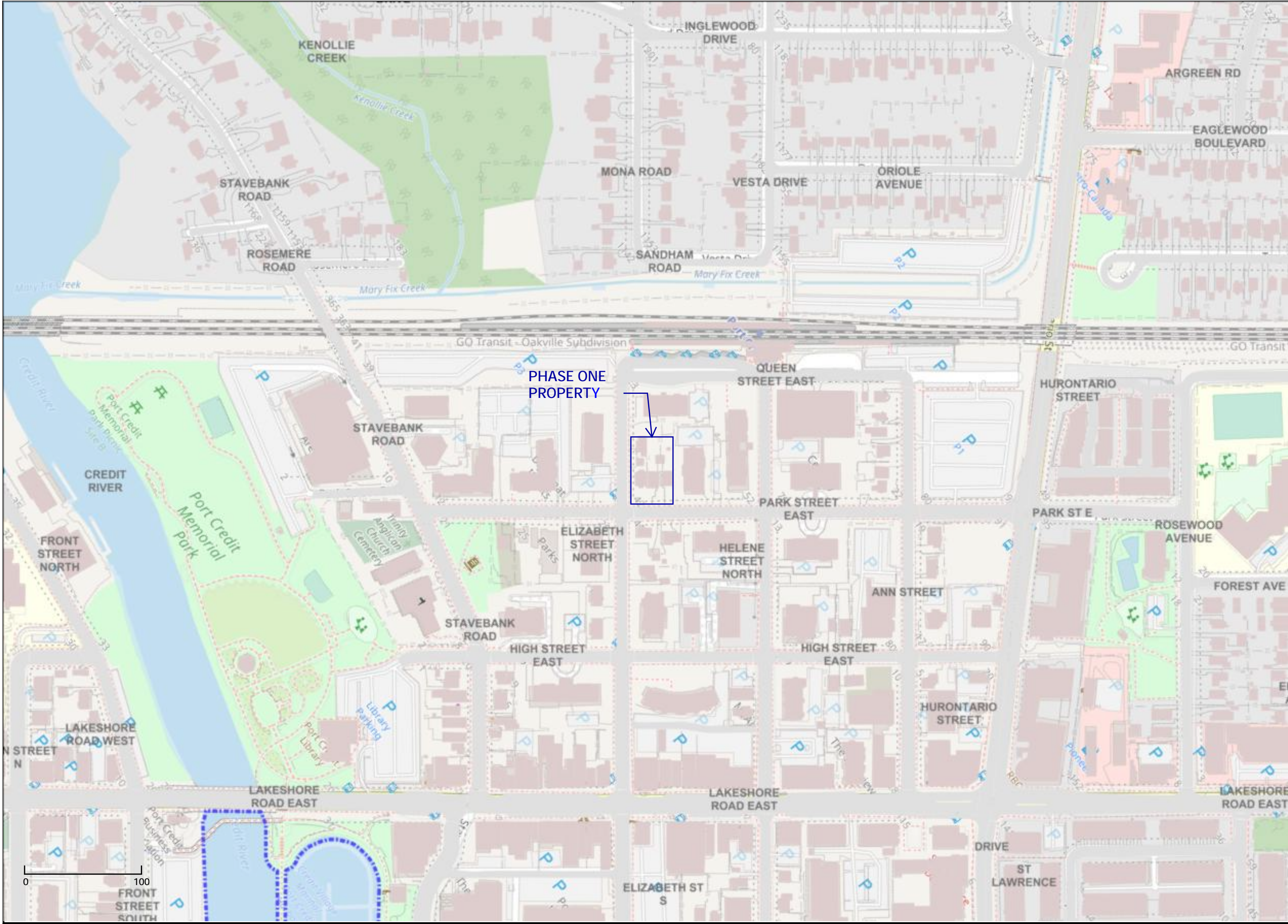
Figure 2 – Phase One Property

Figure 3 – Phase One Study Area

Figure 4 – PCA Locations

Figure 5 – APEC Locations





**GROUND**  
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**LEGEND**

PROPERTY BOUNDARY

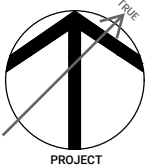
Note

Reference  
City of Mississauga Interactive Map

Project **PHASE ONE  
ENVIRONMENTAL SITE  
ASSESSMENT**  
23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title  
**SITE LOCATION  
PLAN**

North



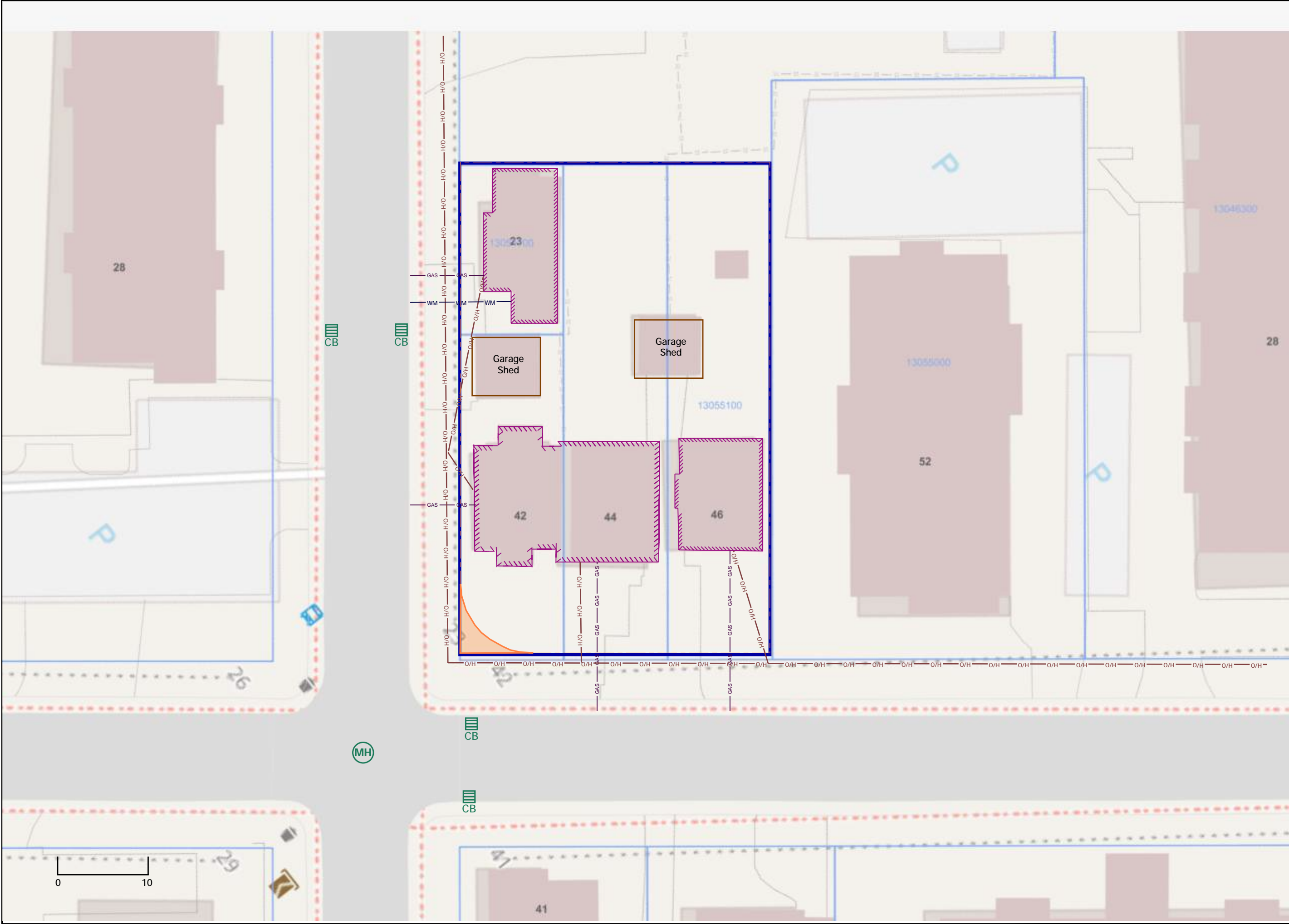
Date  
MAY, 2020

Scale  
AS INDICATED

Job No  
20-088-201

Figure No  
**FIGURE 1**





**GROUND**  
ENGINEERING

1 Banigan Drive, Toronto, Ont., M4H1G3  
www.groundedeng.ca

**LEGEND**

- PROPERTY BOUNDARY
- CURRENT BUILDING CONFIGURATION
- GAS
- O/H OVERHEAD HYDRO
- WM WATER
- CATCH BASIN
- SANITARY SEWER
- CONVEYANCE LAND

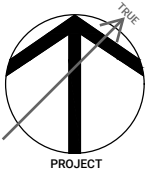
Note

Reference  
City of Mississauga Interactive Map

Project **PHASE ONE  
ENVIRONMENTAL SITE  
ASSESSMENT**  
23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title  
**PHASE ONE  
PROPERTY**

North



Date

MAY, 2020

Scale

AS INDICATED

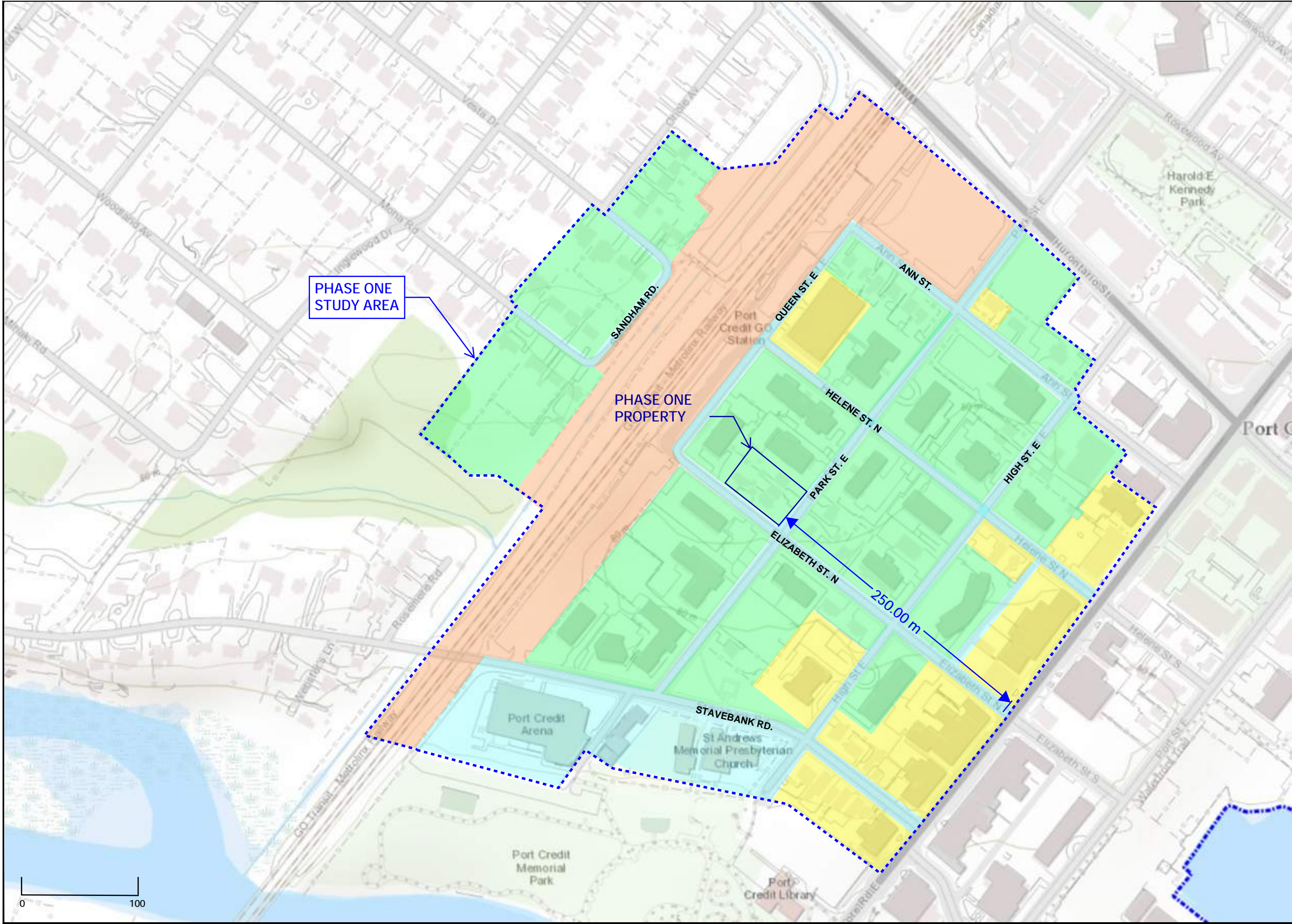
Job No

20-088-201

Figure No

**FIGURE 2**





**GROUND**  
ENGINEERING

1 Banigan Drive, Toronto, Ont., M4H1G3  
www.groundedeng.ca

**LEGEND**

- PROPERTY BOUNDARY
- PHASE ONE STUDY AREA
- COMMUNITY LAND USE (INCLUDING ROADWAYS)
- COMMERCIAL LAND USE
- RESIDENTIAL, PARK LAND, INSTITUTIONAL LAND USE
- INDUSTRIAL LAND USE (INCLUDING RAILWAY TRACKS)

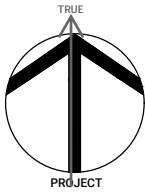
Note

Reference  
City of Mississauga Interactive Map

Project **PHASE ONE ENVIRONMENTAL SITE ASSESSMENT**  
23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title  
**PHASE ONE STUDY AREA**

North



Date

MAY, 2020

Scale

AS INDICATED

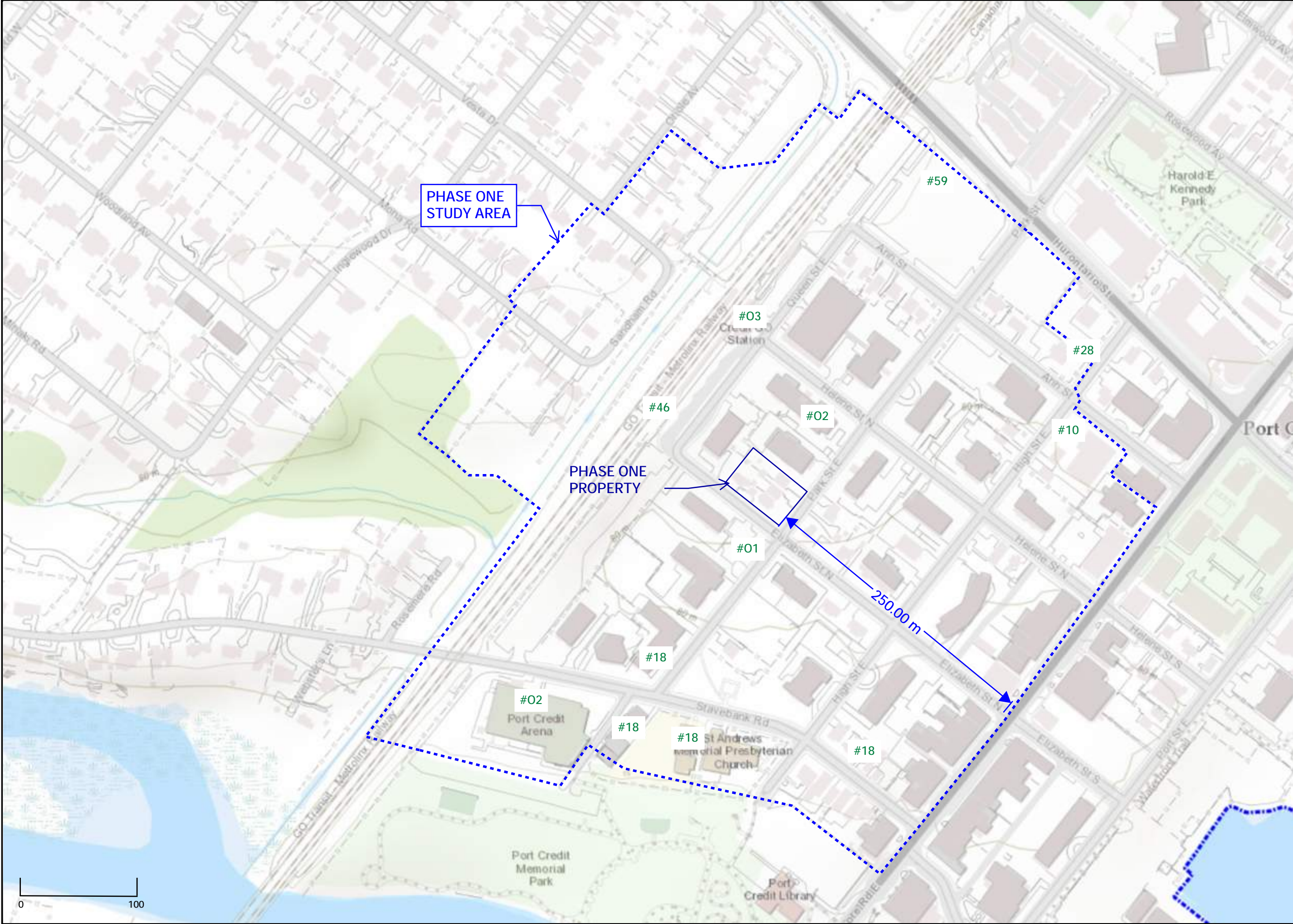
Job No

20-088-201

Figure No

**FIGURE 3**





**GROUND**  
ENGINEERING

1 Banigan Drive, Toronto, Ont., M4H1G3  
www.groundedeng.ca

**LEGEND**

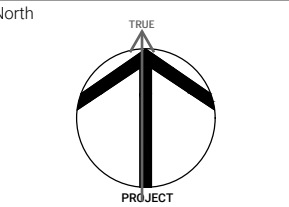
- PROPERTY BOUNDARY
- PHASE ONE STUDY AREA
- #01 ONTARIO SPILLS
- #02 O.REG.347 WASTE GENERATOR
- #03 COAL STORAGE
- #10 COMMERCIAL AUTOBODY SHOPS
- #18 ELECTRICITY GENERATION, TRANSFORMATION AND POWER STATIONS
- #28 GASOLINE AND ASSOCIATED PRODUCTS STORAGE IN FIXED TANKS
- #46 RAIL YARDS, TRACKS AND SPURS
- #59 WOOD TREATING AND PRESERVATIVE FACILITY AND BULK STORAGE OF TREATED AND PRESERVED WOOD PRODUCTS

Note  
GREEN - PCA NOT CAUSING APEC

Reference  
City of Mississauga Interactive Map

Project **PHASE ONE ENVIRONMENTAL SITE ASSESSMENT**  
23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title  
**PCA LOCATIONS**



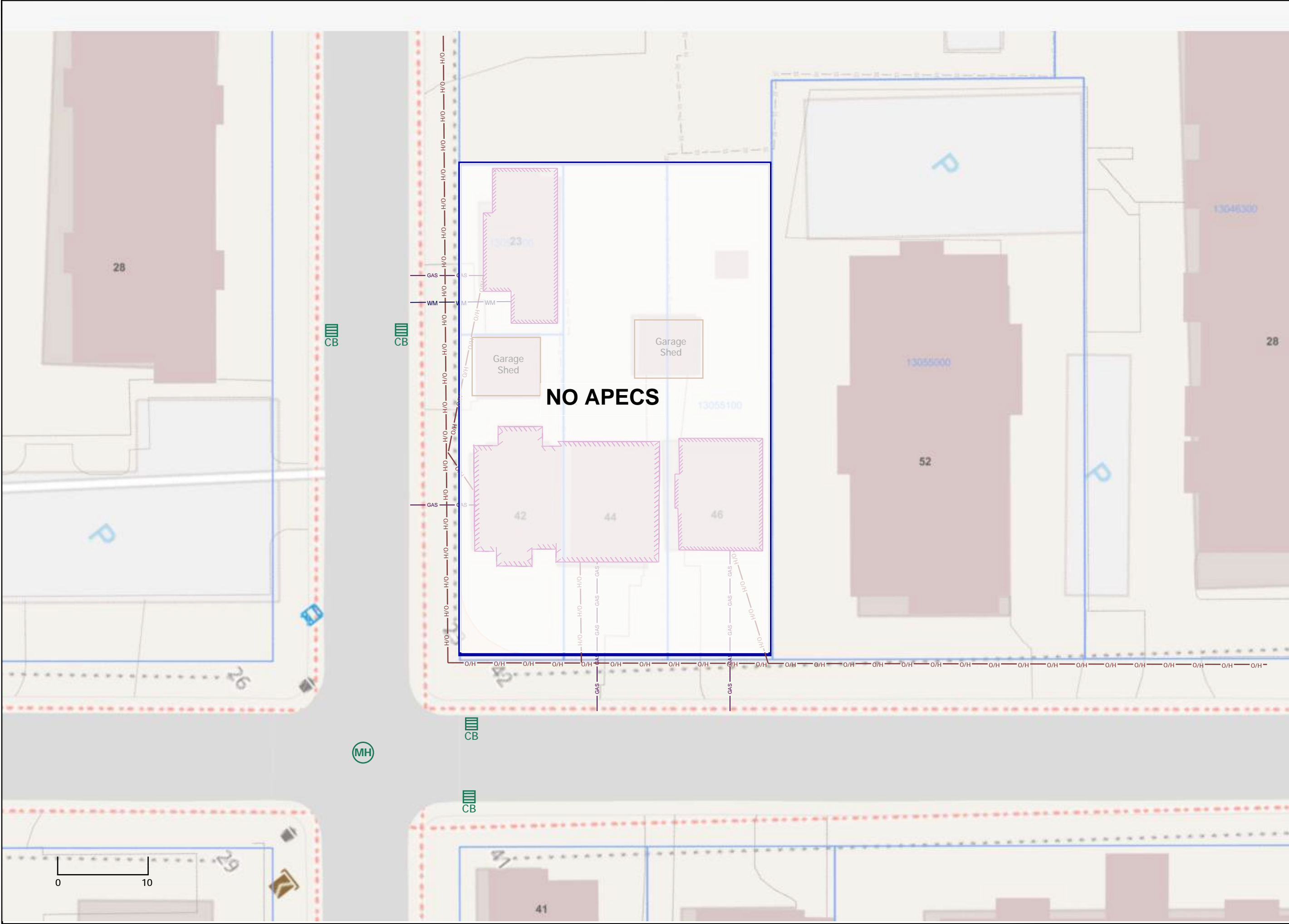
Date  
MAY, 2020

Scale  
AS INDICATED

Job No  
20-088-201

Figure No  
**FIGURE 4**





**GROUND**  
ENGINEERING

1 Banigan Drive, Toronto, Ont., M4H1G3  
www.groundedeng.ca

**LEGEND**

- PROPERTY BOUNDARY
- CURRENT BUILDING CONFIGURATION
- GAS — GAS
- O/H — OVERHEAD HYDRO
- WM — WATER
- CATCH BASIN
- SANITARY SEWER
- CONVEYANCE LAND

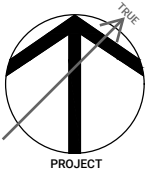
Note

Reference  
City of Mississauga Interactive Map

Project **PHASE ONE  
ENVIRONMENTAL SITE  
ASSESSMENT**  
23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title  
**APEC LOCATIONS**

North



Date

MAY, 2020

Scale

AS INDICATED

Job No

20-088-201

Figure No

**FIGURE 5**

# APPENDIX B





## Appendix B: Sampling and Analysis Plan

Areas of Potential Environmental Concern (APECs)	Location of APECs on Phase One Property	Potentially Contaminating Activities (PCAs)	Potential Contaminants of Concern (PCoCs)	Media Potentially Impacted (Groundwater, soil and/or sediment)	Borehole or Monitoring Well Associated	Exceedances
No APECs	No APECs	Offsite	PHCs BTEX	Soil & Groundwater	BH1, BH2, BH3 & BH4	None
			Metals As, Sb, Se CN- Hg Cr(VI) Low or high pH	Soil & Groundwater		
			EC SAR B-HWS	Soil		
			Cl Na	Groundwater		





# APPENDIX C



**SAMPLING/TESTING METHODS**

SS: split spoon sample  
 AS: auger sample  
 GS: grab sample  
 FV: shear vane  
 DP: direct push  
 PMT: pressuremeter test  
 ST: shelby tube  
 CORE: soil coring  
 RUN: rock coring

**SYMBOLS & ABBREVIATIONS**

MC: moisture content  
 LL: liquid limit  
 PL: plastic limit  
 PI: plasticity index  
 $\gamma$ : soil unit weight (bulk)  
 $G_s$ : specific gravity  
 $S_u$ : undrained shear strength  
 unstabalized water level  
 1st water level measurement  
 2nd water level measurement most recent  
 water level measurement

**ENVIRONMENTAL SAMPLES**

M&I: metals and inorganic parameters  
 PAH: polycyclic aromatic hydrocarbon  
 PCB: polychlorinated biphenyl  
 VOC: volatile organic compound  
 PHC: petroleum hydrocarbon  
 BTEX: benzene, toluene, ethylbenzene and xylene  
 PPM: parts per million

**FIELD MOISTURE (based on tactile inspection)**

**DRY:** no observable pore water  
**MOIST:** inferred pore water, not observable (i.e. grey, cool, etc.)  
**WET:** visible pore water

**COMPOSITION**

Term	% by weight
<b>trace</b> silt	<10
<b>some</b> silt	10 - 20
<b>silty</b>	20 - 35
sand <b>and</b> silt	>35

**COHESIONLESS**

Relative Density	N-Value
Very Loose	<4
Loose	4 - 10
Compact	10 - 30
Dense	30 - 50
Very Dense	>50

**COHESIVE**

Consistency	N-Value	Su (kPa)
Very Soft	<2	<12
Soft	2 - 4	12 - 25
Firm	4 - 8	25 - 50
Stiff	8 - 15	50 - 100
Very Stiff	15 - 30	100 - 200
Hard	>30	>200

**ASTM STANDARDS****ASTM D1586 Standard Penetration Test (SPT)**

Driving a 51 mm O.D. split-barrel sampler ("split spoon") into soil with a 63.5 kg weight free falling 760 mm. The blows required to drive the split spoon 300 mm ("bpf") after an initial penetration of 150 mm is referred to as the N-Value.

