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A REPORT TO
PARADISE DEVELOPMENTS HERONS HILL INC.

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PROPOSED RESIDENTIAL DEVELOPMENT

1 HERON'S HILL WAY
CITY OF TORONTO

Reference No. 1906-E146
December 23, 2019

DISTRIBUTION

3 Copies - Paradise Developments Herons Hill Inc.

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It should be noted that the information supplied in this report is not sufficient to obtain approval for disposal of excess soil or materials generated during construction.

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1.0 EXECUTIVE SUMMARY

Soil Engineers Ltd. (SEL) was retained by Paradise Developments Herons Hill Inc. to carry out a Phase Two Environmental Site Assessment (Phase Two ESA), as defined by Ontario Regulation (O. Reg.) 153/04, as amended. The subject property is located at 1 Heron's Hill Way, Toronto (hereinafter referred to as "the subject site").

The purpose of the Phase Two ESA was to assess the soil and groundwater quality at the subject site, as related to the areas of potential environmental concern (APECs) identified in our Phase One Environmental Site Assessment (Phase One ESA).

The field work was performed at selected locations on the subject site. Soil and groundwater samples were collected and submitted for chemical analyses in accordance with the Ministry of the Environment, Conservation and Parks (MECP) Table 3, Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition, for Residential/Parkland/ Institutional Property Use and for medium and fine textured soils (Table 3 Standards), as published in the "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (EPA), dated April 15, 2011.

A review of the analytical test results of soil and groundwater samples indicates the tested parameters at the test locations meet the Table 3 Standards. Consequently, there are no contaminants identified at the subject site at a concentration above the applicable site condition standards (Table 3 Standards) during the Phase Two ESA.

Based on the findings of the Phase Two ESA, it is our opinion that the property is suitable for the proposed development. No further environmental investigation is recommended at this time.

2.0 INTRODUCTION

Soil Engineers Ltd. (SEL) was retained by Paradise Developments Herons Hill Inc. to carry out a Phase Two Environmental Site Assessment (Phase Two ESA), as defined by Ontario Regulation (O. Reg.) 153/04, as amended by O. Regs. 366/05, 66/08, 511/09, 245/10, 179/11, 269/11 and 333/13, herein referred to as O. Reg. 153/04. The subject property is located at 1 Heron's Hill Way, Toronto (hereinafter referred to as "subject site").

The purpose of the Phase Two ESA is to determine the soil and groundwater quality at the subject site, as related to the areas of potential environmental concern (APECs) identified in our Phase One Environmental Site Assessment (Phase One ESA).

2.1 Site Description

The subject site, irregular in shape, encompassing an approximate area of 0.65 hectares (1.61 acres) is located at 1 Heron's Hill Way, Toronto. The Property Identification Number (PIN) is 10085-1411 (LT). The legal description of the subject site is PART BLOCK 2 ON PLAN 66M2471, PARTS 3, 4 & 5 ON PLAN 66R27325, SALEHURST COURT IS CONFIRMED BY BOUNDARY ACT PLANS 66BA1802 & BA2103 BY REGISTERED INSTRUMENTS A887322 & C102690; SUBJECT TO AN EASEMENT IN GROSS OVER PART 3, PLAN 66R27325 AS IN AT2661981; TOGETHER WITH AN EASEMENT OVER PARTS 1 & 2, PLAN 66R27325 AS IN AT4192814; CITY OF TORONTO.

At the time of the assessment, the subject site consisted a commercial office with the associated parking area located at the western and central portions of the subject site. The remaining portion of the subject site is vacant land with no structures. The subject site is located in a mixed residential, industrial and commercial area within the City of Toronto. The neighboring properties consist of residential properties to the north, commercial properties to the east, light industrial, commercial and community properties to the south, commercial properties to the west and northwest.

The ground surface is relatively flat with minor undulations, and the grade of the subject site generally descends towards the southeast.