**ASTM D3441 Cone Penetration Test (CPT)**

Pushing an internal still rod with a outer hollow rod ("sleeve") tipped with a cone with an apex angle of 60° and a cross-sectional area of 1000 mm<sup>2</sup> into soil. The resistance is measured in the sleeve and at the tip to determine the skin friction and the tip resistance.

**ASTM D2573 Field Vane Test (FVT)**

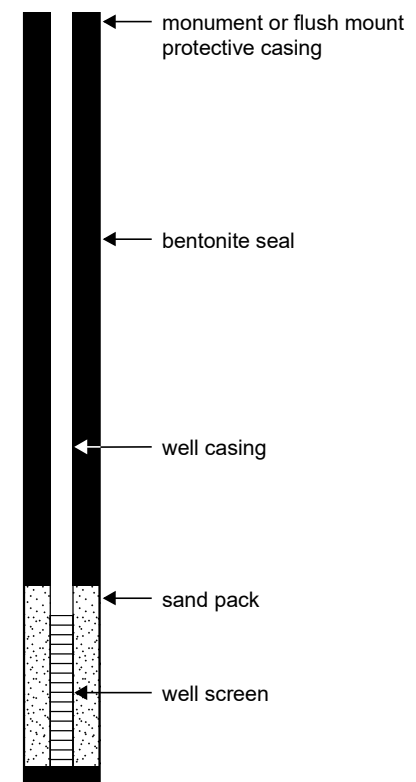
Pushing a four blade vane into soil and rotating it from the surface to determine the torque required to shear a cylindrical surface with the vane. The torque is converted to the shear strength of the soil using a limit equilibrium analysis.

**ASTM D1587 Shelby Tubes (ST)**

Pushing a thin-walled metal tube into the in-situ soil at the bottom of a borehole, removing the tube and sealing the ends to prevent soil movement or changes in moisture content for the purposes of extracting a relatively undisturbed sample.

**ASTM D4719 Pressuremeter Test (PMT)**

Place an inflatable cylindrical probe into a pre-drilled hole and expanding it while measuring the change in volume and pressure in the probe. It is inflated under either equal pressure increments or equal volume increments. This provides the stress-strain response of the soil.

**WELL LEGEND**

**TCR** **Total Core Recovery** the total length of recovery (soil or rock) per run, as a percentage of the drilled length  
**SCR** **Solid Core Recovery** the total length of sound full-diameter rock core pieces per run, as a percentage of the drilled length  
**RQD** **Rock Quality Designation** the sum of all pieces of sound rock core in a run which are 10 cm or greater in length, as a percentage of the drilled length

**Natural Fracture Frequency (typically per 0.3 m)** The number of natural discontinuities (joints, faults, etc.) which are present per 0.3m. Ignores mechanical or drill-induced breaks, and closed discontinuities (e.g. bedding planes).

## LOGGING DISCONTINUITIES

Discontinuity Type	Roughness (Barton et al.)	Spacing in Discontinuity Sets (ISRM 1981)
<b>BP</b> bedding parting		<b>VC</b> very close < 60 mm
<b>CL</b> cleavage		<b>C</b> close 60 – 200 mm
<b>CS</b> crushed seam		<b>M</b> mod. close 0.2 to 0.6 m
<b>FZ</b> fracture zone		<b>W</b> wide 0.6 to 2 m
<b>MB</b> mechanical break		<b>VW</b> very wide > 2 m
<b>IS</b> infilled seam		
<b>JT</b> Joint		
<b>SS</b> shear surface		
<b>SZ</b> shear zone		
<b>VN</b> vein		
<b>VO</b> void		
<b>Coating</b>		<b>Aperture Size</b>
<b>CN</b> Clean		<b>T</b> closed / tight < 0.5 mm
<b>SN</b> Stained		<b>GA</b> gapped 0.5 to 10 mm
<b>OX</b> Oxidized		<b>OP</b> open > 10 mm
<b>VN</b> Veneer		
<b>CT</b> Coating (>1 mm)		
		<b>Planarity</b>
		<b>PR</b> Planar
		<b>UN</b> Undulating
		<b>ST</b> Stepped
		<b>IR</b> Irregular
		<b>DIS</b> Discontinuous
		<b>CU</b> Curved

## GENERAL

**Degree of Weathering** (after MTO, RR229 Evaluation of Shales for Construction Projects)

Zone	Degree	Description
Z1	unweathered	shale, regular jointing
Z2	partially weathered	angular blocks of unweathered shale, no matrix, with chemically weathered but intact shale
Z3		soil-like matrix with frequent angular shale fragments < 25mm diameter
Z4a		soil-like matrix with occasional shale fragments < 3mm diameter
Z4b	fully weathered	soil-like matrix only

**Strength classification** (after Marinos and Hoek, 2001; ISRM 1981b)

Grade		UCS (MPa)	Field Estimate (Description)
<b>R6</b>	extremely strong	> 250	can only be chipped by geological hammer
<b>R5</b>	very strong	100 - 250	requires many blows from geological hammer
<b>R4</b>	strong	50 - 100	requires more than one blow from geological hammer
<b>R3</b>	medium strong	25 - 50	can't be scraped, breaks under one blow from geological hammer
<b>R2</b>	weak	5 - 25	can be peeled / scraped with knife with difficulty
<b>R1</b>	very weak	1 - 5	easily scraped / peeled, crumbles under firm blow of geo. hammer
<b>R0</b>	extremely weak	< 1	indented by thumbnail

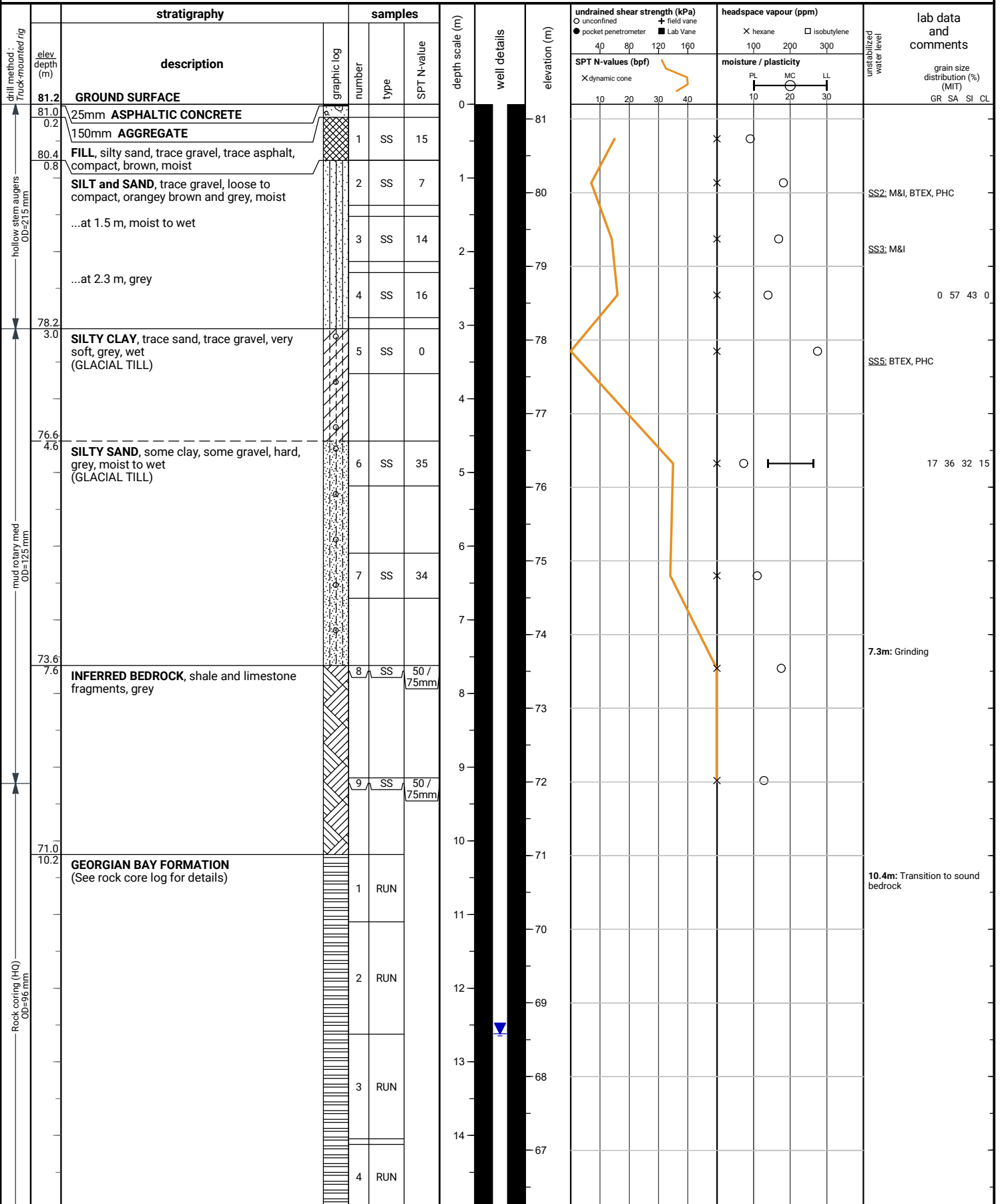
**Bedding Thickness** (Q. J. Eng. Geology, Vol 3, 1970)

Very thickly bedded	> 2 m
Thickly bedded	0.6 – 2m
Medium bedded	200 – 600mm
Thinly bedded	60 – 200mm
Very thinly bedded	20 – 60mm
Laminated	6 – 20mm
Thinly Laminated	< 6mm

File No. : 20-088

Project : 23 Elizabeth Street North, Mississauga

Client : Edenshaw Elizabeth Developments Limited



File No. : 20-088

Project : 23 Elizabeth Street North, Mississauga

Client : Edenshaw Elizabeth Developments Limited

drill method : Truck-mounted rig	stratigraphy		samples			depth scale (m)	well details	elevation (m)	undrained shear strength (kPa)	headspace vapour (ppm)	lab data and comments
	elev. depth (m)	description	graphic log	number	type				O unconfined ● pocket penetrometer X dynamic cone	+ field vane ■ Lab Vane	
		(continued)							40 80 120 160 10 20 30 40	X hexane □ isobutylene	grain size distribution (%) (MIT) GR SA SI CL
		GEORGIAN BAY FORMATION (See rock core log for details) (continued)		4	RUN	15		66			
				5	RUN	16		65			
				6	RUN	17		64			
				7	RUN	18		63			
				8	RUN	19		62			
				9	RUN	20		61			
						21		60			
						22		59			
						23					

**END OF BOREHOLE**

Filled with drill water upon completion of drilling.

50 mm dia. monitoring well installed.  
No. 10 screen

**GROUNDWATER LEVELS**

Date	Water Depth (m)	Elevation (m)
Jun 5, 2020	4.8	76.4
Jun 10, 2020	7.7	73.5
Jun 12, 2020	12.7	68.5
Jun 18, 2020	12.7	68.5
Jul 20, 2020	12.6	68.6

File No. : 20-088

Project : 23 Elizabeth Street North, Mississauga

Client : Edenshaw Elizabeth Developments Limited

depth (m)	graphic log	stratigraphy	UCS elev depth (m)	recovery	elevation (m)	shale weathering zones	UCS (MPa) ● 5 25 50 100 250 estimated strength	natural fracture frequency	laboratory testing	notes and comments	elevation (m)
		Rock coring started at 10.2m below grade	71.0								
		<b>GEORGIAN BAY FORMATION</b> Shale, grey, thinly bedded, weak; joints are horizontal, gapped to open;  interbedded with <b>limestone</b> , light grey, thinly bedded, medium strong  Overall shale: 90%, limestone: 10%	10.2		71	Z1		4			10.4 / 70.8m: Transition to sound bedrock
			R1	TCR = 58% SCR = 42% RQD = 11%		Z2		4			10.7 / 70.5m: 15" lost core at the end of the run
11			70.1		70	Z3		5			
		Run 1 : 12% limestone 88% shale	11.1			Z4		1			
			R2	TCR = 95% SCR = 90% RQD = 80%				1			
12					69			0			
		Run 2 : 6% limestone 94% shale	68.6					1			
			12.6					2			
13					68			1			
			R3	TCR = 100% SCR = 92% RQD = 92%				1			
								1			
14		Run 3 : 5% limestone 95% shale	67.1		67			0			
			14.1					1			
								0			
15					66			1			
		Run 4 : 7% limestone 93% shale	65.7					1			
			15.5					0			
16					65			0			
			R5	TCR = 100% SCR = 100% RQD = 100%				0			
								1			
17		Run 5 : 11% limestone 89% shale	64.1		64			0			
			17.1					1			
								3			
18					63			0			
			R6	TCR = 100% SCR = 98% RQD = 93%				0			
								0			
19		Run 6 : 19% limestone 81% shale	62.5		62			0			
			18.7					0			
								0			
			R7	TCR = 100% SCR = 100% RQD = 100%				0			
20		Run 7 : 10% limestone 90% shale	61.0					1			

file: 20-088.gpj

File No. : 20-088

Project : 23 Elizabeth Street North, Mississauga

Client : Edenshaw Elizabeth Developments Limited

depth (m)	graphic log	stratigraphy	UCR elev depth (m)	recovery	elevation (m)	shale weathering zones	UCS (MPa) ● 5 25 50 100 250 estimated strength	natural fracture frequency	laboratory testing	notes and comments	elevation (m)
			71.0			Z1 Z2 Z3 Z4	R1 R2 R3 R4 R5 R6				
		<b>GEORGIAN BAY FORMATION</b>			61						
		Shale, grey, thinly bedded, weak; joints are horizontal, gapped to open;									
		interbedded with <b>limestone</b> , light grey, thinly bedded, medium strong									
21		Overall shale: 90%, limestone: 10%	R8 20.2	TCR = 100% SCR = 100% RQD = 100%				0			
		Run 8 : 7% limestone 93% shale	59.6 21.6		60			0			60
22								0			
								0			
								0			
								1			
			R9	TCR = 97% SCR = 97% RQD = 86%	59			0			59
								0			
23		Run 9 : 10% limestone 90% shale	58.0					2			

END OF COREHOLE

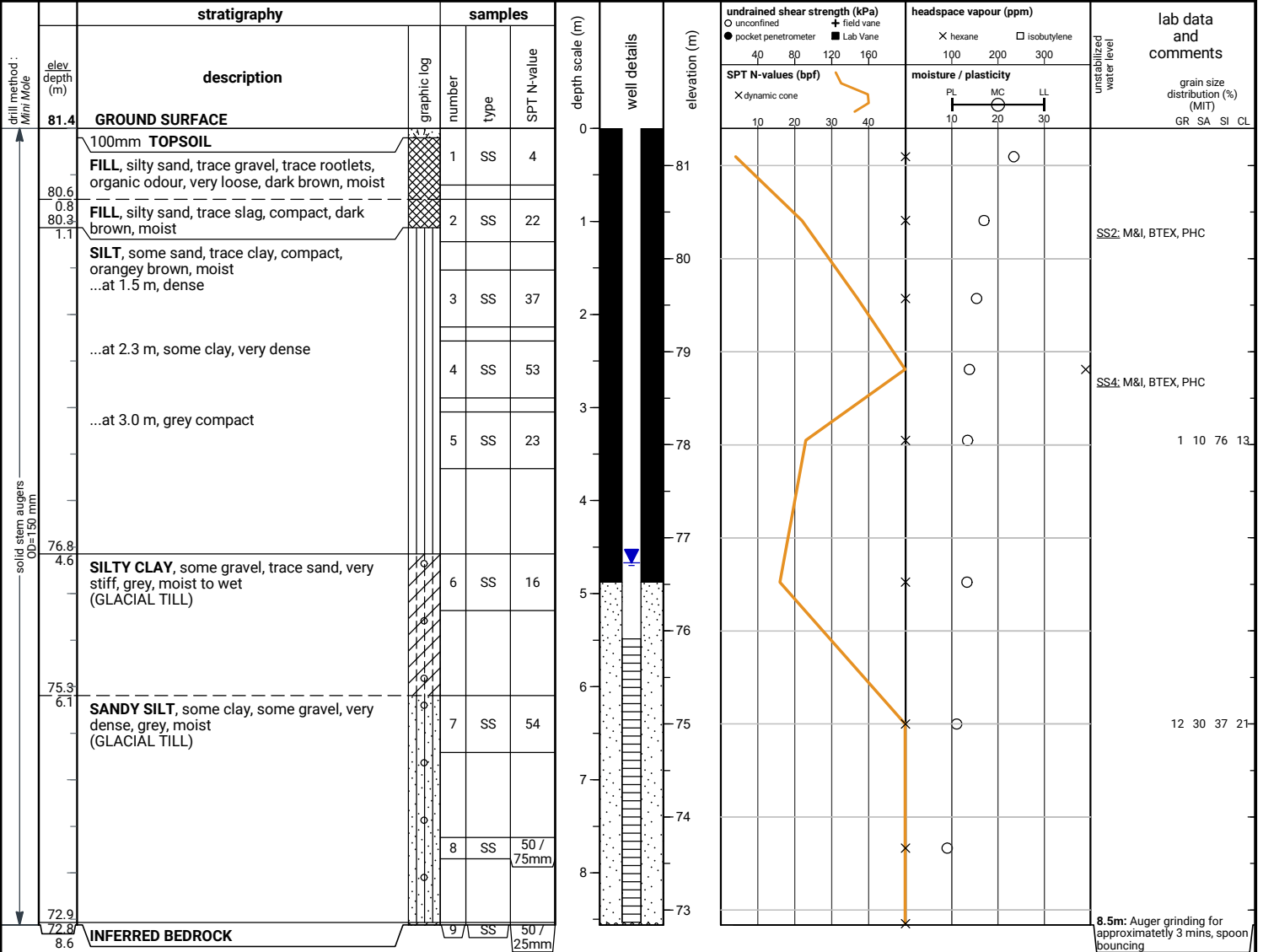
23.2m



File No. : 20-088

Project : 23 Elizabeth Street North, Mississauga

Client : Edenshaw Elizabeth Developments Limited



**END OF BOREHOLE**  
Auger refusal

Dry and open upon completion of drilling.

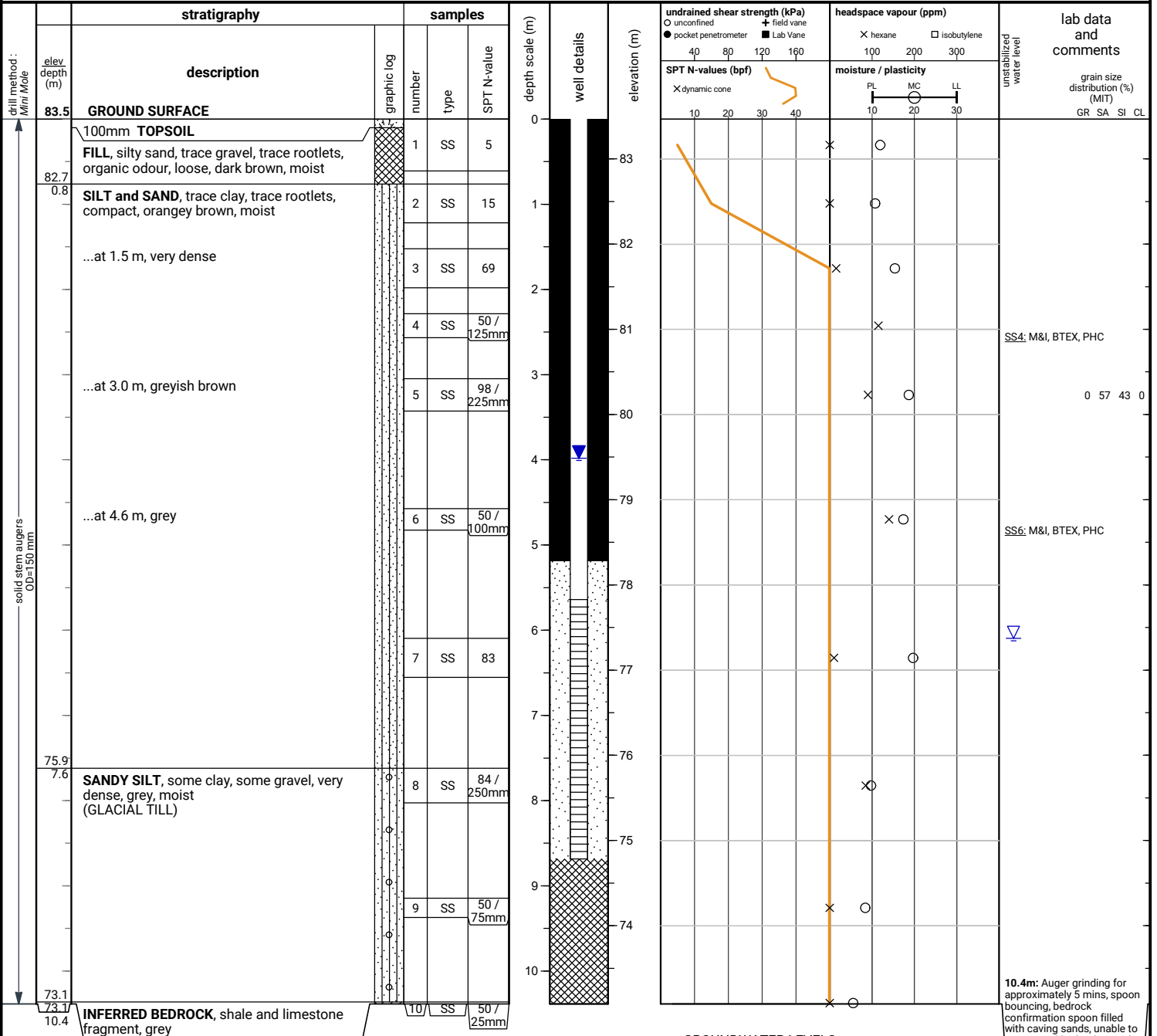
50 mm dia. monitoring well installed.  
No. 10 screen

8.5m: Auger grinding for approximately 3 mins, spoon bouncing

File No. : 20-088

Project : 23 Elizabeth Street North, Mississauga

Client : Edenshaw Elizabeth Developments Limited



10.4m: Auger grinding for approximately 5 mins, spoon bouncing, bedrock confirmation spoon filled with caving sands, unable to extract 2nd bedrock sample