2.2 Property Ownership

This Phase Two ESA was commissioned to address the items of environmental concerns in accordance with our proposal dated August 9, 2019, as authorized on August 14, 2019 by Mr. Brandon Dilollo of Paradise Developments Herons Hill Inc. Our client can be contacted at:

Paradise Developments Herons Hill Inc.
1 Heron's Hill Way
Toronto, Ontario
M2J 0G2

Attention: Mr. Brandon DiLollo, P.Eng.

2.3 Current and Proposed Future Uses

Throughout the years, the subject site has been used for commercial purposes (offices) at the western and central portion. A residential development is proposed for the eastern portion of the subject site. It is anticipated that the new development will be provided with municipal services meeting urban standards.

2.4 Applicable Site Condition Standards

SEL has selected the applicable assessment criteria from O. Reg. 153/04 made under the Environmental Protection Act (EPA), to assess the analytical data from the submitted soil samples. The following information was used to select the appropriate criteria:

- The subject site is not considered to be sensitive based on the definition set forth in the O. Reg. 153/04, as the property is not within/adjacent/part of an area of natural significance, and analytical testing indicated the pH of tested surface soil samples is between 5 and 9 and subsurface soil sample is between 5 and 11.
- The subject site is not a shallow soil property, as the bedrock was not encountered within 2.0 m below ground surface (mbgs) during the investigation.
- Based on the information obtained from the Phase One ESA, there is no water well record for the subject site.
- No body of water is located on/within 30 m of the subject site boundaries.
- Full Depth Generic Site Condition criteria is to be used in this assessment.
- The intended property use of the subject site is residential.

- Grain size analyses were performed on four (4) soil samples retrieved from boreholes conducted during the investigation at various depths. The results included in Appendix 'A', show that more than 50 percent of the soil consists of particles that are smaller than 75 microneters in size. Therefore, standards for medium and fine textured soil has been applied (Refer Appendix A).
- A notice of intention to apply non-potable groundwater site condition standards in the assessment was forwarded to the City of Toronto. A copy of the request is provided in the Appendix 'B'.

Based on the above informtion, the Ministry of the Environment, Conservation and Parks (MECP) Table 3, Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition, for Residential/Parkland/Institutional Property Use and for medium and fine textured soils (Table 3 Standards) as published in the "Soil, Groundwater, Sediment Standards for use under part XV.1 of the Environmental Protection act" (EPA), April 15, 2011 has been selected for evaluating the environmental conditions at the subject site.

3.0 BACKGROUND

3.1 Physical Setting

Based on the information obtained from our Phase One ESA, the general physical setting of the subject site is summarized below:

The subject site is located within a mixed residential, industrial, and commercial area in the City of Toronto. The neighboring properties consisted of residential properties to the north, commercial properties to the east, light industrial, commercial and community properties to the south, commercial properties to the west and northwest.

According to the Surface Geology Map of the area, the subject site is located on Halton Till Material, which consists of predominantly silt to silty clay matrix. The Bedrock Geology Map shows the subject site is on undifferentiated units, the Georgian Formation; Blue Mountain Formation; Billings Formation; Collingwood member; Eastview member, which were deposited within the Upper Ordovician epoch. The rock description is shale, limestone, dolostone and siltstone. According to the Ontario Geological Survey Bedrock Cross Section Viewer, the bedrock at the subject site is overlain by approximately 87 m of drift.

Roadways (Heron's Hill Way and Yorkland Road) are adjacent to north side and west side of the subject site, respectively. The overall grade of the subject site generally descends to the southeast. A watershed map generated by the Toronto and Region Conservation Authority (TRCA) shows the subject site is located within the Don River Watershed.

Based on the review of the Areas of Natural Features and Protection Area Plan for listings of various classes of natural areas within the vicinity of the subject site, there is no Area of Natural Significance located at the subject site or adjacent properties.

3.2 Past Investigations

The following previous investigation report, completed by SEL for the subject site was reviewed as part of this Phase Two ESA:

- Phase One Environmental Site Assessment, Proposed Residential Development, 1 Heron's Hill Way, Toronto, Reference No. 1906-E146, dated September 18, 2019.