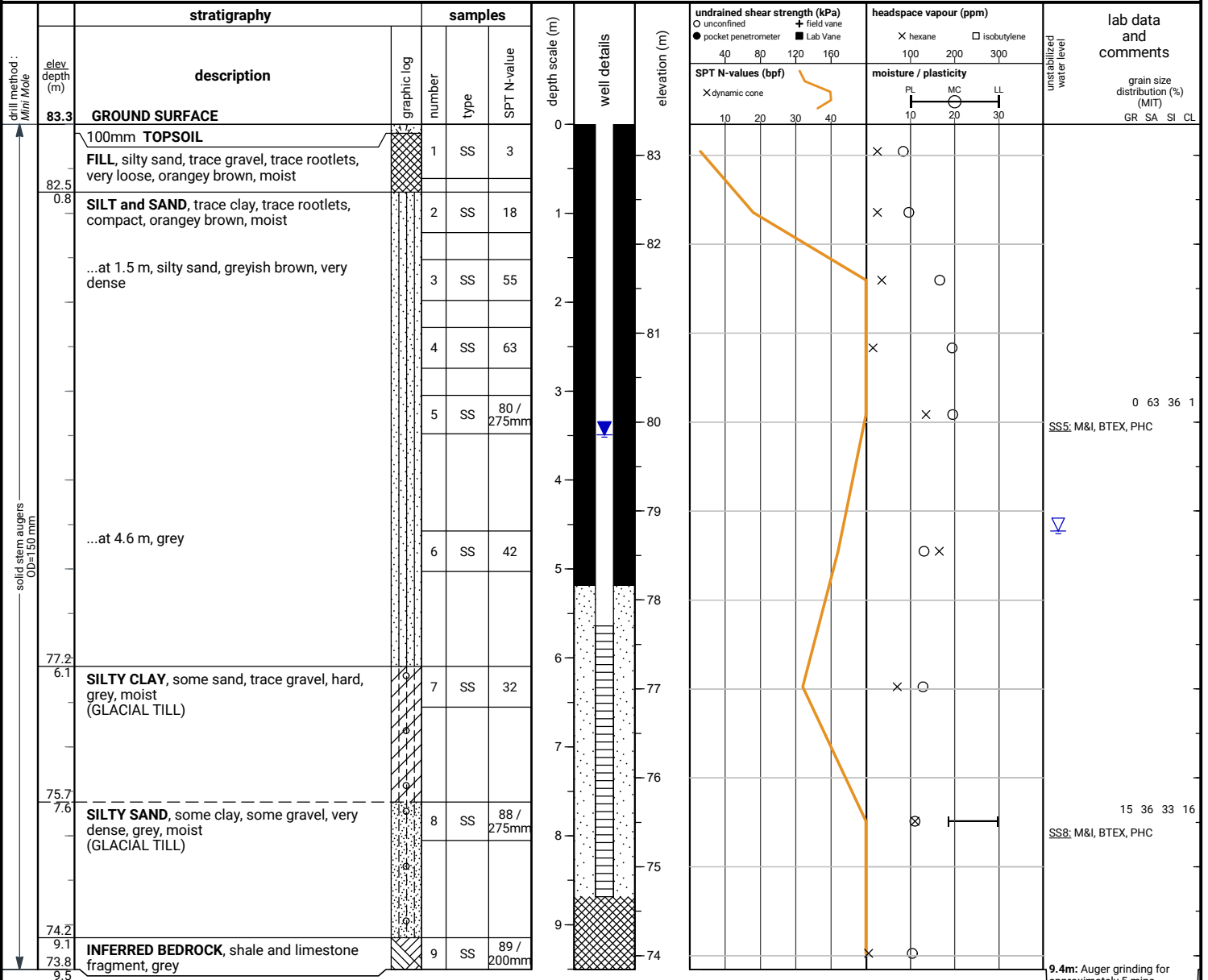
Unstabilized water level measured at 6.1 m below ground surface; caved to 8.7 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed.  
No. 10 screen

File No. : 20-088

Project : 23 Elizabeth Street North, Mississauga

Client : Edenshaw Elizabeth Developments Limited



**END OF BOREHOLE**  
Auger refusal

Unstabilized water level measured at 4.6 m below ground surface; caved to 8.7 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed.  
No. 10 screen

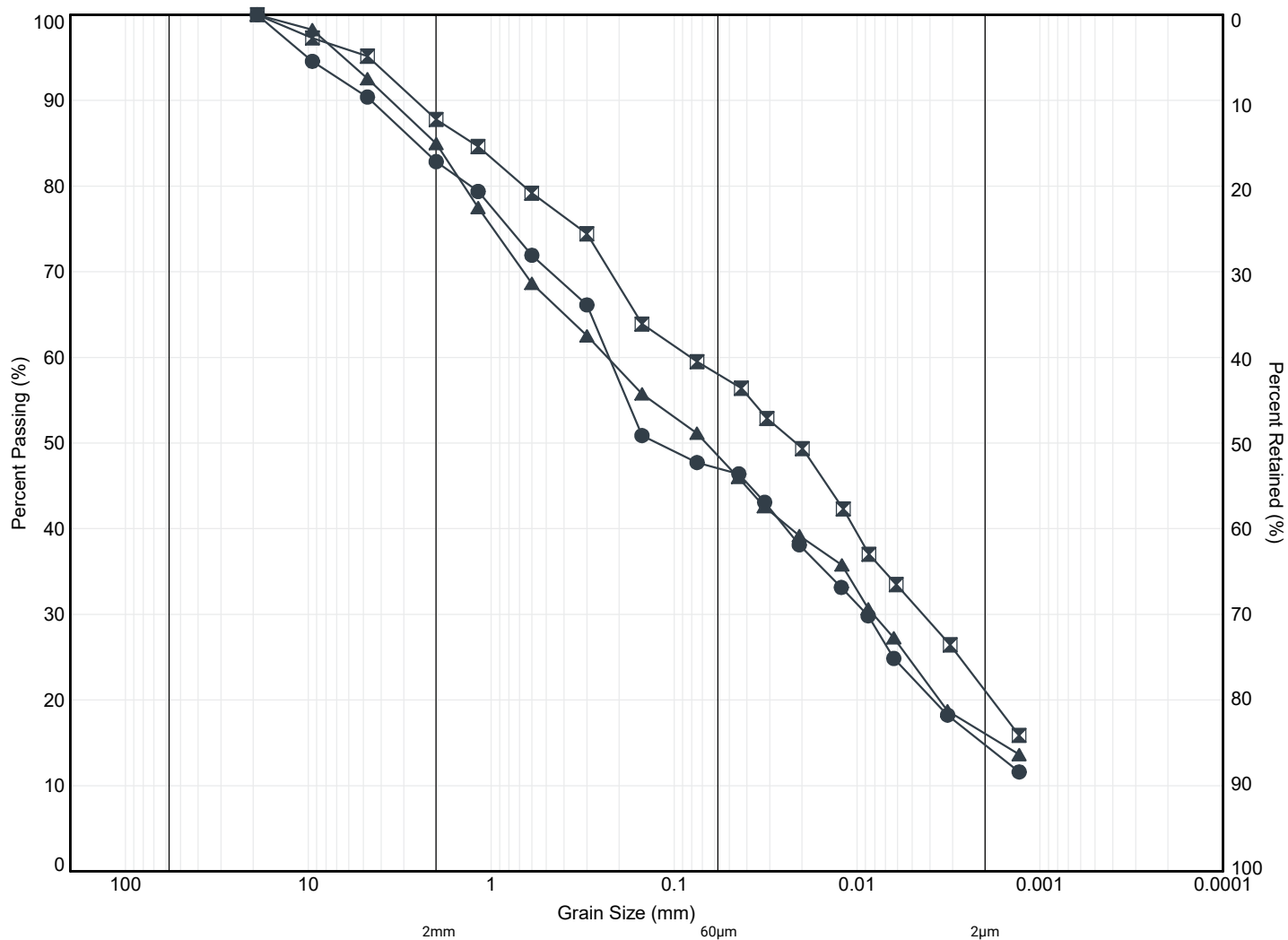
**GROUNDWATER LEVELS**

Date	Water Depth (m)	Elevation (m)
Jun 5, 2020	2.9	80.5
Jun 10, 2020	2.9	80.4
Jun 12, 2020	3.0	80.4
Jun 18, 2020	3.0	80.3
Jul 20, 2020	3.5	79.9

9.4m: Auger grinding for approximately 5 mins  
9.5m: Spoon refusal, bedrock confirmation spoon filled with caving sands, unable to extract 2nd bedrock sample

# APPENDIX D





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

#### MIT SYSTEM

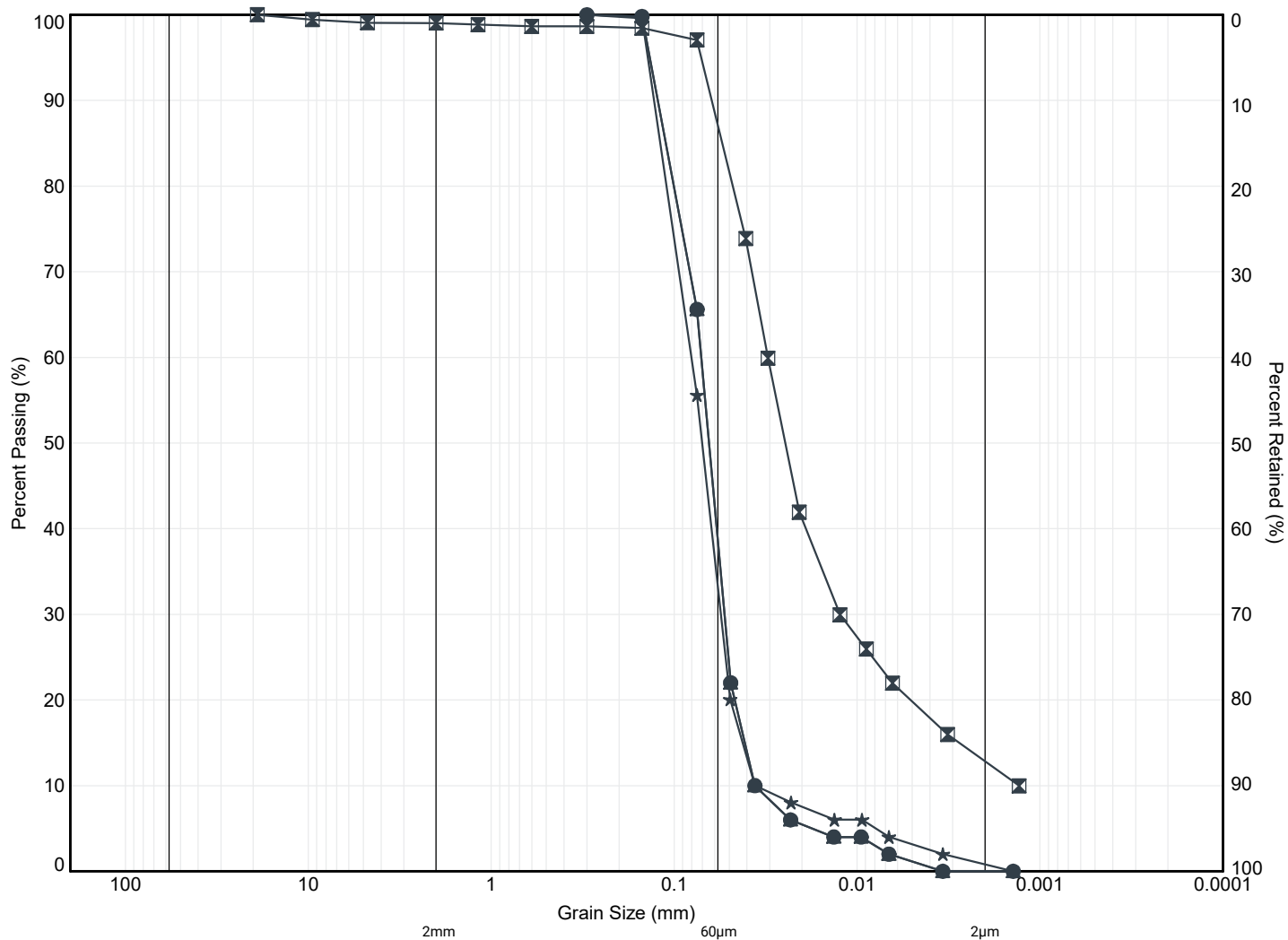
	Borehole	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
●	1	SS6	4.9	76.3	17	36	32	15
⊠	2	SS7	6.4	75.0	12	30	37	21
▲	4	SS8	7.8	75.5	15	36	33	16

Title:

**GRAIN SIZE DISTRIBUTION  
SILT TILL**

File No.:

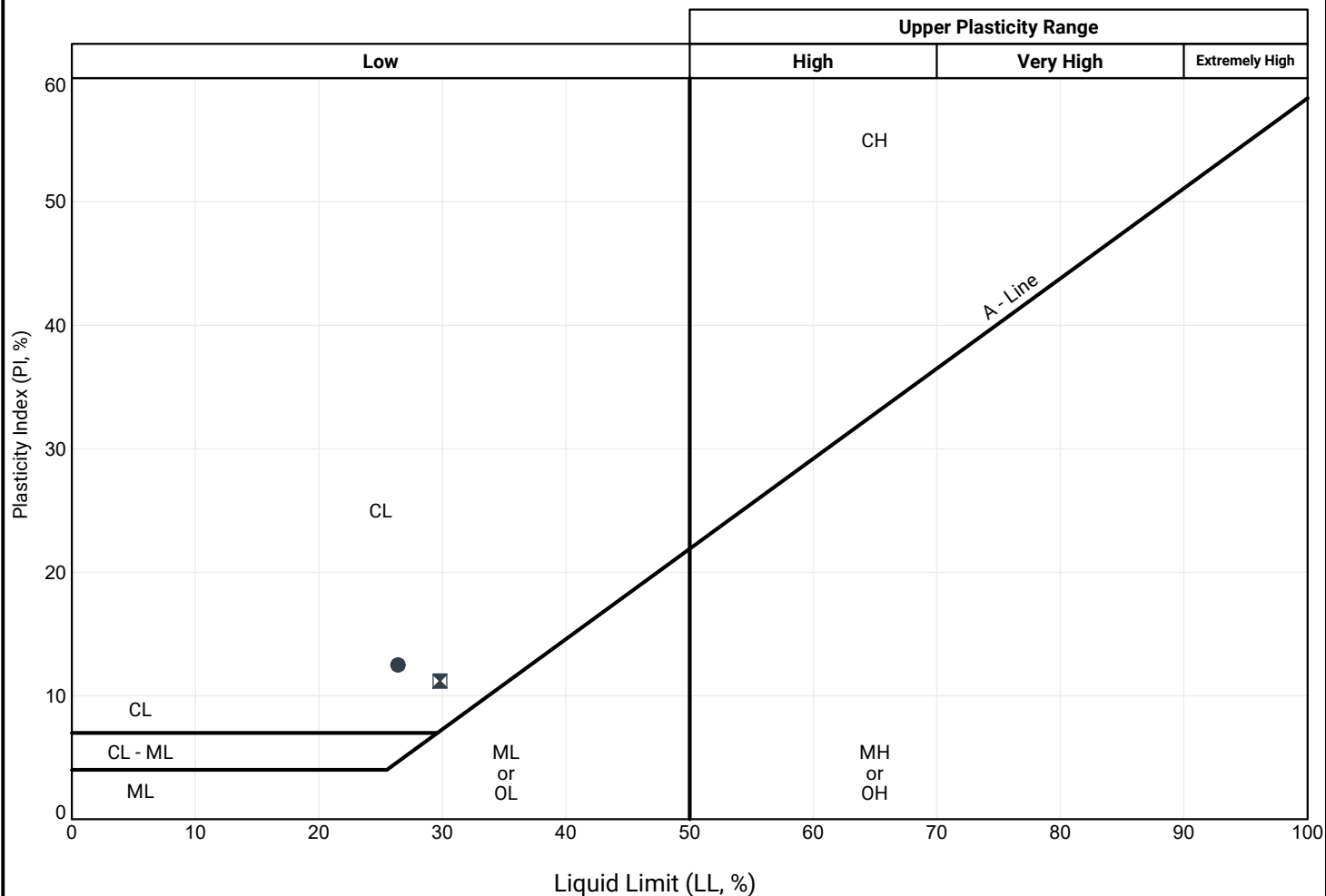
**20-088**



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

#### MIT SYSTEM

Borehole	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
● 1	SS4	2.6	78.6	0	57	43	0
⊠ 2	SS5	3.4	78.0	1	10	76	13
▲ 3	SS5	3.2	80.2	0	57	43	0
★ 4	SS5	3.3	80.1	0	63	36	1



Borehole	Sample	Depth (m)	Elev. (m)	LL (%)	PL (%)	PI (%)
● 1	SS6	4.9	76.3	26	14	12
⊠ 4	SS8	7.8	75.5	30	19	11

# APPENDIX E







## FINAL REPORT

CA14778-JUN20 R

20-088 23 Elizabeth St N Mississauga

Prepared for

**Grounded Engineering Inc.**

## First Page

### CLIENT DETAILS

Client Grounded Engineering Inc.

Address 12 Banigan Drive  
Toronto, Ontario  
M4H1E9, Canada

Contact Jessie Wu

Telephone 647-264-7909

Facsimile

Email jwu@groundedeng.ca

Project 20-088 23 Elizabeth St N Mississauga

Order Number

Samples Soil (3)

### LABORATORY DETAILS

Project Specialist Brad Moore Hon. B.Sc

Laboratory SGS Canada Inc.

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

Telephone 705-652-2143

Facsimile 705-652-6365

Email brad.moore@sgs.com

SGS Reference CA14778-JUN20

Received 06/03/2020

Approved 06/09/2020

Report Number CA14778-JUN20 R

Date Reported 06/09/2020

### COMMENTS

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

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

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

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

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

Linearity is within 15%: YES

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

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

Hydrocarbon results are expressed on a dry weight basis.

Temperature of Sample upon Receipt: 7 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 012656

### SIGNATORIES

Brad Moore Hon. B.Sc

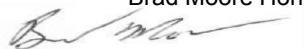




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## FINAL REPORT

### PACKAGE: REG153 - BTEX (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	8	10
Sample Name	BH1-SS2	BH1-SS5
Sample Matrix	Soil	Soil
Sample Date	02/06/2020	02/06/2020

Parameter	Units	RL	L1	Result	Result
<b>BTEX</b>					
Benzene	µg/g	0.02	0.21	< 0.02	< 0.02
Ethylbenzene	µg/g	0.05	2	< 0.05	< 0.05
Toluene	µg/g	0.05	2.3	< 0.05	< 0.05
Xylene (total)	µg/g	0.05	3.1	< 0.05	< 0.05
m/p-xylene	µg/g	0.05		< 0.05	< 0.05
o-xylene	µg/g	0.05		< 0.05	< 0.05

### PACKAGE: REG153 - Hydrides (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	8	9
Sample Name	BH1-SS2	BH1-SS3
Sample Matrix	Soil	Soil
Sample Date	02/06/2020	02/06/2020

Parameter	Units	RL	L1	Result	Result
<b>Hydrides</b>					
Antimony	µg/g	0.8	7.5	< 0.8	< 0.8
Arsenic	µg/g	0.5	18	2.7	2.3
Selenium	µg/g	0.7	2.4	< 0.7	< 0.7



## FINAL REPORT

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

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	8	9	10
Sample Name	BH1-SS2	BH1-SS3	BH1-SS5
Sample Matrix	Soil	Soil	Soil
Sample Date	02/06/2020	02/06/2020	02/06/2020

Parameter	Units	RL	L1	Result	Result	Result
<b>Metals and Inorganics</b>						
Moisture Content	%	-		15.6	15.6	21.6
Barium	µg/g	0.1	390	43	35	
Beryllium	µg/g	0.02	4	0.33	0.27	
Boron	µg/g	1	120	3	2	
Cadmium	µg/g	0.02	1.2	0.07	0.05	
Chromium	µg/g	0.5	160	13	12	
Cobalt	µg/g	0.01	22	7.7	5.9	
Copper	µg/g	0.1	140	18	15	
Lead	µg/g	0.1	120	6.2	4.8	
Molybdenum	µg/g	0.1	6.9	0.2	0.3	
Nickel	µg/g	0.5	100	16	12	
Silver	µg/g	0.05	20	< 0.05	< 0.05	
Thallium	µg/g	0.02	1	0.09	0.08	
Uranium	µg/g	0.002	23	0.38	0.35	
Vanadium	µg/g	3	86	22	19	
Zinc	µg/g	0.7	340	35	26	
Water Soluble Boron	µg/g	0.5	1.5	< 0.5	< 0.5	



FINAL REPORT

PACKAGE: REG153 - Other (ORP) (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	8	9
Sample Name	BH1-SS2	BH1-SS3
Sample Matrix	Soil	Soil
Sample Date	02/06/2020	02/06/2020

Parameter	Units	RL	L1	Result	Result
Other (ORP)					
Mercury	µg/g	0.05	0.27	< 0.05	< 0.05
Sodium Adsorption Ratio	---	0.2	5	3.2	3.5
SAR Calcium	mg/L	0.09		19.8	23.4
SAR Magnesium	mg/L	0.02		2.6	3.3
SAR Sodium	mg/L	0.15		48.5	66.2
Conductivity	mS/cm	0.002	0.7	0.46	0.51
pH	pH Units	0.05		7.84	7.79
Chromium VI	µg/g	0.2	8	< 0.2	< 0.2
Free Cyanide	µg/g	0.05	0.051	< 0.05	< 0.05



FINAL REPORT

PACKAGE: REG153 - PHCs (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	8	10
Sample Name	BH1-SS2	BH1-SS5
Sample Matrix	Soil	Soil
Sample Date	02/06/2020	02/06/2020

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

## EXCEEDANCE SUMMARY

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



## HOLDING TIME SUMMARY

Sample Name	QC Batch Reference	Sample Number	Sampled	Received	Extracted/ Prepared	Analysed	Holding Time	Approved
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## Conductivity

Method: EPA 6010/SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

BH1-SS2	EWL0099-JUN20	8	06/02/2020	06/03/2020	06/04/2020	06/05/2020	06/30/2020	06/08/2020
BH1-SS3	EWL0099-JUN20	9	06/02/2020	06/03/2020	06/04/2020	06/05/2020	06/30/2020	06/08/2020

## Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

BH1-SS2	SKA5025-JUN20	8	06/02/2020	06/03/2020	06/04/2020	06/05/2020	06/16/2020	06/05/2020
BH1-SS3	SKA5025-JUN20	9	06/02/2020	06/03/2020	06/04/2020	06/05/2020	06/16/2020	06/05/2020

## Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENV]SKA-LAK-AN-012

BH1-SS2	SKA5021-JUN20	8	06/02/2020	06/03/2020	06/05/2020	06/05/2020	07/02/2020	06/05/2020
BH1-SS3	SKA5021-JUN20	9	06/02/2020	06/03/2020	06/05/2020	06/05/2020	07/02/2020	06/05/2020

## Mercury by CVAAS

Method: EPA 7471A/EPA 245 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

BH1-SS2	EMS0022-JUN20	8	06/02/2020	06/03/2020	06/04/2020	06/04/2020	06/30/2020	06/04/2020
BH1-SS3	EMS0022-JUN20	9	06/02/2020	06/03/2020	06/04/2020	06/04/2020	06/30/2020	06/04/2020

## Metals in aqueous samples - ICP-OES

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-003

BH1-SS2	ESG0016-JUN20	8	06/02/2020	06/03/2020	06/04/2020	06/04/2020	11/29/2020	06/04/2020
BH1-SS3	ESG0016-JUN20	9	06/02/2020	06/03/2020	06/04/2020	06/04/2020	11/29/2020	06/04/2020

## Metals in Soil - Aqua-regia/ICP-MS

Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-005

BH1-SS2	EMS0022-JUN20	8	06/02/2020	06/03/2020	06/04/2020	06/04/2020	11/29/2020	06/04/2020
BH1-SS3	EMS0022-JUN20	9	06/02/2020	06/03/2020	06/04/2020	06/04/2020	11/29/2020	06/04/2020

## Moisture

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

BH1-SS2	GCM0087-JUN20	8	06/02/2020	06/03/2020	06/04/2020	06/04/2020	08/01/2020	06/05/2020
BH1-SS3	GCM0087-JUN20	9	06/02/2020	06/03/2020	06/04/2020	06/04/2020	08/01/2020	06/05/2020
BH1-SS5	GCM0087-JUN20	10	06/02/2020	06/03/2020	06/04/2020	06/04/2020	08/01/2020	06/05/2020

## Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

BH1-SS2	GCM0109-JUN20	8	06/02/2020	06/03/2020	06/04/2020	06/04/2020	06/16/2020	06/09/2020
BH1-SS5	GCM0109-JUN20	10	06/02/2020	06/03/2020	06/04/2020	06/04/2020	06/16/2020	06/09/2020

## Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

BH1-SS2	GCM0073-JUN20	8	06/02/2020	06/03/2020	06/04/2020	06/04/2020	07/12/2020	06/05/2020
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## HOLDING TIME SUMMARY

Sample Name	QC Batch Reference	Sample Number	Sampled	Received	Extracted/ Prepared	Analysed	Holding Time	Approved
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## Petroleum Hydrocarbons (F2-F4) (continued)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

BH1-SS5	GCM0073-JUN20	10	06/02/2020	06/03/2020	06/04/2020	06/04/2020	07/12/2020	06/05/2020
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## pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-001

BH1-SS2	ARD0024-JUN20	8	06/02/2020	06/03/2020	06/04/2020	06/04/2020	07/02/2020	06/04/2020
BH1-SS3	ARD0024-JUN20	9	06/02/2020	06/03/2020	06/04/2020	06/04/2020	07/02/2020	06/04/2020

## Sodium adsorption ratio (SAR)

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-[ENV]ARD-LAK-AN-021

BH1-SS2	ESG0016-JUN20	8	06/02/2020	06/03/2020	06/04/2020	06/04/2020	11/29/2020	06/04/2020
BH1-SS3	ESG0016-JUN20	9	06/02/2020	06/03/2020	06/04/2020	06/04/2020	11/29/2020	06/04/2020

## Volatile Organics

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

BH1-SS2	GCM0109-JUN20	8	06/02/2020	06/03/2020	06/05/2020	06/05/2020	06/16/2020	06/09/2020
BH1-SS5	GCM0109-JUN20	10	06/02/2020	06/03/2020	06/05/2020	06/05/2020	06/16/2020	06/09/2020

## Water Soluble Boron

Method: O.Reg. 153/04 | Internal ref.: ME-CA-[ENV] SPE-LAK-AN-003

BH1-SS2	ESG0014-JUN20	8	06/02/2020	06/03/2020	06/04/2020	06/04/2020	11/29/2020	06/04/2020
BH1-SS3	ESG0014-JUN20	9	06/02/2020	06/03/2020	06/04/2020	06/04/2020	11/29/2020	06/04/2020



FINAL REPORT

QC SUMMARY

Conductivity

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike B	
					RPD	AC (%)	Spike Recovery (%)	F
Conductivity	EWL0099-JUN20	mS/cm	0.002	<0.002	0	10	99	90

Cyanide by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike B	
					RPD	AC (%)	Spike Recovery (%)	F
Free Cyanide	SKA5025-JUN20	µg/g	0.05	<0.05	ND	20	105	80

Hexavalent Chromium by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike B	
					RPD	AC (%)	Spike Recovery (%)	F
Chromium VI	SKA5021-JUN20	ug/g	0.2	<0.2	ND	20	89	80



FINAL REPORT

QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike B	
					RPD	AC (%)	Spike Recovery (%)	F
Mercury	EMS0022-JUN20	µg/g	0.05	<0.05	5	20	101	80

Metals in aqueous samples - ICP-OES  
Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-IENVISPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike B	
					RPD	AC (%)	Spike Recovery (%)	F
SAR Calcium	ESG0016-JUN20	mg/L	0.09	<0.09	6	20	98	80
SAR Magnesium	ESG0016-JUN20	mg/L	0.02	<0.02	9	20	98	80
SAR Sodium	ESG0016-JUN20	mg/L	0.15	<0.15	5	20	97	80



FINAL REPORT

QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike B	
					RPD	AC (%)	Spike Recovery (%)	F
Silver	EMS0022-JUN20	ug/g	0.05	<0.05	ND	20	94	70
Arsenic	EMS0022-JUN20	µg/g	0.5	<0.5	8	20	102	70
Barium	EMS0022-JUN20	ug/g	0.1	<0.1	4	20	107	70
Beryllium	EMS0022-JUN20	µg/g	0.02	<0.02	5	20	98	70
Boron	EMS0022-JUN20	µg/g	1	<1	9	20	102	70
Cadmium	EMS0022-JUN20	µg/g	0.02	<0.02	11	20	100	70
Cobalt	EMS0022-JUN20	µg/g	0.01	<0.01	6	20	100	70
Chromium	EMS0022-JUN20	µg/g	0.5	<0.5	3	20	102	70
Copper	EMS0022-JUN20	µg/g	0.1	<0.1	7	20	101	70
Molybdenum	EMS0022-JUN20	µg/g	0.1	<0.1	1	20	95	70
Nickel	EMS0022-JUN20	ug/g	0.5	<0.5	6	20	101	70
Lead	EMS0022-JUN20	µg/g	0.1	<0.1	1	20	102	70
Antimony	EMS0022-JUN20	µg/g	0.8	<0.8	ND	20	92	70
Selenium	EMS0022-JUN20	µg/g	0.7	<0.7	ND	20	103	70
Thallium	EMS0022-JUN20	µg/g	0.02	<0.02	3	20	105	70
Uranium	EMS0022-JUN20	µg/g	0.002	<0.002	5	20	100	70
Vanadium	EMS0022-JUN20	µg/g	3	<3	5	20	101	70
Zinc	EMS0022-JUN20	µg/g	0.7	<0.7	6	20	101	70



FINAL REPORT

QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike B	
					RPD	AC (%)	Spike Recovery (%)	F
F1 (C6-C10)	GCM0109-JUN20	µg/g	10	<10	ND	30	107	80

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike B	
					RPD	AC (%)	Spike Recovery (%)	F
F2 (C10-C16)	GCM0073-JUN20	µg/g	10	<10	ND	30	109	80
F3 (C16-C34)	GCM0073-JUN20	µg/g	50	<50	ND	30	109	80
F4 (C34-C50)	GCM0073-JUN20	µg/g	50	<50	ND	30	109	80



FINAL REPORT

QC SUMMARY

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike B	
					RPD	AC (%)	Spike Recovery (%)	F
pH	ARD0024-JUN20	pH Units	0.05		0	20	100	80

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike B	
					RPD	AC (%)	Spike Recovery (%)	F
Benzene	GCM0109-JUN20	µg/g	0.02	<0.02	ND	50	97	60
Ethylbenzene	GCM0109-JUN20	µg/g	0.05	<0.05	ND	50	96	60
m/p-xylene	GCM0109-JUN20	µg/g	0.05	<0.05	ND	50	100	60
o-xylene	GCM0109-JUN20	µg/g	0.05	<0.05	ND	50	96	60
Toluene	GCM0109-JUN20	µg/g	0.05	<0.05	ND	50	95	60



# FINAL REPORT

## QC SUMMARY

### Water Soluble Boron

Method: O.Reg. 153/04 | Internal ref.: ME-CA-IENVI SPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike B	
					RPD	AC (%)	Spike Recovery (%)	F
Water Soluble Boron	ESG0014-JUN20	µg/g	0.5	<0.5	ND	20	102	80

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

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

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy.

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

**Duplicate Qualifier:** for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the measured result is well above the RL.

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





LEGEND

FOOTNOTES

- NSS** Insufficient sample for analysis.
- RL** Reporting Limit.
  - ↑ Reporting limit raised.
  - ↓ Reporting limit lowered.
- NA** The sample was not analysed for this analyte
- ND** Non Detect

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

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

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

This report must not be reproduced, except in full. This report supersedes all previous versions.

-- End of Analytical Report --

## Laboratory Information Section - Lab use only

Received By: Deag Mohr  
 Received Date: 6/15/20 (mm/dd/yy)  
 Received Time: 13:20 (hr:min)

Received By (signature): [Signature]  
 Custody Seal Present: Yes ☐ No ☐  
 Custody Seal Intact: Yes ☐ No ☐

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

LAB LIMS# CH 14778-Jun20

## REPORT INFORMATION

## INVOICE INFORMATION

Company: Gravated Engineering  
 Contact: Jessie W  
 Address: 12 Benigan Dr.  
Wate ON M1H 1S9  
 Phone: 647-264-7909  
 Fax: \_\_\_\_\_

☒ (same as Report Information)  
 Company: \_\_\_\_\_  
 Contact: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
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Quotation #:

Project #: 20-088

P.O. #:

Site Location/D: 23 Elizabeth St. N.Address: 12 Benigan Dr.

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Email: \_\_\_\_\_

Quotation #:

Project #: 20-088

P.O. #:

Site Location/D: 23 Elizabeth St. N.Address: 12 Benigan Dr.

Contact: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Quotation #:

Project #: 20-088

P.O. #:

Site Location/D: 23 Elizabeth St. N.Address: 12 Benigan Dr.

Contact: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Quotation #:

Project #: 20-088

P.O. #:

Site Location/D: 23 Elizabeth St. N.Address: 12 Benigan Dr.

Contact: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Quotation #:

Project #: 20-088

P.O. #:

Site Location/D: 23 Elizabeth St. N.Address: 12 Benigan Dr.

Contact: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Quotation #:

Project #: 20-088

P.O. #:

Site Location/D: 23 Elizabeth St. N.



## FINAL REPORT

CA14830-JUN20 R

20-088 25 Elizabeth St, N, Mississauga

Prepared for

**Grounded Engineering Inc.**

## First Page

### CLIENT DETAILS

Client Grounded Engineering Inc.

Address 12 Banigan Drive  
Toronto, Ontario  
M4H1E9, Canada

Contact Jessie Wu

Telephone 647-264-7909

Facsimile

Email jwu@groundedeng.ca

Project 20-088 25 Elizabeth St, N, Mississauga

Order Number

Samples Soil (2)

### LABORATORY DETAILS

Project Specialist Brad Moore Hon. B.Sc

Laboratory SGS Canada Inc.

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

Telephone 705-652-2143

Facsimile 705-652-6365

Email brad.moore@sgs.com

SGS Reference CA14830-JUN20

Received 06/04/2020

Approved 06/10/2020

Report Number CA14830-JUN20 R

Date Reported 06/10/2020

### COMMENTS

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

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

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

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

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

Linearity is within 15%: YES

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

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

Hydrocarbon results are expressed on a dry weight basis.

Temperature of Sample upon Receipt: 10 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 013369

### SIGNATORIES

Brad Moore Hon. B.Sc

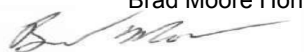




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CA14830-JUN20 R

**Client:** Grounded Engineering Inc.  
**Project:** 20-088 25 Elizabeth St, N, Mississauga  
**Project Manager:** Jessie Wu  
**Samplers:** Rehan Fawan/Jessie Wu

PACKAGE: REG153 - BTEX (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	8	9
Sample Name	BH2 SS2	BH2 SS4
Sample Matrix	Soil	Soil
Sample Date	02/06/2020	02/06/2020

Parameter	Units	RL	L1	Result	Result
BTEX					
Benzene	µg/g	0.02	0.21	< 0.02	< 0.02
Ethylbenzene	µg/g	0.05	2	< 0.05	< 0.05
Toluene	µg/g	0.05	2.3	< 0.05	< 0.05
Xylene (total)	µg/g	0.05	3.1	< 0.05	< 0.05
m/p-xylene	µg/g	0.05		< 0.05	< 0.05
o-xylene	µg/g	0.05		< 0.05	< 0.05

PACKAGE: REG153 - Hydrides (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	8	9
Sample Name	BH2 SS2	BH2 SS4
Sample Matrix	Soil	Soil
Sample Date	02/06/2020	02/06/2020

Parameter	Units	RL	L1	Result	Result
Hydrides					
Antimony	µg/g	0.8	7.5	< 0.8	< 0.8
Arsenic	µg/g	0.5	18	2.8	2.0
Selenium	µg/g	0.7	2.4	< 0.7	< 0.7



FINAL REPORT

CA14830-JUN20 R

Client: Grounded Engineering Inc.

Project: 20-088 25 Elizabeth St, N, Mississauga

Project Manager: Jessie Wu

Samplers: Rehan Fawan/Jessie Wu

PACKAGE: REG153 - Metals and Inorganics (SOIL)

Sample Number	8	9
Sample Name	BH2 SS2	BH2 SS4
Sample Matrix	Soil	Soil
Sample Date	02/06/2020	02/06/2020

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Parameter	Units	RL	L1	Result	Result
Metals and Inorganics					
Moisture Content	%	-		14.3	8.4
Barium	µg/g	0.1	390	50	55
Beryllium	µg/g	0.02	4	0.36	0.33
Boron	µg/g	1	120	4	6
Cadmium	µg/g	0.02	1.2	0.10	0.07
Chromium	µg/g	0.5	160	16	16
Cobalt	µg/g	0.01	22	7.9	7.4
Copper	µg/g	0.1	140	19	18
Lead	µg/g	0.1	120	11	5.6
Molybdenum	µg/g	0.1	6.9	0.4	0.2
Nickel	µg/g	0.5	100	16	15
Silver	µg/g	0.05	20	< 0.05	< 0.05
Thallium	µg/g	0.02	1	0.09	0.09
Uranium	µg/g	0.002	23	0.38	0.41
Vanadium	µg/g	3	86	27	24
Zinc	µg/g	0.7	340	47	33
Water Soluble Boron	µg/g	0.5	1.5	< 0.5	< 0.5



FINAL REPORT

CA14830-JUN20 R

Client: Grounded Engineering Inc.

Project: 20-088 25 Elizabeth St, N, Mississauga

Project Manager: Jessie Wu

Samplers: Rehan Fawan/Jessie Wu

PACKAGE: REG153 - Other (ORP) (SOIL)

Sample Number	8	9
Sample Name	BH2 SS2	BH2 SS4
Sample Matrix	Soil	Soil
Sample Date	02/06/2020	02/06/2020

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Parameter	Units	RL	L1	Result	Result
Other (ORP)					
Mercury	µg/g	0.05	0.27	< 0.05	< 0.05
Sodium Adsorption Ratio	---	0.2	5	< 0.2	0.6
SAR Calcium	mg/L	0.09		23.9	16.7
SAR Magnesium	mg/L	0.02		1.8	2.9
SAR Sodium	mg/L	0.15		3.2	10.0
Conductivity	mS/cm	0.002	0.7	0.15	0.16
pH	pH Units	0.05		7.85	7.83
Chromium VI	µg/g	0.2	8	< 0.2	< 0.2
Free Cyanide	µg/g	0.05	0.051	< 0.05	< 0.05





FINAL REPORT

CA14830-JUN20 R

Client: Grounded Engineering Inc.

Project: 20-088 25 Elizabeth St, N, Mississauga

Project Manager: Jessie Wu

Samplers: Rehan Fawan/Jessie Wu

PACKAGE: REG153 - PHCs (SOIL)

Sample Number	8	9
Sample Name	BH2 SS2	BH2 SS4
Sample Matrix	Soil	Soil
Sample Date	02/06/2020	02/06/2020

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

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

## EXCEEDANCE SUMMARY

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

## HOLDING TIME SUMMARY

Sample Name	QC Batch Reference	Sample Number	Sampled	Received	Extracted/ Prepared	Analysed	Holding Time	Approved
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## Conductivity

Method: EPA 6010/SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

BH2 SS2	EWL0145-JUN20	8	06/02/2020	06/04/2020	06/05/2020	06/08/2020	06/30/2020	06/08/2020
BH2 SS4	EWL0145-JUN20	9	06/02/2020	06/04/2020	06/05/2020	06/08/2020	06/30/2020	06/08/2020

## Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

BH2 SS2	SKA5025-JUN20	8	06/02/2020	06/04/2020	06/04/2020	06/05/2020	06/16/2020	06/10/2020
BH2 SS4	SKA5025-JUN20	9	06/02/2020	06/04/2020	06/04/2020	06/05/2020	06/16/2020	06/10/2020

## Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENV]SKA-LAK-AN-012

BH2 SS2	SKA5033-JUN20	8	06/02/2020	06/04/2020	06/08/2020	06/09/2020	07/02/2020	06/10/2020
BH2 SS4	SKA5033-JUN20	9	06/02/2020	06/04/2020	06/08/2020	06/09/2020	07/02/2020	06/10/2020

## Mercury by CVAAS

Method: EPA 7471A/EPA 245 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

BH2 SS2	EMS0028-JUN20	8	06/02/2020	06/04/2020	06/04/2020	06/08/2020	06/30/2020	06/09/2020
BH2 SS4	EMS0028-JUN20	9	06/02/2020	06/04/2020	06/04/2020	06/08/2020	06/30/2020	06/09/2020

## Metals in aqueous samples - ICP-OES

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-003

BH2 SS2	ESG0022-JUN20	8	06/02/2020	06/04/2020	06/05/2020	06/05/2020	11/29/2020	06/08/2020
BH2 SS4	ESG0022-JUN20	9	06/02/2020	06/04/2020	06/05/2020	06/05/2020	11/29/2020	06/08/2020

## Metals in Soil - Aqua-regia/ICP-MS

Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-005

BH2 SS2	EMS0028-JUN20	8	06/02/2020	06/04/2020	06/04/2020	06/08/2020	11/29/2020	06/09/2020
BH2 SS4	EMS0028-JUN20	9	06/02/2020	06/04/2020	06/04/2020	06/08/2020	11/29/2020	06/09/2020

## Moisture

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

BH2 SS2	GCM0140-JUN20	8	06/02/2020	06/04/2020	06/05/2020	06/05/2020	08/01/2020	06/09/2020
BH2 SS4	GCM0140-JUN20	9	06/02/2020	06/04/2020	06/05/2020	06/05/2020	08/01/2020	06/09/2020

## Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

BH2 SS2	GCM0109-JUN20	8	06/02/2020	06/04/2020	06/05/2020	06/05/2020	06/16/2020	06/09/2020
BH2 SS4	GCM0109-JUN20	9	06/02/2020	06/04/2020	06/05/2020	06/05/2020	06/16/2020	06/09/2020

## Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

BH2 SS2	GCM0096-JUN20	8	06/02/2020	06/04/2020	06/05/2020	06/05/2020	07/12/2020	06/09/2020
BH2 SS4	GCM0096-JUN20	9	06/02/2020	06/04/2020	06/05/2020	06/05/2020	07/12/2020	06/09/2020



HOLDING TIME SUMMARY

Sample Name	QC Batch Reference	Sample Number	Sampled	Received	Extracted/ Prepared	Analysed	Holding Time	Approved
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pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-001

BH2 SS2	ARD0032-JUN20	8	06/02/2020	06/04/2020	06/08/2020	06/08/2020	07/02/2020	06/08/2020
BH2 SS4	ARD0032-JUN20	9	06/02/2020	06/04/2020	06/08/2020	06/08/2020	07/02/2020	06/08/2020

Sodium adsorption ratio (SAR)

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-[ENV]ARD-LAK-AN-021

BH2 SS2	ESG0022-JUN20	8	06/02/2020	06/04/2020	06/05/2020	06/05/2020	11/29/2020	06/08/2020
BH2 SS4	ESG0022-JUN20	9	06/02/2020	06/04/2020	06/05/2020	06/05/2020	11/29/2020	06/08/2020

Volatile Organics

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

BH2 SS2	GCM0109-JUN20	8	06/02/2020	06/04/2020	06/05/2020	06/05/2020	06/16/2020	06/09/2020
BH2 SS4	GCM0109-JUN20	9	06/02/2020	06/04/2020	06/05/2020	06/05/2020	06/16/2020	06/09/2020

Water Soluble Boron

Method: O.Reg. 153/04 | Internal ref.: ME-CA-[ENV] SPE-LAK-AN-003

BH2 SS2	ESG0020-JUN20	8	06/02/2020	06/04/2020	06/05/2020	06/05/2020	11/29/2020	06/08/2020
BH2 SS4	ESG0020-JUN20	9	06/02/2020	06/04/2020	06/05/2020	06/05/2020	11/29/2020	06/08/2020



# FINAL REPORT

CA14830-JUN20 R

## QC SUMMARY

### Conductivity

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0145-JUN20	mS/cm	0.002	<0.002	0	10	99	90	110	NA		

### Cyanide by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Free Cyanide	SKA5025-JUN20	µg/g	0.05	<0.05	ND	20	105	80	120	100	75	125

### Hexavalent Chromium by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA5033-JUN20	ug/g	0.2	<0.2	ND	20	90	80	120	78	75	125



FINAL REPORT

CA14830-JUN20 R

QC SUMMARY

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury	EMS0028-JUN20	µg/g	0.05	<0.05	ND	20	98	80	120	97	70	130

Metals in aqueous samples - ICP-OES

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
SAR Calcium	ESG0022-JUN20	mg/L	0.09	<0.09	0	20	103	80	120	104	70	130
SAR Magnesium	ESG0022-JUN20	mg/L	0.02	<0.02	1	20	99	80	120	102	70	130
SAR Sodium	ESG0022-JUN20	mg/L	0.15	<0.15	0	20	98	80	120	106	70	130



# FINAL REPORT

CA14830-JUN20 R

## QC SUMMARY

Metals in Soil - Aqua-regia/ICP-MS

Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0028-JUN20	ug/g	0.05	<0.05	ND	20	103	70	130	107	70	130
Arsenic	EMS0028-JUN20	µg/g	0.5	<0.5	6	20	101	70	130	99	70	130
Barium	EMS0028-JUN20	ug/g	0.1	<0.1	6	20	101	70	130	108	70	130
Beryllium	EMS0028-JUN20	µg/g	0.02	<0.02	7	20	101	70	130	97	70	130
Boron	EMS0028-JUN20	µg/g	1	<1	6	20	107	70	130	107	70	130
Cadmium	EMS0028-JUN20	µg/g	0.02	<0.02	1	20	102	70	130	111	70	130
Cobalt	EMS0028-JUN20	µg/g	0.01	<0.01	5	20	104	70	130	117	70	130
Chromium	EMS0028-JUN20	µg/g	0.5	<0.5	5	20	105	70	130	119	70	130
Copper	EMS0028-JUN20	µg/g	0.1	<0.1	4	20	106	70	130	115	70	130
Molybdenum	EMS0028-JUN20	µg/g	0.1	<0.1	7	20	96	70	130	114	70	130
Nickel	EMS0028-JUN20	ug/g	0.5	<0.5	4	20	103	70	130	116	70	130
Lead	EMS0028-JUN20	µg/g	0.1	<0.1	5	20	102	70	130	103	70	130
Antimony	EMS0028-JUN20	µg/g	0.8	<0.8	ND	20	100	70	130	108	70	130
Selenium	EMS0028-JUN20	µg/g	0.7	<0.7	ND	20	107	70	130	108	70	130
Thallium	EMS0028-JUN20	µg/g	0.02	<0.02	9	20	105	70	130	105	70	130
Uranium	EMS0028-JUN20	µg/g	0.002	<0.002	3	20	100	70	130	97	70	130
Vanadium	EMS0028-JUN20	µg/g	3	<3	5	20	105	70	130	114	70	130
Zinc	EMS0028-JUN20	µg/g	0.7	<0.7	2	20	105	70	130	108	70	130





FINAL REPORT

CA14830-JUN20 R

QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0109-JUN20	µg/g	10	<10	ND	30	107	80	120	95	60	140

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0096-JUN20	µg/g	10	<10	ND	30	110	80	120	109	60	140
F3 (C16-C34)	GCM0096-JUN20	µg/g	50	<50	ND	30	110	80	120	109	60	140
F4 (C34-C50)	GCM0096-JUN20	µg/g	50	<50	ND	30	110	80	120	109	60	140



FINAL REPORT

CA14830-JUN20 R

QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	ARD0032-JUN20	pH Units	0.05		1	20	100	80	120			

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Benzene	GCM0109-JUN20	µg/g	0.02	<0.02	ND	50	97	60	130	83	50	140
Ethylbenzene	GCM0109-JUN20	µg/g	0.05	<0.05	ND	50	96	60	130	89	50	140
m/p-xylene	GCM0109-JUN20	µg/g	0.05	<0.05	ND	50	100	60	130	92	50	140
o-xylene	GCM0109-JUN20	µg/g	0.05	<0.05	ND	50	96	60	130	92	50	140
Toluene	GCM0109-JUN20	µg/g	0.05	<0.05	ND	50	95	60	130	87	50	140



FINAL REPORT

CA14830-JUN20 R

QC SUMMARY

Water Soluble Boron

Method: O.Reg. 153/04 | Internal ref.: ME-CA-IENVI SPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Water Soluble Boron	ESG0020-JUN20	µg/g	0.5	<0.5	ND	20	100	80	120	116	70	130

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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



LEGEND

FOOTNOTES

- NSS** Insufficient sample for analysis.
- RL** Reporting Limit.
  - ↑ Reporting limit raised.
  - ↓ Reporting limit lowered.
- NA** The sample was not analysed for this analyte
- ND** Non Detect

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

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

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

This report must not be reproduced, except in full. This report supersedes all previous versions.

-- End of Analytical Report --

No: 013369

No: 013369

LAB LIMS #: CA14830-JUN20

DAB CLIMS #: 00000000

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Site Location/ID: 23 Elizabeth St. N.

MISSISSAUGA

FATs are quoted in business days (exclude statutory holidays)

☐ 2 Days ☐ 4 Days

Examples received after bpm or on weekends: IAT begins next

☐ 3 days ☐ 4 days

WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE

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Journal of Management Inquiry 23(4)




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is issued by the Company under its General Conditions of Service acc

jurisdiction issues defined therein.



## FINAL REPORT

CA14915-MAY20 R

20-088, 25 Elizabeth St. N, Mississauga

Prepared for

**Grounded Engineering Inc.**

## First Page

### CLIENT DETAILS

Client Grounded Engineering Inc.

Address 12 Banigan Drive  
Toronto, Ontario  
M4H1E9, Canada

Contact Jessie Wu

Telephone 647-264-7909

Facsimile

Email jwu@groundedeng.ca

Project 20-088, 25 Elizabeth St. N, Mississauga

Order Number

Samples Soil (5)

### LABORATORY DETAILS

Project Specialist Brad Moore Hon. B.Sc

Laboratory SGS Canada Inc.

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

Telephone 705-652-2143

Facsimile 705-652-6365

Email brad.moore@sgs.com

SGS Reference CA14915-MAY20

Received 05/26/2020

Approved 06/01/2020

Report Number CA14915-MAY20 R

Date Reported 06/01/2020

### COMMENTS

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

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

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

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

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

Linearity is within 15%: YES

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

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

Hydrocarbon results are expressed on a dry weight basis.

Temperature of Sample upon Receipt: 5 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 013729

### SIGNATORIES

Brad Moore Hon. B.Sc

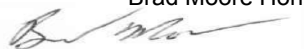




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FINAL REPORT

CA14915-MAY20 R

Client: Grounded Engineering Inc.

Project: 20-088, 25 Elizabeth St. N, Mississauga

Project Manager: Jessie Wu

Samplers: Jason Ngo

PACKAGE: REG153 - BTEX (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number				8	9	10	11	12
Sample Name				BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP
Sample Matrix				Soil	Soil	Soil	Soil	Soil
Sample Date				25/05/2020	25/05/2020	25/05/2020	25/05/2020	25/05/2020

Parameter	Units	RL	L1	Result	Result	Result	Result	Result
BTEX								
Benzene	µg/g	0.02	0.21	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Ethylbenzene	µg/g	0.05	2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	µg/g	0.05	2.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Xylene (total)	µg/g	0.05	3.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
m/p-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
o-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

PACKAGE: REG153 - Hydrides (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number				8	9	10	11	12
Sample Name				BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP
Sample Matrix				Soil	Soil	Soil	Soil	Soil
Sample Date				25/05/2020	25/05/2020	25/05/2020	25/05/2020	25/05/2020

Parameter	Units	RL	L1	Result	Result	Result	Result	Result
Hydrides								
Antimony	µg/g	0.8	7.5	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	0.5	18	2.2	1.1	1.1	4.6	1.2
Selenium	µg/g	0.7	2.4	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7



# FINAL REPORT

CA14915-MAY20 R

**Client:** Grounded Engineering Inc.

**Project:** 20-088, 25 Elizabeth St. N, Mississauga

**Project Manager:** Jessie Wu

**Samplers:** Jason Ngo

PACKAGE: REG153 - Metals and Inorganics (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	8	9	10	11	12
Sample Name	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP
Sample Matrix	Soil	Soil	Soil	Soil	Soil
Sample Date	25/05/2020	25/05/2020	25/05/2020	25/05/2020	25/05/2020

Parameter	Units	RL	L1	Result	Result	Result	Result	Result
Metals and Inorganics								
Moisture Content	%	-		13.1	15.6	17.3	9.9	16.7
Barium	µg/g	0.1	390	25	12	13	60	13
Beryllium	µg/g	0.02	4	0.15	0.12	0.13	0.62	0.15
Boron	µg/g	1	120	3	2	3	12	3
Cadmium	µg/g	0.02	1.2	0.03	0.04	0.04	0.12	0.03
Chromium	µg/g	0.5	160	6.8	5.8	5.4	22	6.5
Cobalt	µg/g	0.01	22	3.7	2.7	3.4	14	4.1
Copper	µg/g	0.1	140	8.6	8.8	8.6	29	9.3
Lead	µg/g	0.1	120	3.3	2.5	2.6	7.3	3.2
Molybdenum	µg/g	0.1	6.9	0.1	0.1	0.1	0.3	0.2
Nickel	µg/g	0.5	100	7.4	5.2	6.1	31	7.2
Silver	µg/g	0.05	20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	µg/g	0.02	1	0.04	0.03	0.03	0.14	0.04
Uranium	µg/g	0.002	23	0.46	0.36	0.31	0.66	0.31
Vanadium	µg/g	3	86	12	12	11	27	12
Zinc	µg/g	0.7	340	15	11	14	67	16
Water Soluble Boron	µg/g	0.5	1.5	< 0.5	< 0.5	< 0.5	0.8	< 0.5



FINAL REPORT

CA14915-MAY20 R

Client: Grounded Engineering Inc.

Project: 20-088, 25 Elizabeth St. N, Mississauga

Project Manager: Jessie Wu

Samplers: Jason Ngo

PACKAGE: REG153 - Other (ORP) (SOIL)

Sample Number	8	9	10	11	12
Sample Name	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP
Sample Matrix	Soil	Soil	Soil	Soil	Soil
Sample Date	25/05/2020	25/05/2020	25/05/2020	25/05/2020	25/05/2020

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Parameter	Units	RL	L1	Result	Result	Result	Result	Result
Other (ORP)								
Mercury	µg/g	0.05	0.27	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Sodium Adsorption Ratio	---	0.2	5	0.4	0.3	0.3	1.1	0.4
SAR Calcium	mg/L	0.09		17.6	15.7	27.9	11.1	35.0
SAR Magnesium	mg/L	0.02		1.9	2.6	1.8	6.9	3.6
SAR Sodium	mg/L	0.15		6.5	4.9	5.3	19.0	8.6
Conductivity	mS/cm	0.002	0.7	0.16	0.14	0.15	0.22	0.22
pH	pH Units	0.05		8.06	8.14	7.86	8.22	8.06
Chromium VI	µg/g	0.2	8	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Free Cyanide	µg/g	0.05	0.051	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05



FINAL REPORT

CA14915-MAY20 R

Client: Grounded Engineering Inc.

Project: 20-088, 25 Elizabeth St. N, Mississauga

Project Manager: Jessie Wu

Samplers: Jason Ngo

PACKAGE: REG153 - PHCs (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Sample Number	8	9	10	11	12
Sample Name	BH3-SS4	BH3-SS6	BH4-SS5	BH4-SS8	DUP
Sample Matrix	Soil	Soil	Soil	Soil	Soil
Sample Date	25/05/2020	25/05/2020	25/05/2020	25/05/2020	25/05/2020

Parameter	Units	RL	L1	Result	Result	Result	Result	Result
PHCs								
F1 (C6-C10)	µg/g	10	55	< 10	< 10	< 10	< 10	< 10
F1-BTEX (C6-C10)	µg/g	10		< 10	< 10	< 10	< 10	< 10
F2 (C10-C16)	µg/g	10	98	< 10	< 10	< 10	22	< 10
F3 (C16-C34)	µg/g	50	300	< 50	< 50	< 50	57	< 50
F4 (C34-C50)	µg/g	50	2800	< 50	< 50	< 50	< 50	< 50
Chromatogram returned to baseline at nC50	Yes / No	-		YES	YES	YES	YES	YES



## EXCEEDANCE SUMMARY

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

## HOLDING TIME SUMMARY

Sample Name	QC Batch Reference	Sample Number	Sampled	Received	Extracted/ Prepared	Analysed	Holding Time	Approved
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## Conductivity

Method: EPA 6010/SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

BH3-SS4	EWL0447-MAY20	8	05/25/2020	05/26/2020	05/28/2020	05/28/2020	06/22/2020	05/29/2020
BH3-SS6	EWL0447-MAY20	9	05/25/2020	05/26/2020	05/28/2020	05/28/2020	06/22/2020	05/29/2020
BH4-SS5	EWL0447-MAY20	10	05/25/2020	05/26/2020	05/28/2020	05/28/2020	06/22/2020	05/29/2020
BH4-SS8	EWL0447-MAY20	11	05/25/2020	05/26/2020	05/28/2020	05/28/2020	06/22/2020	05/29/2020
DUP	EWL0447-MAY20	12	05/25/2020	05/26/2020	05/28/2020	05/28/2020	06/22/2020	05/29/2020

## Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

BH3-SS4	SKA5129-MAY20	8	05/25/2020	05/26/2020	05/27/2020	05/28/2020	06/08/2020	05/28/2020
BH3-SS6	SKA5129-MAY20	9	05/25/2020	05/26/2020	05/27/2020	05/28/2020	06/08/2020	05/28/2020
BH4-SS5	SKA5129-MAY20	10	05/25/2020	05/26/2020	05/27/2020	05/28/2020	06/08/2020	05/28/2020
BH4-SS8	SKA5129-MAY20	11	05/25/2020	05/26/2020	05/27/2020	05/28/2020	06/08/2020	05/28/2020
DUP	SKA5129-MAY20	12	05/25/2020	05/26/2020	05/27/2020	05/28/2020	06/08/2020	05/28/2020

## Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENV]SKA-LAK-AN-012

BH3-SS4	SKA5138-MAY20	8	05/25/2020	05/26/2020	05/29/2020	05/29/2020	06/24/2020	05/30/2020
BH3-SS6	SKA5138-MAY20	9	05/25/2020	05/26/2020	05/29/2020	05/29/2020	06/24/2020	05/30/2020
BH4-SS5	SKA5138-MAY20	10	05/25/2020	05/26/2020	05/29/2020	05/29/2020	06/24/2020	05/30/2020
BH4-SS8	SKA5138-MAY20	11	05/25/2020	05/26/2020	05/29/2020	05/29/2020	06/24/2020	05/30/2020
DUP	SKA5138-MAY20	12	05/25/2020	05/26/2020	05/29/2020	05/29/2020	06/24/2020	05/30/2020

## Mercury by CVAAS

Method: EPA 7471A/EPA 245 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

BH3-SS4	EMS0125-MAY20	8	05/25/2020	05/26/2020	05/26/2020	05/28/2020	06/22/2020	05/28/2020
BH3-SS6	EMS0125-MAY20	9	05/25/2020	05/26/2020	05/26/2020	05/28/2020	06/22/2020	05/28/2020
BH4-SS5	EMS0125-MAY20	10	05/25/2020	05/26/2020	05/26/2020	05/28/2020	06/22/2020	05/28/2020
BH4-SS8	EMS0125-MAY20	11	05/25/2020	05/26/2020	05/26/2020	05/28/2020	06/22/2020	05/28/2020
DUP	EMS0125-MAY20	12	05/25/2020	05/26/2020	05/26/2020	05/28/2020	06/22/2020	05/28/2020

## Metals in aqueous samples - ICP-OES

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-003

BH3-SS4	ESG0071-MAY20	8	05/25/2020	05/26/2020	05/28/2020	05/28/2020	11/21/2020	05/28/2020
BH3-SS6	ESG0071-MAY20	9	05/25/2020	05/26/2020	05/28/2020	05/28/2020	11/21/2020	05/28/2020
BH4-SS5	ESG0071-MAY20	10	05/25/2020	05/26/2020	05/28/2020	05/28/2020	11/21/2020	05/28/2020
BH4-SS8	ESG0071-MAY20	11	05/25/2020	05/26/2020	05/28/2020	05/28/2020	11/21/2020	05/28/2020
DUP	ESG0071-MAY20	12	05/25/2020	05/26/2020	05/28/2020	05/28/2020	11/21/2020	05/28/2020

## Metals in Soil - Aqua-regia/ICP-MS

Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-005

BH3-SS4	EMS0125-MAY20	8	05/25/2020	05/26/2020	05/26/2020	05/28/2020	11/21/2020	05/28/2020
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## HOLDING TIME SUMMARY

Sample Name	QC Batch Reference	Sample Number	Sampled	Received	Extracted/ Prepared	Analysed	Holding Time	Approved
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## Metals in Soil - Aqua-regia/ICP-MS (continued)

Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-005

BH3-SS6	EMS0125-MAY20	9	05/25/2020	05/26/2020	05/26/2020	05/28/2020	11/21/2020	05/28/2020
BH4-SS5	EMS0125-MAY20	10	05/25/2020	05/26/2020	05/26/2020	05/28/2020	11/21/2020	05/28/2020
BH4-SS8	EMS0125-MAY20	11	05/25/2020	05/26/2020	05/26/2020	05/28/2020	11/21/2020	05/28/2020
DUP	EMS0125-MAY20	12	05/25/2020	05/26/2020	05/26/2020	05/28/2020	11/21/2020	05/28/2020

## Moisture

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

BH3-SS4	GCM0362-MAY20	8	05/25/2020	05/26/2020	05/28/2020	05/29/2020	07/24/2020	05/28/2020
BH3-SS6	GCM0362-MAY20	9	05/25/2020	05/26/2020	05/28/2020	05/29/2020	07/24/2020	05/28/2020
BH4-SS5	GCM0362-MAY20	10	05/25/2020	05/26/2020	05/28/2020	05/29/2020	07/24/2020	05/28/2020
BH4-SS8	GCM0362-MAY20	11	05/25/2020	05/26/2020	05/28/2020	05/29/2020	07/24/2020	05/28/2020
DUP	GCM0362-MAY20	12	05/25/2020	05/26/2020	05/28/2020	05/29/2020	07/24/2020	05/28/2020

## Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

BH3-SS4	GCM0397-MAY20	8	05/25/2020	05/26/2020	05/28/2020	05/29/2020	06/08/2020	06/01/2020
BH3-SS6	GCM0397-MAY20	9	05/25/2020	05/26/2020	05/28/2020	05/29/2020	06/08/2020	06/01/2020
BH4-SS5	GCM0397-MAY20	10	05/25/2020	05/26/2020	05/28/2020	05/29/2020	06/08/2020	06/01/2020
BH4-SS8	GCM0397-MAY20	11	05/25/2020	05/26/2020	05/28/2020	05/29/2020	06/08/2020	06/01/2020
DUP	GCM0397-MAY20	12	05/25/2020	05/26/2020	05/28/2020	05/29/2020	06/08/2020	06/01/2020

## Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-010

BH3-SS4	GCM0376-MAY20	8	05/25/2020	05/26/2020	05/28/2020	05/29/2020	07/04/2020	05/29/2020
BH3-SS6	GCM0376-MAY20	9	05/25/2020	05/26/2020	05/28/2020	05/29/2020	07/04/2020	05/29/2020
BH4-SS5	GCM0376-MAY20	10	05/25/2020	05/26/2020	05/28/2020	05/29/2020	07/04/2020	05/29/2020
BH4-SS8	GCM0376-MAY20	11	05/25/2020	05/26/2020	05/28/2020	05/29/2020	07/04/2020	05/29/2020
DUP	GCM0376-MAY20	12	05/25/2020	05/26/2020	05/28/2020	05/29/2020	07/04/2020	05/29/2020

## pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-001

BH3-SS4	ARD0077-MAY20	8	05/25/2020	05/26/2020	05/27/2020	05/27/2020	06/24/2020	05/28/2020
BH3-SS6	ARD0077-MAY20	9	05/25/2020	05/26/2020	05/27/2020	05/27/2020	06/24/2020	05/28/2020
BH4-SS5	ARD0077-MAY20	10	05/25/2020	05/26/2020	05/27/2020	05/27/2020	06/24/2020	05/28/2020
BH4-SS8	ARD0077-MAY20	11	05/25/2020	05/26/2020	05/27/2020	05/27/2020	06/24/2020	05/28/2020
DUP	ARD0077-MAY20	12	05/25/2020	05/26/2020	05/27/2020	05/27/2020	06/24/2020	05/28/2020

## Sodium adsorption ratio (SAR)

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-[ENV]JARD-LAK-AN-021

BH3-SS4	ESG0071-MAY20	8	05/25/2020	05/26/2020	05/28/2020	05/28/2020	11/21/2020	05/28/2020
BH3-SS6	ESG0071-MAY20	9	05/25/2020	05/26/2020	05/28/2020	05/28/2020	11/21/2020	05/28/2020

## HOLDING TIME SUMMARY

Sample Name	QC Batch Reference	Sample Number	Sampled	Received	Extracted/ Prepared	Analysed	Holding Time	Approved
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## Sodium adsorption ratio (SAR) (continued)

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-[ENV]ARD-LAK-AN-021

BH4-SS5	ESG0071-MAY20	10	05/25/2020	05/26/2020	05/28/2020	05/28/2020	11/21/2020	05/28/2020
BH4-SS8	ESG0071-MAY20	11	05/25/2020	05/26/2020	05/28/2020	05/28/2020	11/21/2020	05/28/2020
DUP	ESG0071-MAY20	12	05/25/2020	05/26/2020	05/28/2020	05/28/2020	11/21/2020	05/28/2020

## Volatile Organics

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

BH3-SS4	GCM0397-MAY20	8	05/25/2020	05/26/2020	05/29/2020	05/29/2020	06/08/2020	06/01/2020
BH3-SS6	GCM0397-MAY20	9	05/25/2020	05/26/2020	05/29/2020	05/29/2020	06/08/2020	06/01/2020
BH4-SS5	GCM0397-MAY20	10	05/25/2020	05/26/2020	05/29/2020	05/29/2020	06/08/2020	06/01/2020
BH4-SS8	GCM0397-MAY20	11	05/25/2020	05/26/2020	05/29/2020	05/29/2020	06/08/2020	06/01/2020
DUP	GCM0397-MAY20	12	05/25/2020	05/26/2020	05/29/2020	05/29/2020	06/08/2020	06/01/2020

## Water Soluble Boron

Method: O.Reg. 153/04 | Internal ref.: ME-CA-[ENV] SPE-LAK-AN-003

BH3-SS4	ESG0068-MAY20	8	05/25/2020	05/26/2020	05/27/2020	05/28/2020	11/21/2020	05/28/2020
BH3-SS6	ESG0068-MAY20	9	05/25/2020	05/26/2020	05/27/2020	05/28/2020	11/21/2020	05/28/2020
BH4-SS5	ESG0068-MAY20	10	05/25/2020	05/26/2020	05/27/2020	05/28/2020	11/21/2020	05/28/2020
BH4-SS8	ESG0068-MAY20	11	05/25/2020	05/26/2020	05/27/2020	05/28/2020	11/21/2020	05/28/2020
DUP	ESG0068-MAY20	12	05/25/2020	05/26/2020	05/27/2020	05/28/2020	11/21/2020	05/28/2020





FINAL REPORT

CA14915-MAY20 R

QC SUMMARY

Conductivity

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0447-MAY20	mS/cm	0.002	<0.002	0	10	99	90	110	NA		

Cyanide by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Free Cyanide	SKA5129-MAY20	µg/g	0.05	<0.05	ND	20	94	80	120	85	75	125

Hexavalent Chromium by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA5138-MAY20	ug/g	0.2	<0.2	ND	20	97	80	120	88	75	125



FINAL REPORT

CA14915-MAY20 R

QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury	EMS0125-MAY20	µg/g	0.05	<0.05	ND	20	103	80	120	91	70	130

Metals in aqueous samples - ICP-OES  
Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-IENVISPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
SAR Calcium	ESG0071-MAY20	mg/L	0.09	<0.09	1	20	101	80	120	95	70	130
SAR Magnesium	ESG0071-MAY20	mg/L	0.02	<0.02	2	20	99	80	120	97	70	130
SAR Sodium	ESG0071-MAY20	mg/L	0.15	<0.15	6	20	99	80	120	99	70	130



# FINAL REPORT

CA14915-MAY20 R

## QC SUMMARY

Metals in Soil - Aqua-regia/ICP-MS

Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0125-MAY20	ug/g	0.05	<0.05	ND	20	102	70	130	108	70	130
Arsenic	EMS0125-MAY20	µg/g	0.5	<0.5	7	20	96	70	130	91	70	130
Barium	EMS0125-MAY20	ug/g	0.1	<0.1	4	20	107	70	130	96	70	130
Beryllium	EMS0125-MAY20	µg/g	0.02	<0.02	2	20	93	70	130	84	70	130
Boron	EMS0125-MAY20	µg/g	1	<1	0	20	105	70	130	92	70	130
Cadmium	EMS0125-MAY20	µg/g	0.02	<0.02	2	20	102	70	130	110	70	130
Cobalt	EMS0125-MAY20	µg/g	0.01	<0.01	3	20	101	70	130	112	70	130
Chromium	EMS0125-MAY20	µg/g	0.5	<0.5	1	20	102	70	130	115	70	130
Copper	EMS0125-MAY20	µg/g	0.1	<0.1	1	20	105	70	130	114	70	130
Molybdenum	EMS0125-MAY20	µg/g	0.1	<0.1	6	20	95	70	130	107	70	130
Nickel	EMS0125-MAY20	ug/g	0.5	<0.5	0	20	102	70	130	115	70	130
Lead	EMS0125-MAY20	µg/g	0.1	<0.1	1	20	101	70	130	97	70	130
Antimony	EMS0125-MAY20	µg/g	0.8	<0.8	ND	20	92	70	130	111	70	130
Selenium	EMS0125-MAY20	µg/g	0.7	<0.7	ND	20	100	70	130	104	70	130
Thallium	EMS0125-MAY20	µg/g	0.02	<0.02	11	20	102	70	130	99	70	130
Uranium	EMS0125-MAY20	µg/g	0.002	<0.002	6	20	98	70	130	90	70	130
Vanadium	EMS0125-MAY20	µg/g	3	<3	2	20	101	70	130	106	70	130
Zinc	EMS0125-MAY20	µg/g	0.7	<0.7	0	20	99	70	130	104	70	130



FINAL REPORT

CA14915-MAY20 R

QC SUMMARY

Petroleum Hydrocarbons (F1)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0397-MAY20	µg/g	10	<10	ND	30	94	80	120	101	60	140

Petroleum Hydrocarbons (F2-F4)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0376-MAY20	µg/g	10	<10	ND	30	117	80	120	126	60	140
F3 (C16-C34)	GCM0376-MAY20	µg/g	50	<50	ND	30	117	80	120	126	60	140
F4 (C34-C50)	GCM0376-MAY20	µg/g	50	<50	ND	30	117	80	120	126	60	140



FINAL REPORT

CA14915-MAY20 R

QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	ARD0077-MAY20	pH Units	0.05		0	20	100	80	120			

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Benzene	GCM0397-MAY20	µg/g	0.02	<0.02	ND	50	90	60	130	94	50	140
Ethylbenzene	GCM0397-MAY20	µg/g	0.05	<0.05	ND	50	87	60	130	95	50	140
m/p-xylene	GCM0397-MAY20	µg/g	0.05	<0.05	ND	50	88	60	130	97	50	140
o-xylene	GCM0397-MAY20	µg/g	0.05	<0.05	ND	50	86	60	130	96	50	140
Toluene	GCM0397-MAY20	µg/g	0.05	<0.05	ND	50	86	60	130	94	50	140



QC SUMMARY

Water Soluble Boron

Method: O.Reg. 153/04 | Internal ref.: ME-CA-IENVI SPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Water Soluble Boron	ESG0068-MAY20	µg/g	0.5	<0.5	ND	20	103	80	120	112	70	130

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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



## LEGEND

## FOOTNOTES

**NSS** Insufficient sample for analysis.

**RL** Reporting Limit.

↑ Reporting limit raised.

↓ Reporting limit lowered.

**NA** The sample was not analysed for this analyte

**ND** Non Detect

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

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

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

This report must not be reproduced, except in full. This report supersedes all previous versions.

-- End of Analytical Report --

Received By: N. Myrland  
Received Date: 05/26/20 (mm/dd/yy)  
Received Time: 14:00 (hr : min)Received By (signature): [Signature]  
Custody Seal Present: Yes ☒ No ☐  
Custody Seal Intact: Yes ☒ No ☐Cooling Agent Present: Yes ☒ No ☐ Type: Ice Pack  
Temperature Upon Receipt (°C): 5.5LAB LIMS #: 16666

## REPORT INFORMATION

## INVOICE INFORMATION

Company: Grounded EngContact: Jessie WuAddress: 12 Denigan Dr.

Toronto, ON M4H 1E9

Phone: 647-264-7004

Fax:

Email: jun@groundedeng.com☒ (same as Report Information)

Company:

Contact:

Address:

Phone:

Email:

## REGULATIONS

## Regulation 153/04:

☐ Table 1 ☒ Res/Park Soil Texture: ☐ Reg 347/558 (3 Day min TAT)





## FINAL REPORT

CA14917-MAY20 R

20-088-101 Mississagua

Prepared for

**Grounded Engineering Inc.**

## First Page

### CLIENT DETAILS

Client Grounded Engineering Inc.

Address 12 Banigan Drive, Toronto  
Canada, M4H1E9  
Phone: 647-264-7909. Fax:

Contact Jessie Wu

Telephone 647-264-7909

Facsimile

Email jwu@groundedeng.ca

Project 20-088-101 Mississagua

Order Number

Samples Leachate (1)

### LABORATORY DETAILS

Project Specialist Brad Moore Hon. B.Sc

Laboratory SGS Canada Inc.

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

Telephone 705-652-2143

Facsimile 705-652-6365

Email brad.moore@sgs.com

SGS Reference CA14917-MAY20

Received 05/26/2020

Approved 06/01/2020

Report Number CA14917-MAY20 R

Date Reported 06/01/2020

### COMMENTS

Temperature of Sample upon Receipt: 5 degrees C

Cooling Agent Present:Yes

Custody Seal Present:Yes

Chain of Custody Number:012652

TCLP metals reported at 10x DL

Raise RL for NO2/NO3 due to matrix interference

### SIGNATORIES

Brad Moore Hon. B.Sc

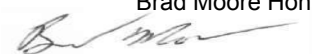




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# FINAL REPORT

CA14917-MAY20 R

**Client:** Grounded Engineering Inc.

**Project:** 20-088-101 Mississagua

**Project Manager:** Jessie Wu

**Samplers:** Jason Ngo

PACKAGE: **REG558 - Acid rock Drainage**  
(LEACHATE)

**Sample Number** 6

**Sample Name** TCLP

**Sample Matrix** Leachate

**Sample Date** 25/05/2020

L1 = REG558 / LEACHATE / - - SCHEDULE 4 - -

Parameter	Units	RL	L1	Result
Acid rock Drainage				
Final pH	no unit	0.01		6.08

PACKAGE: **REG558 - Metals and Inorganics**  
(LEACHATE)

**Sample Number** 6

**Sample Name** TCLP

**Sample Matrix** Leachate

**Sample Date** 25/05/2020

L1 = REG558 / LEACHATE / - - SCHEDULE 4 - -

Parameter	Units	RL	L1	Result
Metals and Inorganics				
Sample weight	g	0.001		100
Ext Fluid	#1 or #2	0.01		2
^ Ext Volume	mL	0.01		2000
Nitrite (as N)	as N mg/L	0.03		< 0.3 †
Nitrate (as N)	as N mg/L	0.06		< 0.6 †
Nitrate + Nitrite (as N)	as N mg/L	0.06	1000	< 0.6 †
Fluoride	mg/L	0.06	150	0.26
Cyanide (total)	mg/L	0.01	20	< 0.01
Arsenic	mg/L	0.0002	2.5	0.0027
Silver	mg/L	0.00005	5	< 0.00005
Barium	mg/L	0.00002	100	0.425
Boron	mg/L	0.002	500	0.077



# FINAL REPORT

CA14917-MAY20 R

**Client:** Grounded Engineering Inc.

**Project:** 20-088-101 Mississagua

**Project Manager:** Jessie Wu

**Samplers:** Jason Ngo

PACKAGE: **REG558 - Metals and Inorganics**  
(LEACHATE)

**Sample Number** 6

**Sample Name** TCLP

**Sample Matrix** Leachate

**Sample Date** 25/05/2020

L1 = REG558 / LEACHATE / - - SCHEDULE 4 - -

Parameter	Units	RL	L1	Result
<b>Metals and Inorganics (continued)</b>				
Cadmium	mg/L	0.00000 3	0.5	0.000630
Chromium	mg/L	0.00008	5	0.00175
Lead	mg/L	0.00001	5	0.00236
Selenium	mg/L	0.00004	1	0.00022
Uranium	mg/L	0.00000 2	10	0.00345

PACKAGE: **REG558 - Other (ORP)** (LEACHATE)

**Sample Number** 6

**Sample Name** TCLP

**Sample Matrix** Leachate

**Sample Date** 25/05/2020

L1 = REG558 / LEACHATE / - - SCHEDULE 4 - -

Parameter	Units	RL	L1	Result
<b>Other (ORP)</b>				
Mercury	mg/L	0.00001	0.1	< 0.00001

PACKAGE: **REG558 - PCBs** (LEACHATE)

**Sample Number** 6

**Sample Name** TCLP

**Sample Matrix** Leachate

**Sample Date** 25/05/2020

L1 = REG558 / LEACHATE / - - SCHEDULE 4 - -

Parameter	Units	RL	L1	Result
<b>PCBs</b>				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.001	0.3	< 0.001



FINAL REPORT

CA14917-MAY20 R

Client: Grounded Engineering Inc.  
Project: 20-088-101 Mississagua  
Project Manager: Jessie Wu  
Samplers: Jason Ngo

PACKAGE: REG558 - SVOCs - PAHs (LEACHATE)

Sample Number 6  
Sample Name TCLP  
Sample Matrix Leachate  
Sample Date 25/05/2020

L1 = REG558 / LEACHATE / - - SCHEDULE 4 - -

Parameter	Units	RL	L1	Result
SVOCs - PAHs				
Benzo(a)pyrene	mg/L	0.001	0.001	< 0.001

PACKAGE: REG558 - VOCs (LEACHATE)

Sample Number 6  
Sample Name TCLP  
Sample Matrix Leachate  
Sample Date 25/05/2020

L1 = REG558 / LEACHATE / - - SCHEDULE 4 - -

Parameter	Units	RL	L1	Result
VOCs				
Methyl ethyl ketone	mg/L	0.8	200	< 0.8
Vinyl Chloride	mg/L	0.008	0.2	< 0.008
Dichloromethane	mg/L	0.02	5	< 0.02
Chloroform	mg/L	0.02	10	< 0.02
Trichloroethylene	mg/L	0.02	5	< 0.02
Tetrachloroethene	mg/L	0.02		< 0.02
Monochlorobenzene	mg/L	0.02	8	< 0.02
Carbon tetrachloride	mg/L	0.008	0.5	< 0.008
1,2-Dichlorobenzene	mg/L	0.02	20	< 0.02
1,4-Dichlorobenzene	mg/L	0.02	0.5	< 0.02
1,2-Dichloroethane	mg/L	0.02	0.5	< 0.02
1,1-Dichloroethylene	mg/L	0.02	1.4	< 0.02



FINAL REPORT

CA14917-MAY20 R

Client: Grounded Engineering Inc.

Project: 20-088-101 Mississagua

Project Manager: Jessie Wu

Samplers: Jason Ngo

PACKAGE: REG558 - VOCs - BTEX (LEACHATE)

Sample Number 6  
Sample Name TCLP  
Sample Matrix Leachate  
Sample Date 25/05/2020

L1 = REG558 / LEACHATE / - - SCHEDULE 4 - -

Parameter	Units	RL	L1	Result
VOCs - BTEX				
Benzene	mg/L	0.02	0.5	< 0.02

## EXCEEDANCE SUMMARY

---

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





FINAL REPORT

CA14917-MAY20 R

QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate + Nitrite (as N)	DIO0496-MAY20	mg/L	0.06	<0.06	NA		NA			NA		
Nitrite (as N)	DIO0496-MAY20	mg/L	0.03	<0.03	ND	20	95	80	120	98	75	125
Nitrate (as N)	DIO0496-MAY20	mg/L	0.06	<0.06	0	20	100	80	120	104	75	125

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0238-MAY20	mg/L	0.01	<0.01	ND	10	99	90	110	88	75	125



FINAL REPORT

CA14917-MAY20 R

QC SUMMARY

Fluoride by Specific Ion Electrode  
Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0444-MAY20	mg/L	0.06	<0.06	ND	10	103	90	110	102	75	125

Inorganics-General  
Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury	EHG0026-MAY20	mg/L	0.00001	< 0.00001	ND	20	119	80	120	116	70	130



FINAL REPORT

CA14917-MAY20 R

QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0137-MAY20	mg/L	0.00005	<0.00005	ND	20	99	90	110	98	70	130
Arsenic	EMS0137-MAY20	mg/L	0.0002	<0.0002	4	20	99	90	110	107	70	130
Barium	EMS0137-MAY20	mg/L	0.00002	<0.00002	2	20	103	90	110	NV	70	130
Boron	EMS0137-MAY20	mg/L	0.002	<0.002	5	20	99	90	110	99	70	130
Cadmium	EMS0137-MAY20	mg/L	0.000003	<0.000003	ND	20	99	90	110	96	70	130
Chromium	EMS0137-MAY20	mg/L	0.00008	<0.00008	18	20	99	90	110	112	70	130
Lead	EMS0137-MAY20	mg/L	0.00001	<0.00001	7	20	102	90	110	110	70	130
Selenium	EMS0137-MAY20	mg/L	0.00004	<0.00004	ND	20	101	90	110	110	70	130
Uranium	EMS0137-MAY20	mg/L	0.000002	<0.000002	0	20	102	90	110	116	70	130

Polychlorinated Biphenyls  
Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-IENVIGC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0390-MAY20	mg/L	0.001	< 0.001	ND	30	96	60	140	109	60	140



FINAL REPORT

CA14917-MAY20 R

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Benzo(a)pyrene	GCM0381-MAY20	mg/L	0.001	< 0.001	NSS	30	89	50	140	NSS	50	140



# FINAL REPORT

CA14917-MAY20 R

## QC SUMMARY

### Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1-Dichloroethylene	GCM0411-MAY20	mg/L	0.02	<0.02	ND	30	99	60	130	96	50	140
1,2-Dichlorobenzene	GCM0411-MAY20	mg/L	0.02	<0.02	ND	30	105	60	130	106	50	140
1,2-Dichloroethane	GCM0411-MAY20	mg/L	0.02	<0.02	ND	30	97	60	130	100	50	140
1,4-Dichlorobenzene	GCM0411-MAY20	mg/L	0.02	<0.02	ND	30	105	60	130	104	50	140
Benzene	GCM0411-MAY20	mg/L	0.02	<0.02	ND	30	101	60	130	100	50	140
Carbon tetrachloride	GCM0411-MAY20	mg/L	0.008	<0.008	ND	30	102	60	130	98	50	140
Chloroform	GCM0411-MAY20	mg/L	0.02	<0.02	ND	30	102	60	130	101	50	140
Dichloromethane	GCM0411-MAY20	mg/L	0.02	<0.02	ND	30	98	60	130	99	50	140
Methyl ethyl ketone	GCM0411-MAY20	mg/L	0.8	<0.8	ND	30	100	50	140	110	50	140
Monochlorobenzene	GCM0411-MAY20	mg/L	0.02	<0.02	ND	30	105	60	130	103	50	140
Tetrachloroethene	GCM0411-MAY20	mg/L	0.02	<0.02	ND	30	105	60	130	102	50	140
Trichloroethylene	GCM0411-MAY20	mg/L	0.02	<0.02	ND	30	103	60	130	101	50	140
Vinyl Chloride	GCM0411-MAY20	mg/L	0.008	<0.008	ND	30	93	50	140	90	50	140

## QC SUMMARY

---

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

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

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

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

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

**RL:** Reporting limit

**RPD:** Relative percent difference

**AC:** Acceptance criteria

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

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

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



## LEGEND

## FOOTNOTES

**NSS** Insufficient sample for analysis.

**RL** Reporting Limit.

↑ Reporting limit raised.

↓ Reporting limit lowered.

**NA** The sample was not analysed for this analyte

**ND** Non Detect

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

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

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

This report must not be reproduced, except in full. This report supersedes all previous versions.

-- End of Analytical Report --

Received By: N. Myrick  
 Received Date: 05.26.20 (mm/dd/yy)  
 Received Time: 14:00 (hr : min)

Received By (signature):  
 Custody Seal Present: Yes ☒ No ☐  
 Custody Seal Inact: Yes ☐ No ☐

Cooling Agent Present: Yes ☒ No ☐  
 Temperature Upon Receipt (°C): 5.5

LAB LIMS #:

CA-14917/14918

## REPORT INFORMATION

## INVOICE INFORMATION

Company: Grounded Engineering

☒ (same as Report Information)

Contact: Jessie Wu

Company:

Address: 12 Benign Dr.

Contact:

Toronto

Address:

Phone: 647 264 7909

Phone:

Fax:

Phone:

Email: jwu@groundeng.ca

Email:

## REGULATIONS

## Regulation 153/04:

☐ Table 1 ☐ Res/Park ☐ Soil Texture:  
☐ Table 2 ☐ Ind/Com ☒ Coarse  
☐ Table 3 ☐ Agr/Other ☐ Medium  
☐ Table ☐ Fine

## Other Regulations:

☒ Reg 347/559 (3 Day min TAT)  
☐ PWOO ☐ MMER  
☐ CCME ☐ Other:  
☐ MISA

## Sewer By-Law:

☐ Sanitary  
☐ Storm  
☐ Municipality:

RECORD OF SITE CONDITION (RSC) YES ☐ NO ☐

## SAMPLE IDENTIFICATION

## DATE SAMPLED

## TIME SAMPLED

## # OF BOTTLES

## MATRIX

1 TCLP

05/25/20

2

5

## Field Filtered (Y/N)

Metals & Inorganics  
 (incl CrVI, CN, Hg, pH, B(HWS), EC, SAR-soil)  
 (Cl, Na-water)Full Metals Suite  
 ICP metals plus B(HWS-soil only) Hg, CrVIICP Metals only  
 Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Pb, Mo, Ni,  
 Se, Ag, Ti, U, V, Zn

## PAHs only

SVOCs  
 all incl PAHs, ABNs, CPsPCBs Total ☐ Aroclor ☐

## F1-F4 + BTEX

F1-F4 only  
 no BTEXVOCs  
 all incl BTEX

## BTEX only

Pesticides  
 Organochlorine or specify other

X TCLP

## M &amp; I

## SVOC

## PCB

## PHC

## VOC

## Pest

## Other (please specify)

## TCLP

## Specify pkg:

## Water Characterization Pkg

General ☐ Extended ☐TCLP ☐VOC ☐PAHs ☐ABN ☐Ignit. ☐

## COMMENTS:

## Observations/Comments/Special Instructions

## Sampled By (NAME):

Jason Ingo

## Signature:

[Signature]

## Relinquished by (NAME):

Jessie Wu

## Signature:

[Signature]

Revision # 1.2  
 Date of Issue: 09 Sep, 2019

## Note:

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

Date: 05.25.20

(mm/dd/yy)

Pink Copy - Client

Yellow & White Copy - SGS



# APPENDIX F



# PHASE TWO CONCEPTUAL SITE MODEL

**PREPARED FOR:**

Edenshaw Elizabeth Developments Limited  
129 Lakeshore Rd. E., Suite 201, 2nd Floor  
Mississauga, ON L5G 1E5

**ATTENTION:**

Mr. Steven Soldano

**23 Elizabeth St. N., 42, 44 & 46 Park  
St. E. | Mississauga, Ontario**

**Grounded Engineering Inc.**

**File No.** 20-088 (Rev.1)

**Issued** July 31, 2020



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# 1 Introduction

## 1.1 Site Description

Edenshaw Elizabeth Developments Limited retained Grounded Engineering Inc. to complete a Phase Two Environmental Site Assessment (ESA) of the property located northwest of the intersection of Elizabeth St. N., and Park St. E., Mississauga, Ontario (Property). The Phase Two ESA has been prepared for purpose of due diligence/financing and for filing a Record of Site Condition (RSC). The site location is presented in Figure 1.

The Property is rectangular in shape, with a total area of 0.18 ha. The Property is bounded by Elizabeth St. N. to the northwest and Park St. E. to the southeast. The Property is currently developed with four (4) residential dwellings each with a basement. The Property is considered to be residential land use by the Ontario Ministry of the Environment, Conservation, and Parks (MECP). The Phase Two ESA has been prepared for purpose of due diligence/financing and for filing a Record of Site Condition (RSC). The Phase Two ESA is prepared in accordance with Ontario Regulation 153/04 (O.Reg. 153/04).

## 1.2 Property Ownership

The Property information is provided below:

<b>Municipal Address</b>	<ul style="list-style-type: none"><li>• 23 Elizabeth Street North Mississauga</li><li>• 42 Park Street East Mississauga</li><li>• 44 Park Street East Mississauga</li><li>• 46 Park Street East Mississauga</li></ul>
<b>Legal Description</b>	Plan 300-E Pt Lot 8 Plan 300-E Pt Lot 8 RP 43R2685 Part 1,2,3 and 4
<b>PIN(s)</b>	<ul style="list-style-type: none"><li>• 13463-0092 (LT)</li><li>• 13463-0001(LT)</li><li>• 13463-0002(LT)</li><li>• 13463-0003(LT)</li></ul>
<b>Current Land Use</b>	Residential
<b>Property Owner Information</b>	<ul style="list-style-type: none"><li>• Leslie Calhoun</li><li>• Tara Prouty and Patrick Alleguede</li><li>• Margaret-Anne Murphy</li><li>• Edenshaw Elizabeth Developments Limited</li></ul>



<b>Person who has engaged the Qualified Person to conduct the Phase One ESA</b>	Edenshaw Elizabeth Developments Limited 129 Lakeshore Rd. E., Suite 201, 2nd Floor Mississauga, ON L5G 1E5
---	--

## 1.3 Summary of Previous Investigations

The following environmental report was provided for review for the Property. The findings of the report are summarized below:

### Report 1

<b>Title and File No.</b>	Phase One Environmental Site Assessment, 23 Elizabeth St. N., 44, 42 & 46 Park St. E., Mississauga, Ontario. File No. 20-088
<b>Report Date</b>	May 8, 2020
<b>Prepared By</b>	Grounded Engineering Inc.
<b>Prepared for</b>	Edenshaw Elizabeth Developments Limited
<b>Description of Data, Analysis or Findings</b>	<ul style="list-style-type: none"> <li>- The Phase One ESA was conducted in accordance with O.Reg. 153/04</li> <li>- Mary Fix Creek located approximately 150 m to the west of the Property.</li> <li>- Potentially contaminating activities (PCAs) were found on sites located with the Study Area but not on the Phase One Property.</li> <li>- No Area of Potential Environmental Concern (APEC) were identified on the Property.</li> <li>- A Phase Two ESA will not be required prior to the submission of a Record of Site Condition (RSC). An RSC can be submitted based on the Phase One ESA alone.</li> </ul>

The PCAs and APEC locations are provided in Figure 2.

## 2 Information from the Phase One Environmental Site Assessment

### 2.1 Areas Where Potential Contaminating Activity Has Occurred

Potential Contaminating Activity (PCAs) were identified in the Phase One ESA for the Property. No on-site PCAs were identified by the Phase One ESA. The information regarding whether the PCAs have the potential to cause Areas of Potential Environmental Concerns (APECs) is provided below.



Location of PCA	PCA	APEC (Yes/No)	Rationalization
28 Elizabeth St. N. 20 m South	#01 – Ontario Spill	No	The CoC associated with the spill is minimal in quantity. The PCA is also located downgradient to the Property. The QP does not think this PCA will cause an APEC on the Property
28 Helene St. N. 45 m Northeast	#02 – O.Reg. 347 Waste Generator	No	The waste generator onsite is likely for small scale usage. The QP does not think this PCA will cause an APEC on the Property.
80 m Northwest	#46 – Rail Yards, Tracks and Spurs	No	The CoCs associated with the railway spurs are soil related and are unlikely to migrate into and through the groundwater table. The QP does not think this PCA will cause an APEC on the Property.
30 Queen St. E. 95 m North	#03 – Coal Storage	No	The CoCs associated with the coal storage are soil related and are unlikely to migrate into and through the groundwater table. The QP does not think this PCA will cause an APEC on the Property.
12 Park St. E. 130 m Southwest	#18 – Electricity Generation, Transformation and Power Stations	No	Downgradient PCA. Due to the distance and gradient from the Property, groundwater impacts, if present, are unlikely to cause contamination on the Property. The QP does not think this PCA will cause an APEC on the Property.
26 Stavebank Rd. 180 m South	#18 – Electricity Generation, Transformation and Power Stations	No	Downgradient PCA. Due to the distance and gradient from the Property, groundwater impacts, if present, are unlikely to cause contamination on the Property. The QP does not think this PCA will cause an APEC on the Property.
15 Stavebank Rd. 190 m Southeast	#18 – Electricity Generation, Transformation and Power Stations	No	Downgradient PCA. Due to the distance and gradient from the Property, groundwater impacts, if present, are unlikely to cause contamination on the Property. The QP does not think this PCA will cause an APEC on the Property.
Hurontario St. and Queen St. E. 200 m Northeast	#59 – Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products	No	Due to the distance from the Property, groundwater impacts, if present, are unlikely to cause contamination on the Property. The QP does not think this PCA will cause an APEC on the Property.
10 Ann St. 215 m East	#10– Commercial Autobody Shops	No	Due to the distance from the Property, groundwater impacts, if present, are unlikely to cause contamination on the Property. The QP does not think this PCA will cause an APEC on the Property.



Location of PCA	PCA	APEC (Yes/No)	Rationalization
40 Stavebank Rd. 230 m Southwest	#02 – O.Reg. 347 Waste Generator	No	Downgradient PCA. Due to the distance and gradient from the Property, groundwater impacts, if present, are unlikely to cause contamination on the Property. The QP does not think this PCA will cause an APEC on the Property.
30 Stavebank Rd. 240 m Southeast	#18 – Electricity Generation, Transformation and Power Stations	No	Downgradient PCA. Due to the distance and gradient from the Property, groundwater impacts, if present, are unlikely to cause contamination on the Property. The QP does not think this PCA will cause an APEC on the Property.
88 High St. E. 250 m Northeast	#28 – Gasoline and Associated Products Storage in Fixed Tanks	No	Downgradient PCA. Due to the distance and gradient from the Property, groundwater impacts, if present, are unlikely to cause contamination on the Property. The QP does not think this PCA will cause an APEC on the Property.

The locations of the PCAs and APECs are shown on Figure 2. No APECs were identified for the Property.





## **2.2 Areas of Potential Environmental Concern**

No APECs resulting from PCAs were identified for the Property. The results are shown on Figure 2.

## **2.3 Subsurface Structures and Utilities**

The site inspection of the Property and utility locates conducted as part of the Phase One ESA found the following information regarding utilities and services at the Property:

- Underground water service enters the Property via Elizabeth Street North to the south and Park Street East to the east
- Underground gas utility enters the Property via Elizabeth Street North to the south and Park Street East to the east
- Hydro lines are overhead

It is possible that the bedding materials for the underground utilities could serve as preferential pathways for the migration of PCoCs. The subsurface utilities may contribute to migration of contaminants, if detected on site.



### 3 Physical Setting of the Phase Two Property

#### 3.1 Stratigraphy

Detailed geological information for the Property is presented on the geologic cross sections shown in Figures 6 and 7. The geology at the Property is summarized below.

##### 3.1.1 Geological Unit Thickness

Geological Unit Thickness (Estimate)	
Borehole	BH1 to BH4
	Thickness Range (m)
Earth Fill	0.8 to 1.5
Silt and Sand	3.0 to 7.6
Silty Clay (Glacial Till)	4.6 to 7.6
Sandy Silt (Glacial Till)	7.6 to 10.4
Bedrock	8.6 to at least 23.2

##### 3.1.2 Elevations of Geological Units

Geological Unit Elevations		
Borehole	BH1 to BH4	
	Elev. Top Range (masl)	Elev. Bottom Range (masl)
Earth Fill	83.4	80.3
Silt and Sand	82.7	75.9
Silty Clay (Glacial Till)	78.2	75.3
Sandy Silt (Glacial Till)	76.6	72.9
Bedrock	74.2	58



### 3.1.3 Material in Geological Units

Geological Units	Description
Earth Fill	Underlying the surficial materials, the boreholes observed a layer of earth fill that extends to depths of 0.8 to 1.1 metres below grade (Elev. 82.7 to 80.3 metres). The earth fill varies in composition but generally consists of silty sand, with trace gravel and trace rootlets. The earth fill is typically dark brown to brown, and moist.
Silt and Sand	Native Silt and Sand was encountered in all borehole locations underlying the Earth Fill. The Native Silty Sand unit extends down to depths of 3.0 to 7.6 m below grade (Elev. 75.9 to 78.2 m). The silty sand unit contains trace gravel and trace clay.
Glacial Till	Underlying the silt and sand unit, all the boreholes encountered an undisturbed native glacial till deposit. The upper portion of the till has a matrix of cohesive silty clay (encountered in all but Borehole 3). The till transitions to a cohesive sandy silt till. The till was encountered at 3.0 to 6.1 metres below grade (Elev. 76.8 to 78.2 m). The upper cohesive till is generally grey, and moist to wet. The upper till contains trace to some gravel and trace sand. The lower cohesionless sandy silt till is generally grey, and moist to wet. This layer contains some clay and some gravel.
Bedrock	The top of inferred bedrock was encountered at depths ranging from 7.6 to 10.4 m in all boreholes across the site (Elev. 72.9 to 74.2± m). Boreholes 2 to 4 inferred the top of weathered bedrock through auger cuttings, split spoon samples, and auger grinding/resistance observations. Boreholes 2 to 4 were terminated due to auger and sampler refusal (at target investigation depth) at elevations ranging from Elev. 72.8 to 73.8 m. Borehole 1 recovered rock core from Elev. 71.0 to 58.0 m. The bedrock beneath the site is the Georgian Bay Formation ("GBF"), which broadly comprises thin to medium bedded grey shale and limestone of Ordovician age. The shale is interbedded with calcareous shale, limestone, dolostone, and calcareous sandstone (conventionally grouped together as "limestone") which are typically laterally discontinuous.

## 3.2 Approximate Depth to Water Table

Five (5) ground water level measurements were conducted in June and July by Grounded Engineering Inc. in the newly installed monitoring wells using a Solinst interface probe on the following dates:

- June 5, 2020
- June 10, 2020
- June 12, 2020
- June 18, 2020
- July 20, 2020

A total of four (4) monitoring wells have been installed by Grounded Engineering Inc. The ground water levels are presented in Table 1 and Figure 4. The shallowest ground water depth was measured at 2.9 mbgs (80.5 masl) and was observed at Borehole 4 located at the north end of the site on June 5, 2020.

Based on the groundwater elevations measured on the Property, the groundwater was determined to flow locally to the south. Regional groundwater flow is expected to flow to the south towards



Credit River then east towards Lake Ontario. Groundwater elevations are provided on Table 1. The groundwater flow direction and contour are present in Figure 4.

To calculate the ground water elevation in the monitoring well, the following calculation was completed:

$$\text{Geodetic Ground Elevation (masl)} - \text{Measured Depth to Water Table (m)} + \text{Stick up of Well (m)} = \text{Ground Water Elevation (masl)}$$

Based on the current groundwater levels, the groundwater within the aquifer is encountered at an elevation of approximately 76.4 to 80.5 masl. Groundwater is also observed within the bedrock at 68.5 masl.

### 3.3 Site Hydrogeological Characteristics

<b>Horizontal Hydraulic Gradients</b>	The horizontal hydraulic gradient at the Property was determined to be approximately 0.1 m/m.
<b>Vertical Hydraulic Gradients</b>	The vertical hydraulic gradient at the Property was determined to be approximately 0.3 m/m downwards.
<b>Hydraulic Conductivity</b>	<ul style="list-style-type: none"> <li>▪ Earth Fill <math>1 \times 10^{-6}</math> m/s</li> <li>▪ Silty Sand <math>1 \times 10^{-7}</math> m/s</li> <li>▪ Silty Clay (Glacial Till) <math>3.1 \times 10^{-8}</math> m/s</li> <li>▪ Sandy Silt (Glacial Till) <math>9.39 \times 10^{-8}</math> m/s</li> </ul>

### 3.4 Approximate Depth to Bedrock

The bedrock at the Property is of the Georgian Bay Formation, which is comprised of shale, limestone, dolostone and siltstone. The top of inferred bedrock was encountered at depths ranging from 7.6 to 10.4 m in all boreholes across the site (Elev. 72.9 to 74.2± m). Boreholes 2 to 4 indirectly inferred the top of weathered bedrock through auger cuttings, split spoon samples, and auger grinding/resistance observations. Boreholes 2 to 4 were terminated due to auger and sampler refusal (at target investigation depth) at elevations ranging from Elev. 72.8 to 73.8 m. Borehole 1 recovered rock core from Elev. 71.0 to 58.0 m.

### 3.5 Section 41 or 43.1

Section 41 of the Regulation does not apply to the Phase Two Property based on the following rationale:

- The Property is not located within an area of natural significance;
- The Property does not include or is not adjacent to an area of natural significance or part of such an area;
- The Property does not include land that is within 30 m of an area of natural significance or part of such an area;



- The surface soil at the Property has a pH value that is not less than 5 or greater than 9; and
- The sub-surface soil at the Property has a pH value that is not less than 5 or greater than 11.

Section 43.1 of the Regulation does not apply to the Phase Two Property based on the following rationale:

- The Property is not considered a shallow soil property; or
- The Property does not include all or part of a water body and is not adjacent to a water body and 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 place on, in or under the Phase Two Property since the site reconnaissance completed for the Phase One ESA in May 6, 2020.

### 3.7 Proposed Buildings

It is understood that the Phase Two Property will be developed with redeveloped with a 22-storey high rise residential building and a P6-underground parking. As part of the future development, a 13 m<sup>2</sup> triangular parcel along the intersection of Elizabeth Street North and Park Street East will be conveyed to the City of Mississauga as proposed road-widening

## 4 Contamination In or Under the Phase Two Property

### 4.1 Applicable Site Condition Standard

The applicable site condition standard for the Phase Two Property is determined to be Table 3 Site Condition Standard for Residential/Parkland/Institutional in non-potable groundwater condition for coarse textured soil due to the following reason:

<b>Current Land Use</b>	Residential Land Use
<b>Future Land Use</b>	Residential Land Use
<b>Soil Texture</b>	Coarse
<b>Potable Water Source</b>	Lake Ontario
<b>Bedrock Depth</b>	Bedrock is located at a depth of greater than 2 m.
<b>Property located within 30 m of a surface water body (Yes/No)</b>	No



<b>Property located in or adjacent to a provincial park or an Area of Natural Significance (Yes/No)</b>	No
---	----

Grounded Engineering Inc. notified the Peel Region Clerk of the intention to use non-potable groundwater standards. No objections have been received on July 17, 2020 to the use of non-potable groundwater standards.

## 4.2 Media Investigated

The scope of the Phase Two ESA is as follow:

<b>Boreholes and Monitoring Wells</b>	<ul style="list-style-type: none"> <li>Advancing of 4 boreholes to depths of 8.6 to 23.2 m below ground surface (mbgs)</li> <li>Installation of 4 of monitoring wells</li> </ul>
<b>Parameters Investigated for Soil</b>	<ul style="list-style-type: none"> <li>Metals</li> <li>Hydride-forming Metals <ul style="list-style-type: none"> <li>Antimony (Sb), Arsenic (As), Selenium (Se)</li> </ul> </li> <li>Selected Other Regulated Parameters (ORPs) <ul style="list-style-type: none"> <li>Electrical Conductivity (EC), Sodium Adsorption Ratio (SAR), Boron-hot water soluble (B-HWS), Cyanide (CN-), Mercury (Hg), Hexavalent Chromium (Cr(VI)), low or high pH</li> </ul> </li> <li>Petroleum Hydrocarbons (PHCs)</li> <li>Volatile Organic Compounds II (BTEX)</li> </ul>
<b>Parameters Investigated for Groundwater</b>	<ul style="list-style-type: none"> <li>Metals</li> <li>Hydride-forming Metals <ul style="list-style-type: none"> <li>Antimony (Sb), Arsenic (As), Selenium (Se)</li> </ul> </li> <li>Selected Other Regulated Parameters (ORPs) <ul style="list-style-type: none"> <li>Cyanide (CN-), Sodium (Na), Chloride (Cl), Mercury (Hg), Hexavalent Chromium (Cr(VI))</li> </ul> </li> <li>Petroleum Hydrocarbons (PHCs)</li> <li>Volatile Organic Compounds II (BTEX)</li> </ul>
<ul style="list-style-type: none"> <li>3 soil samples were submitted for grain size analysis and soil classification</li> <li>All boreholes and monitoring wells are surveyed to a geodetic benchmark</li> <li>All monitoring wells are developed and sampled</li> <li>Groundwater level measurements are conducted in all monitoring wells to determine groundwater elevation on the Property</li> </ul>	

## 4.3 Sampling Rationale and Areas Where Contaminants are Present

Based on the Phase One ESA, no APECs were identified on the Property. Soil and groundwater sampling were conducted for due diligence/refinancing purpose. No exceedances were identified in the soil and the groundwater on the Property.



#### 4.3.1 Location and Depth of Soil Samples

Sample ID	Depth		Strata	Metals	H-Metals	ORPs	PHCs/BTEX
	mbgs	masl					
BH1 SS2	0.8 - 1.4	80.4-79.8	Silty Sand	✓	✓	✓	✓
BH1 SS3	1.5 - 2.1	79.7-79.1	Silty Sand	✓	✓	✓	
BH1 SS5	3.0 - 3.7	78.1-77.5	Glacial Till				✓
BH2 SS2	0.8 - 1.2	80.6-80.2	Fill	✓	✓	✓	✓
BH2 SS4	2.3 - 2.9	79.1-78.5	Silty Sand	✓	✓	✓	✓
BH3 SS4	2.3 - 2.6	81.2-80.9	Silty Sand	✓	✓	✓	✓
BH3 SS6	4.6 - 4.8	78.9-78.7	Silty Sand	✓	✓	✓	✓
BH4 SS5	3.0 - 3.5	80.3-79.8	Silty Sand	✓	✓	✓	✓
BH4 SS8	7.6 - 8.1	75.7-75.3	Glacial Till	✓	✓	✓	✓

#### 4.3.2 Location and Depth of Ground Water Samples

Sample ID	Screen Depth		Screen Strata	Metals	H-Metals	ORPs	PHCs/BTEX
	mbgs	masl					
BH1	20.1-23.2	61.0-58.0	Bedrock	✓	✓	✓	✓
BH2	5.5-8.5	75.9-72.9	Glacial Till	✓	✓	✓	✓
BH3	5.6-8.7	77.8-74.8	Silty Sand to Glacial Till	✓	✓	✓	✓
BH4	5.6-8.7	77.7-74.7	Silty Sand to Glacial Till	✓	✓	✓	✓

#### 4.4 Exemption of Salt-Related Exceedances (O.Reg. 49.1 (1))

Chemical analysis of the groundwater indicates that there are exceedances of the MECP Table 3 Standards for Electrical Conductivity (salt related compound) within the upper soils.

The Property is located at the corner of two municipal roadways (Elizabeth Street North and Park Street East). The roadways have public sidewalks between the road and the Property boundary. The Property features a driveway and car parking. The roadways, sidewalks, driveway, and parking area are all salted during the winter months for safety purposes.

The Qualified Person has determined, based on the Phase One Environmental Site Assessment and the Phase Two Environmental Site Assessment, that a substance (salt) has been applied to surfaces of the roadway, sidewalks, driveway and parking area for the safety of vehicular and pedestrian traffic under conditions of snow or ice or both.



The applicable site condition standard is exceeded at the Property solely because of the reason as stated above (application of salt for safety purposes during winter months). As per O.Reg. 153/04 49.1 the applicable site condition standard is deemed not to be exceeded for the purpose of Part XV.1 of the Act.

#### **4.5 Contaminants Associated with Each Area**

No Areas of Potential Concerns (APECs) were identified on the Property.

#### **4.6 Medium in Which Contaminants are Associated**

Soil and groundwater were investigated as part of the Phase Two ESA investigation. No CoCs were identified in the following media for the contaminants listed.

Metals	H-Metals	ORPs	PHCs/BTEX
Soil – None Groundwater - None	Soil – None Groundwater - None	Soil – None Groundwater - None	Soil – None Groundwater - None

Based on the Phase Two investigation, there are no CoCs above the MECP Table 3 RPI Standards identified on the Property.

#### **4.7 Information Known about Each Contaminated Area**

No contaminants were identified in the soil and groundwater on the Property. All the samples met the Table 3 RPI Standard.

#### **4.8 Distribution of Contaminant**

No contaminants were identified in the soil and groundwater during the investigation. The cross sections of the Property are presented on Figures 6 and 7.

#### **4.9 Reasons for Discharge of Contaminant**

No contaminants were identified in the soil and ground water during the investigation. The cross sections of the Property are presented on Figure 6 and 7.

#### **4.10 Migration of Contaminant**

No contaminants were identified on the Property. As such, there is no migration associated with contaminant on the Property.





## 4.11 Climatic or Meteorological Influences on Migration

No contaminants were identified on the Property. As such, there is no climatic or meteorological influences on migration on the Property.

## 4.12 Soil Vapour Intrusion into Buildings

No contaminants were identified in the ground water during the investigation. As such there is no soil vapour intrusion into buildings.

## 4.13 Relevant Construction Features of Buildings

The Property is currently occupied by four (4) 2-storey residential buildings each with a basement and associated asphaltic surficial parking area/driveway. The buildings were built in 1928. Observations on the interior of the building were not available due to access restriction during the pandemic.

#	Address	Above Grade Levels	Below Grade Levels	Use	Entry/Exits
1	23 Elizabeth St. N.	2 level	1 basement level	Residential	Southside and eastside of the building
2	42 Park St. E.	2 level + Attic	1 basement level	Residential	Eastside and westside of the building
3	44 Park St. E.	2 level	1 basement level	Residential	Eastside and westside of the building
4	46 Park St. E.	2 level	1 basement level	Residential	Eastside, southside and westside of the building.

<b>Walls</b>	Interior not accessed for all buildings.
<b>Floors</b>	Interior not accessed for all buildings.
<b>Ceilings</b>	Interior not accessed for all buildings.



<b>Lighting</b>	Interior not accessed for all buildings.
<b>Exterior</b>	#1 – wood panels #2 & #3 – brick #4 – brick and wood panels
<b>Roof (if accessed)</b>	Shingles
<b>Heating and Cooling System</b>	Exterior floor mount/ wall mount AC units
<b>Drains, Pits, Sumps Observed</b>	Interior not accessed for all buildings.
<b>Staining and Corrosion</b>	N/A
<b>Air Emissions</b>	Chimneys observed at all buildings.

#### 4.14 Building HVAC

Currently HVAC systems present in the building on the Property will not affect the distribution and transport of contaminants because no volatile CoCs were identified.

#### 4.15 Subsurface Structures and Utilities

The site inspection of the Property and utility locates conducted as part of the Phase One ESA found the following information regarding utilities and services at the Property:

- Underground water service enters the Property via Elizabeth Street North to the south and Park Street East to the east
- Underground gas utility enters the Property via Elizabeth Street North to the south and Park Street East to the east
- Hydro lines are overhead

It is possible that the bedding materials for the underground utilities could serve as preferential pathways for the migration of PCoCs. The subsurface utilities may contribute to migration of contaminants, if detected on site.



## 5 Potential Exposures Pathways and Receptors

### 5.1 Description of All Components

A list of all risk-based components of potential exposure pathways and receptors are presented below and presented on Figures 8 and 9.

Potential Pathway	Description
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 movement to outdoor air and human exposure
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	Sources	CoCs from Phase Two ESA	Potential Risks (Yes/No)			
			Source	Pathway	Receptor	Risk
GW1	Contamination not present in ground water	None	No	Yes	Yes	No Risk
GW2	Contamination not present in ground water	None	No	Yes	Yes	No Risk
GW3	Contamination not present in ground water	None	No	Yes	No	No Risk
S1	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S2	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S3	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S-IA	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S-OA	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S-Odour	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S-GW1	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
S-GW3	Contamination not present in fill material and native soils	None	No	Yes	No	No Risk

## 5.3 Receptor Terrestrial Environment

Potential Pathway	Sources	CoCs from Phase Two ESA	Potential Risks (Yes/No)			
			Source	Pathway	Receptor	Risk
Plants and Soil Organisms	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk
Mammals and Birds	Contamination not present in fill material and native soils	None	No	Yes	Yes	No Risk



## 5.4 Receptor Aquatic Environment

Potential Pathway	Sources	CoCs from Phase Two ESA	Potential Risks (Yes/No)			
			Source	Pathway	Receptor	Risk
GW3	Contamination not present in fill material and native soils	None	No	Yes	No	No Risk
S-GW3	Contamination not present in fill material and native soils	None	No	Yes	No	No Risk

## 5.5 Summary of Potential Receptor Risks

No Contaminants of Concern were identified during the Phase Two ESA investigation. There is no potential risk associated with the Human Receptor, the Terrestrial or the Aquatic Environment.

# TABLES



Table 1: GROUNDWATER ELEVATION  
23 Elizabeth St. N.

Consultant	Monitoring Well ID	05-Jun-20	10-Jun-20	12-Jun-20	18-Jun-20	20-Jul-20
		GW Elevation (masl)	GW Elevation (masl)	GW Elevation (masl)	GW Elevation (masl)	GW Elevation (masl)
Grounded Engineering	BH1	76.3	73.4	68.4	68.5	68.6
	BH2	76.4	76.4	76.5	76.5	76.7
	BH3	80.2	79.7	79.4	79.8	79.5
	BH4	80.5	80.4	80.4	80.3	79.9

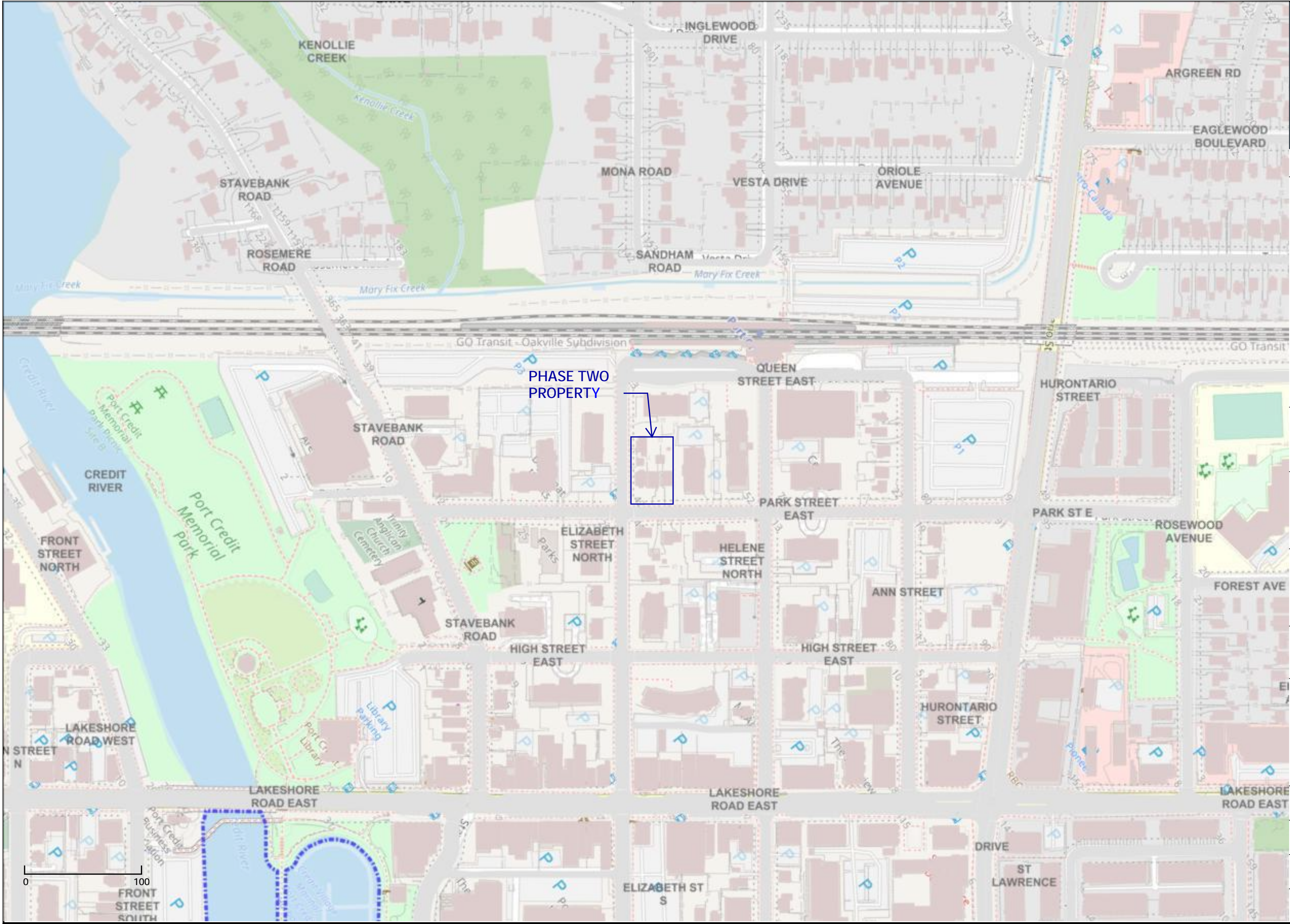
NA – Monitoring wells could not be located or monitored

NM – Not Measured

# FIGURES







**GROUND**  
ENGINEERING

1 Banigan Drive, Toronto, Ont., M4H1G3  
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**LEGEND**

— PROPERTY BOUNDARY

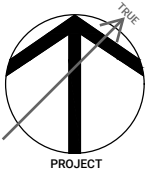
Note

Reference  
City of Mississauga Interactive Map

Project **PHASE TWO  
ENVIRONMENTAL SITE  
ASSESSMENT**  
23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title  
**SITE LOCATION  
PLAN**

North



Date  
JULY 2020

Scale  
AS INDICATED

Job No  
20-088

Figure No  
**FIGURE 1**





1 Banigan Drive, Toronto, Ont., M4H1G3  
www.groundedeng.ca

### LEGEND

- | PROPERTY BOUNDARY    |  |
|----------------------|--|
| PHASE ONE STUDY AREA |  |
| #01                  | ONTARIO SPILLS   |
| #02                  | O.REG.347 WASTE GENERATOR  |
| #03                  | COAL STORAGE   |
| #10                  | COMMERCIAL AUTOBODY SHOPS  |
| #18                  | ELECTRICITY GENERATION,<br>TRANSFORMATION AND POWER<br>STATIONS  |
| #28                  | GASOLINE AND ASSOCIATED<br>PRODUCTS STORAGE IN FIXED<br>TANKS  |
| #46                  | RAIL YARDS, TRACKS AND SPURS   |
| #59                  | WOOD TREATING AND<br>PRESERVATIVE FACILITY AND BULK<br>STORAGE OF TREATED AND<br>PRESERVED WOOD PRODUCTS |

Note

GREEN - PCA NOT CAUSING APEC

## Reference

City of Mississauga Interactive Map

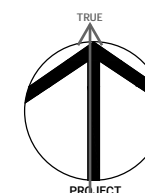
Project **PHASE TWO  
ENVIRONMENTAL SITE  
ASSESSMENT**

23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO. L5G 2Z4

Figure Title

## PCA AND APEC LOCATIONS

North



Date \_\_\_\_\_

JULY 2020

Scale

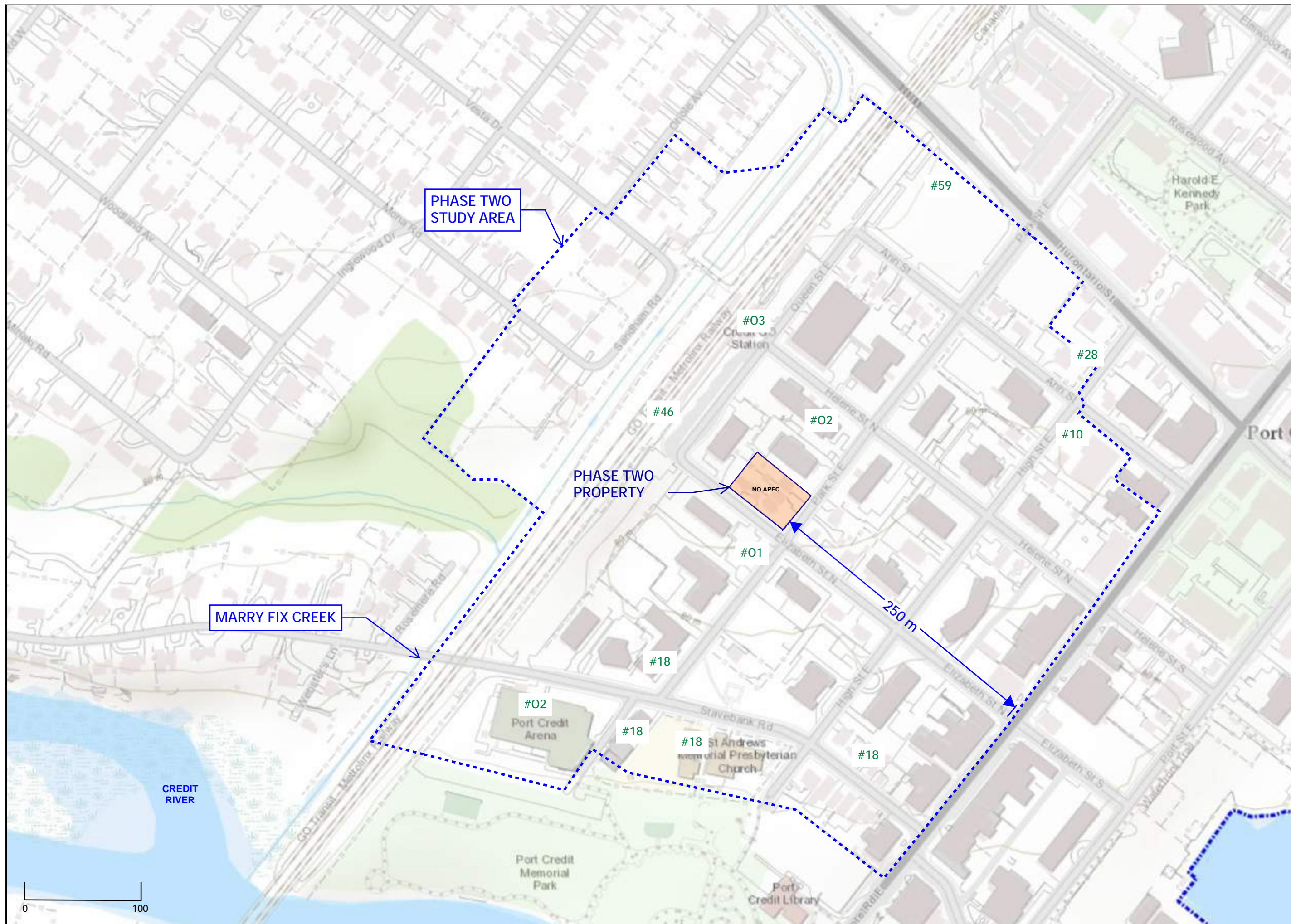
AS INDICATED

Job No

20-088

Figure No

FIGURE 2





**LEGEND**

PROPERTY BOUNDARY

GROUND BOREHOLE WITH  
MONITORING WELLS (2020)

GAS GAS

O/H OVERHEAD HYDRO

WM WATER

CATCH BASIN

SANITARY SEWER

CONVEYANCE LAND

Note

**Reference**

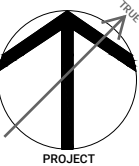
Survey Drawing No. 3296-OT.DWG Project  
No. 3296-0  
Certificate date: July 23, 2019. Prepared by  
R. Avis Surveying Inc. Received on July 3,  
2020 as part of the ROWE package  
prepared by IBI Group Architects

**Project**  
**PHASE TWO**  
**ENVIRONMENTAL SITE**  
**ASSESSMENT**

23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

**Figure Title**  
**BOREHOLE AND**  
**MONITORING WELL**  
**LOCATIONS**

North



Date

JULY 2020

Scale

1 : 200

Job No

20-088

Figure No

**FIGURE 3**





**GROUND  
ENGINEERING**

1 Banigan Drive, Toronto, Ont., M4H1G3  
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#### LEGEND

- PROPERTY BOUNDARY
- GROUNDRED BOREHOLE WITH MONITORING WELLS (2020)
- GAS
- O/H OVERHEAD HYDRO
- WM WATER
- CATCH BASIN
- SANITARY SEWER
- CONVEYANCE LAND
- 80.3 GROUNDWATER ELEVATION JUNE 18, 2020
- GROUNDWATER FLOW DIRECTION

Note

#### Reference

Survey Drawing No. 3296-OT.DWG Project No. 3296-0  
Certificate date: July 23, 2019. Prepared by R. Avis Surveying Inc. Received on July 3, 2020 as part of the ROWE package prepared by IBI Group Architects

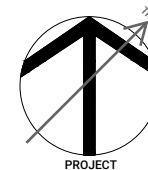
#### Project PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

#### Figure Title

#### GROUNDWATER ELEVATION AND CONTOURS

North



Date

JULY 2020

Scale

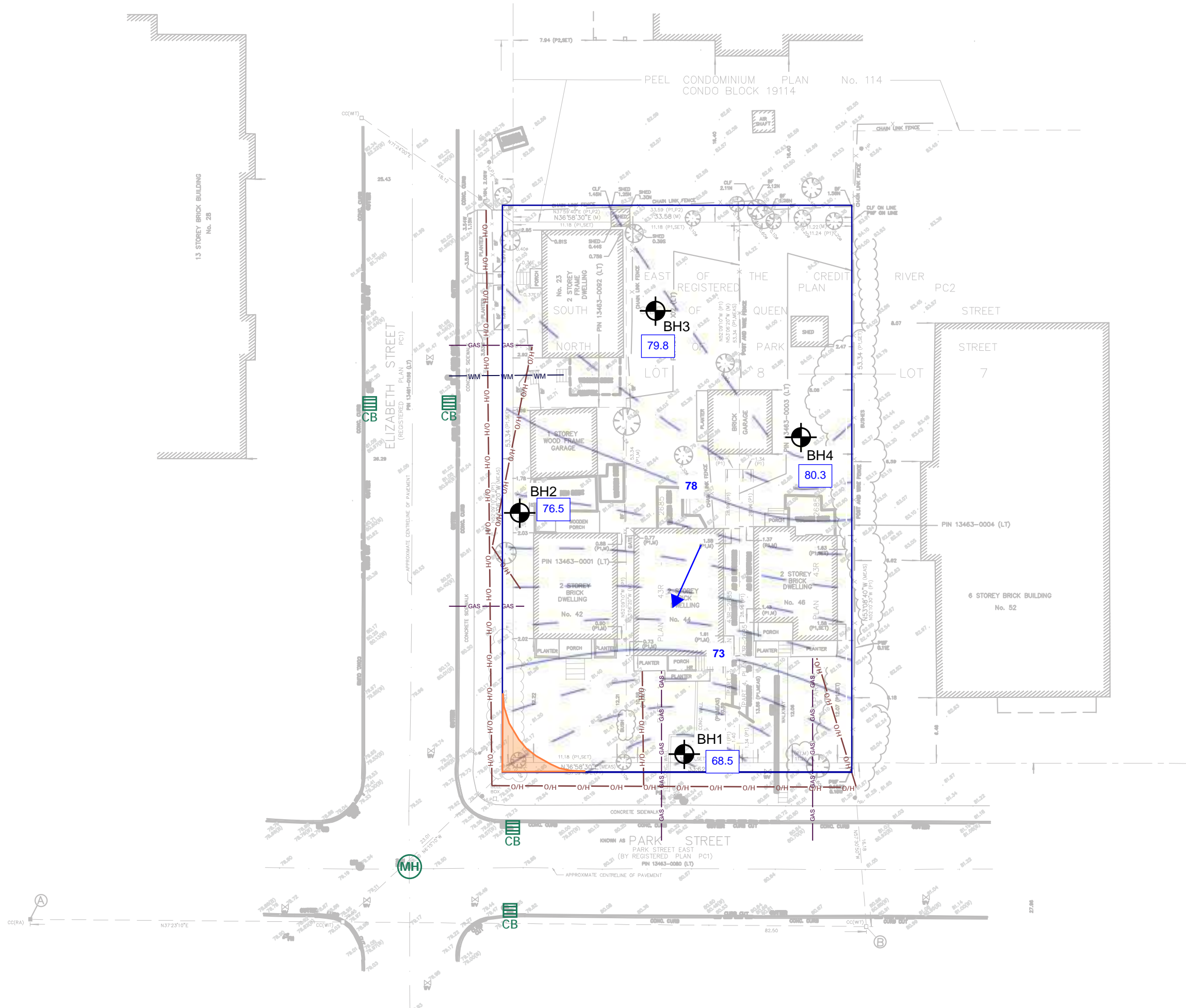
1 : 200

Job No

20-088

Figure No

FIGURE 4





**GROUND**  
ENGINEERING

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**LEGEND**

- PROPERTY BOUNDARY
- GROUNDING BOREHOLE WITH MONITORING WELLS (2020)
- GAS
- O/H OVERHEAD HYDRO
- WM WATER
- CATCH BASIN
- SANITARY SEWER
- CROSS-SECTION LOCATION
- CONVEYANCE LAND

Note

Reference  
Survey Drawing No. 3296-OT.DWG Project  
No. 3296-0  
Certificate date: July 23, 2019. Prepared by  
R. Avis Surveying Inc. Received on July 3,  
2020 as part of the ROWE package  
prepared by IBI Group Architects

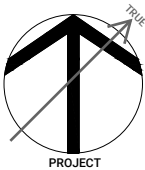
Project **PHASE TWO  
ENVIRONMENTAL SITE  
ASSESSMENT**

23 ELIZABETH ST. N., 42, 44, 46  
PARK ST. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title

**CROSS -SECTION  
LOCATIONS**

North



Date

JULY 2020

Scale

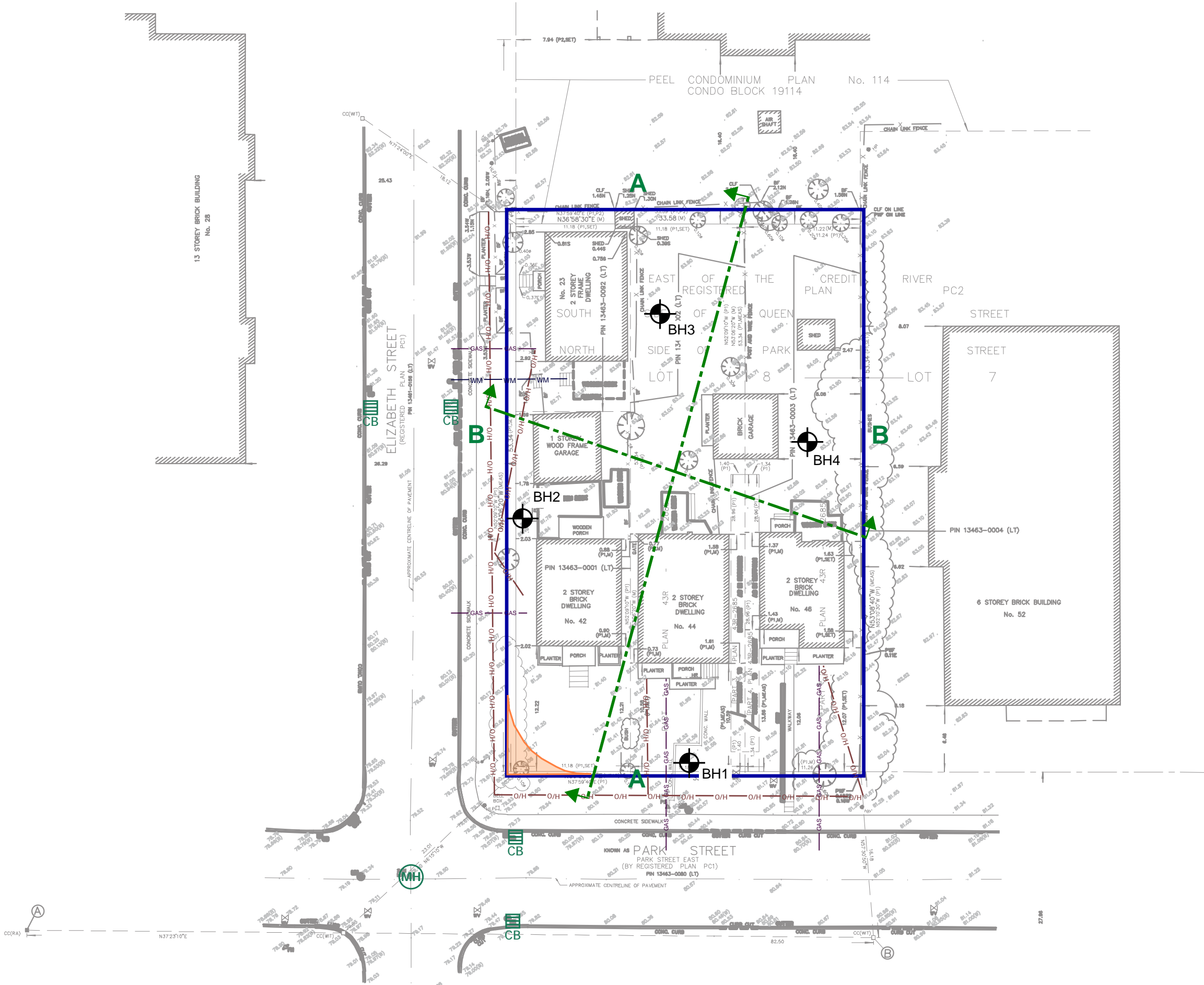
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Job No

20-088

Figure No

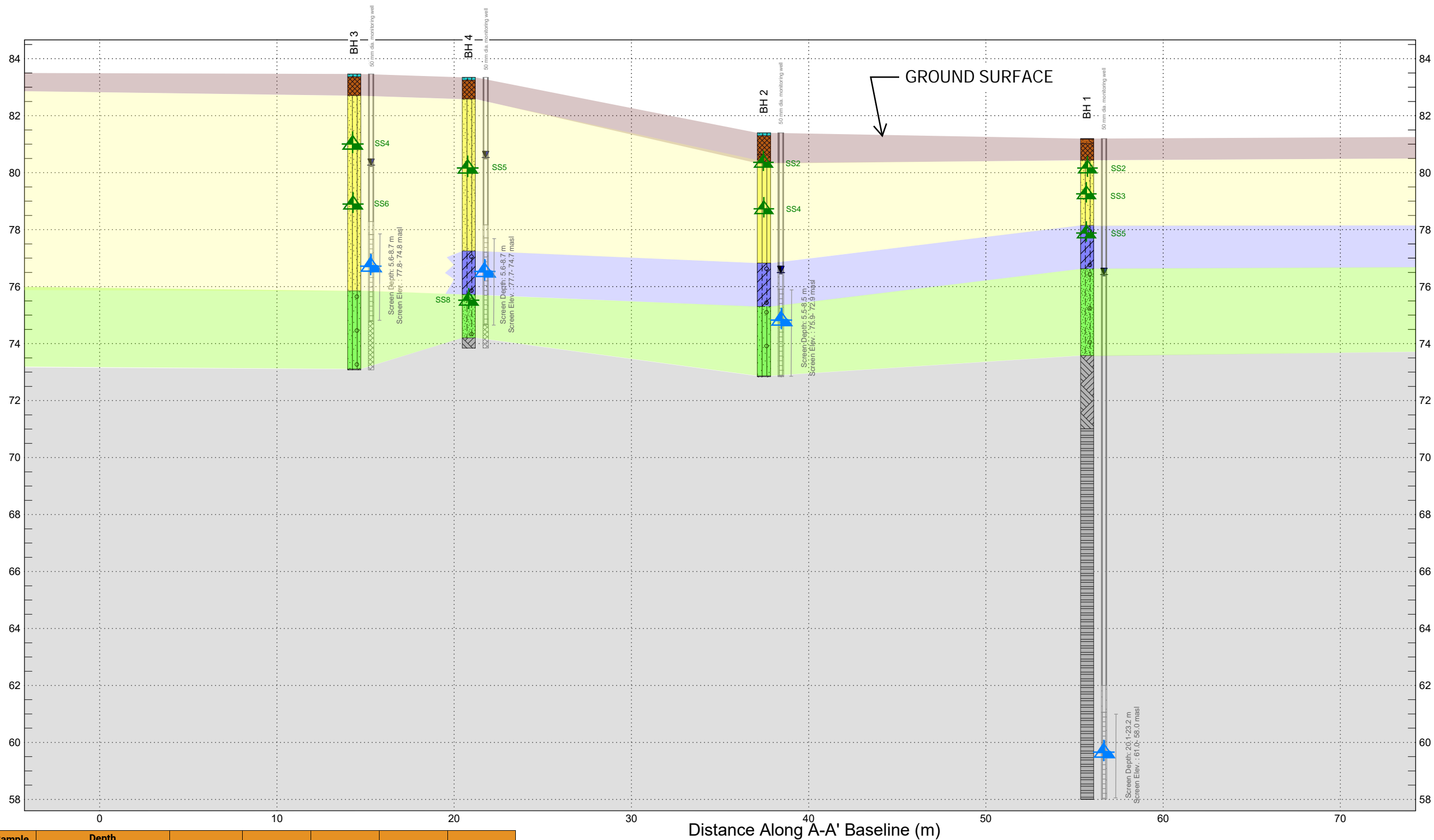
**FIGURE 5**





From E614141, N4823425,  
to E614179, N4823366

Elevation (m)



Sample ID	Depth		Strata	Metals	H-Metals	ORPs	PHCs/BTEX
	mbgs	masl					
BH1 SS2	0.8 - 1.4	80.4-79.8	Silt and Sand	✓	✓	✓	✓
BH1 SS3	1.5 - 2.1	79.7-79.1	Silt and Sand	✓	✓	✓	
BH1 SS5	3.0 - 3.7	78.1-77.5	Glacial Till				✓
BH2 SS2	0.8 - 1.2	80.6-80.2	Fill	✓	✓	✓	✓
BH2 SS4	2.3 - 2.9	79.1-78.5	Silt and Sand	✓	✓	✓	✓
BH3 SS4	2.3 - 2.6	81.2-80.9	Silt and Sand	✓	✓	✓	✓
BH3 SS6	4.6 - 4.8	78.9-78.7	Silt and Sand	✓	✓	✓	✓
BH4 SS5	3.0 - 3.5	80.3-79.8	Silt and Sand	✓	✓	✓	✓
BH4 SS8	7.6 - 8.1	75.7-75.3	Glacial Till	✓	✓	✓	✓

Sample ID	Screen Depth		Screen Strata	Metals	H-Metals	ORPs	PHCs/BTEX
	mbgs	masl					
BH1	20.1-23.2	61.0-58.0	Bedrock	✓	✓	✓	✓
BH2	5.5-8.5	75.9-72.9	Glacial Till	✓	✓	✓	✓
BH3	5.6-8.7	77.8-74.8	Silt and Sand to Glacial Till	✓	✓	✓	✓
BH4	5.6-8.7	77.7-74.7	Silty Sand to Glacial Till	✓	✓	✓	✓



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#### LEGEND

- FILL
- SILT TO SAND (not till)
- COHESIVE SOILS (clayey silt to clay, incl. tills)
- COHESIONLESS TILLS
- BEDROCK
- SS1 SAMPLE LOCATION MEETS STANDARD - SOIL
- SS2 SAMPLE LOCATION MEETS STANDARD - GROUNDWATER
- water level, stabilized

Note  
The soil stratigraphy shown on the cross section between borehole locations is interpreted. The actual soil condition may vary

Reference

Project  
**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**  
23 Elizabeth St. N., 42, 44, 46  
Park St. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title  
**CROSS SECTION A-A'**

North

Date  
JULY 2020

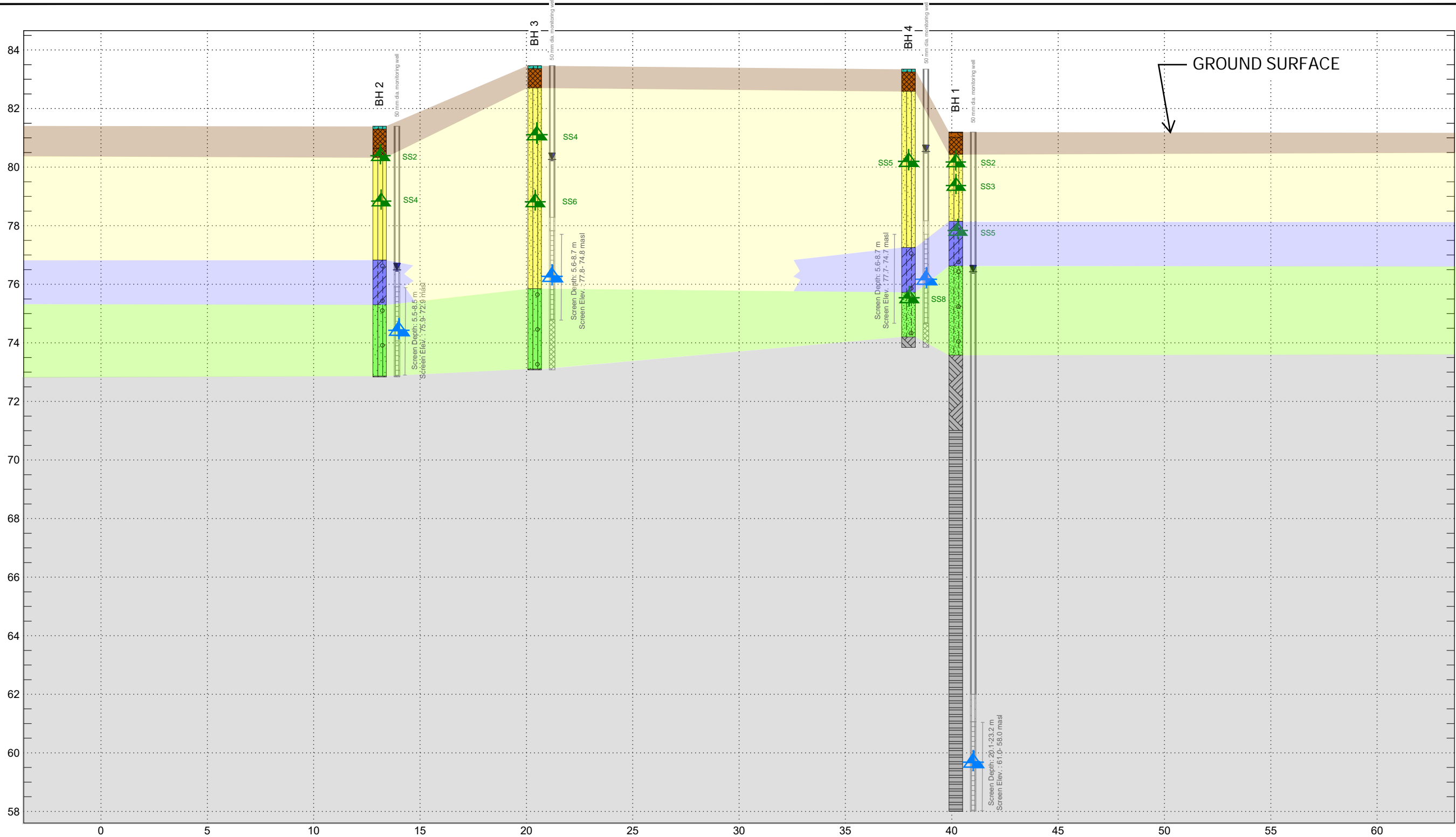
Scale  
AS INDICATED

Job No  
20-088

Figure No  
**FIGURE 6**

Alignment: B-B'  
From E614132, N4823384,  
to E614184, N4823414

Elevation (m)



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#### LEGEND

- FILL
- SILT TO SAND (not till)
- COHESIVE SOILS (clayey silt to clay, incl. tills)
- COHESIONLESS TILLS
- BEDROCK
- SS1 SAMPLE LOCATION MEETS STANDARD - SOIL
- GROUNDWATER
- water level, stabilized

Note  
The soil stratigraphy shown on the cross section between borehole locations is interpreted. The actual soil condition may vary

#### Reference

Project **PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**  
23 Elizabeth St. N., 42, 44, 46  
Park St. E., MISSISSAUGA  
ONTARIO, L5G 2Z4

#### Figure Title CROSS SECTION B-B'

North

Sample ID	Depth		Strata	Metals	H-Metals	ORPs	PHCs/BTEX
	mbgs	masl					
BH1 SS2	0.8 - 1.4	80.4-79.8	Silt and Sand	✓	✓	✓	✓
BH1 SS3	1.5 - 2.1	79.7-79.1	Silt and Sand	✓	✓	✓	
BH1 SS5	3.0 - 3.7	78.1-77.5	Glacial Till				✓
BH2 SS2	0.8 - 1.2	80.6-80.2	Fill	✓	✓	✓	✓
BH2 SS4	2.3 - 2.9	79.1-78.5	Silt and Sand	✓	✓	✓	✓
BH3 SS4	2.3 - 2.6	81.2-80.9	Silt and Sand	✓	✓	✓	✓
BH3 SS6	4.6 - 4.8	78.9-78.7	Silt and Sand	✓	✓	✓	✓
BH4 SS5	3.0 - 3.5	80.3-79.8	Silt and Sand	✓	✓	✓	✓
BH4 SS8	7.6 - 8.1	75.7-75.3	Glacial Till	✓	✓	✓	✓

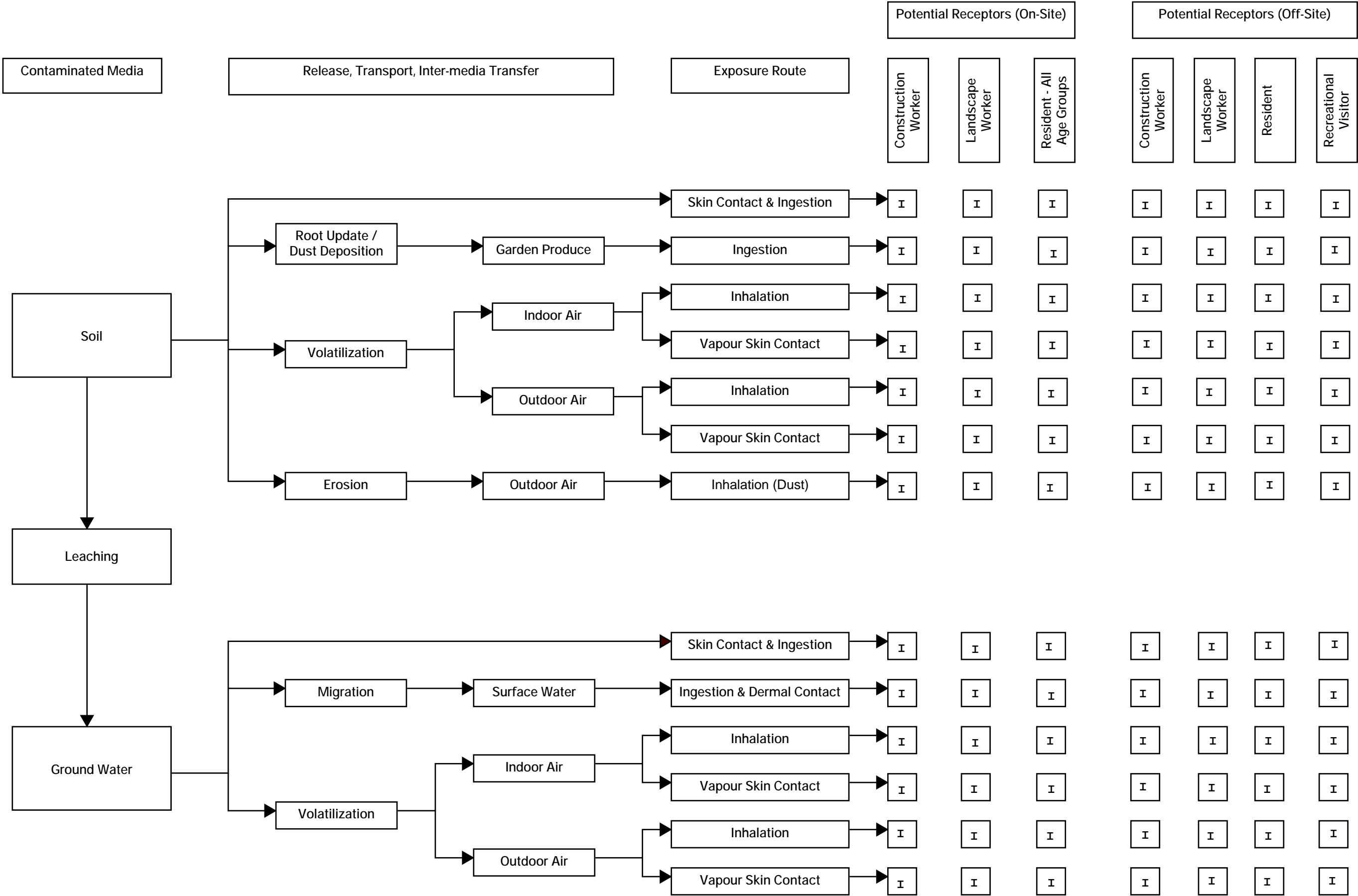
Sample ID	Screen Depth		Screen Strata	Metals	H-Metals	ORPs	PHCs/BTEX
	mbgs	masl					
BH1	20.1-23.2	61.0-58.0	Bedrock	✓	✓	✓	✓
BH2	5.5-8.5	75.9-72.9	Glacial Till	✓	✓	✓	✓
BH3	5.6-8.7	77.8-74.8	Silt and Sand to Glacial Till	✓	✓	✓	✓
BH4	5.6-8.7	77.7-74.7	Silty Sand to Glacial Till	✓	✓	✓	✓

Date  
JULY 2020

Scale  
AS INDICATED

Job No  
20-088

Figure No  
FIGURE 7



LEGEND

C

Pathway Complete

I

Pathway Incomplete

X

Pathway Blocked

N/A

Pathway Not Applicable for Receptor

Note

1. Constructions Workers are considered protective of Utility Workers

2.Landscape Workers are considered protective of Trespassers

3. Residents are considered protective of Long Term Workers, Short Term Works and Site Visitors

Project **PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**

23 Elizabeth St. N., 42, 44, 46  
Park St. E.,MISSISSAUGA  
ONTARIO, L5G 2Z4

Figure Title

**HUMAN HEALTH CSM**

Reference

Date

JULY, 2020

Scale

N/A

Job No

20-088

Figure No

**FIGURE 8**