The Phase One ESA identified the Potentially Contaminating Activities (PCAs) at the subject site and in the Phase One Study Area that may contribute to Areas of Potential Environmental Concern (APECs) at the subject site, based on records review, interviews and site reconnaissance. The findings of the Phase One ESA include the following APECs:

APEC 1: Potential soil impact at the eastern and southern portions of the subject site due to presence of fill material of unknown quality.

APEC 2: Potential soil and/or groundwater impact at the northern portion of the subject site due to former fuel storage tank located to the north of the subject site.

APEC 3: Potential soil and/or groundwater impact at the northern portion of the subject site due to commercial printing and photoprocessing activities to the north of the subject site.

APEC 4: Potential soil and/or groundwater impact at the northwestern portion of the subject site due to commercial printing and photoprocessing activities and fuel oil tank to the northwest of the subject site.

APEC 5: Potential soil and/or groundwater impact at the southwestern portion of the subject site due to photoprocessing activities to the southwest of the subject site.

APEC 6: Potential soil and/or groundwater impact at the southern portion of the subject site due to architectural molding manufacturing to the south of the subject site.

APEC 7: Potential soil and/or groundwater impact at the southeastern portion of the subject site due to commercial printing to the southeast of the subject site.

The locations of PCAs and APECs are illustrated on Drawing Nos. 1 and 2.

4.0 SCOPE OF THE INVESTIGATION

4.1 Overview of Site Investigation

The purpose of this investigation (Phase Two ESA) is to assess the soil and groundwater quality at the subject site, as related to the APECs identified in our Phase One ESA. This Phase Two ESA was conducted in general conformance with the CSA Standard Z769-00 and O. Reg. 153/04.

The scope of work for this investigation includes:

- Locate the underground and overhead utilities.
- Conduct nine (9) boreholes to depths ranging from 2.9 to 6.1 mbgs and collect seven (7) shallow soil samples to a depth of 0.4 mbgs.
- Collect representative soil samples from the sampling locations.
- Undertake field examination of the retrieved soil samples for visual and olfactory evidence of potential contamination.
- Undertake soil vapour measurements for the retrieved soil samples using a combustible gas detector (RKI Eagle) in methane elimination mode.
- Install six (6) monitoring wells in the selected boreholes for groundwater sampling and testing.
- Conduct groundwater monitoring and collect groundwater samples for chemical testing.
- Carry out analytical testing program on selected soil and groundwater samples including quality assurance and quality control (QA/QC) samples for one or more of the following parameters: petroleum hydrocarbon compounds (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and Metals and Inorganic parameters.
- Review analytical testing results of submitted soil and groundwater samples using applicable Site Condition Standards.
- Prepare a Phase Two ESA report containing the findings of the investigation.

The rationale for the selection of sampling locations is presented in the Sampling and Analysis Plan, Appendix 'C'.

4.2 Media Investigated

Based on the findings of the Phase One ESA, soil and groundwater media were investigated during the Phase Two ESA in accordance with the Sampling and Analysis Plan provided in Appendix 'C'. Sediment was not identified as potentially contaminated media in our Phase One ESA. Consequently, no sediment investigation was conducted as part of this Phase Two ESA.

Boreholes were advanced using a conventional drilling rig equipped with a split spoon soil sampler. Soil samples were logged in the field and head space vapour screening was conducted for all retrieved soil samples using a combustible headspace gas detector (RKI Eagle) in methane elimination mode, calibrated with hexane and having a minimum detection level of 2 parts per million by volume (ppm).

Groundwater monitoring wells were installed in all boreholes. The monitoring wells were constructed using 50 mm diameter flush-joint threaded PVC monitoring well supplies. They were completed with 3.0 m in length intake screen. Groundwater sampling was conducted using dedicated low-density polyethylene tubing and laboratory-supplied containers (prepared with preservative for the analyses being conducted).

4.3 Phase One Conceptual Site Model

A plan, illustrating the features of the subject site and surrounding areas within 250 m from the subject site boundaries including the locations of PCAs, is presented in Drawing No. 1.

4.4 Deviations From Sampling and Analysis Plan

No deviations from the sampling and analysis plan were encountered.

4.5 Impediments

No impediments were encountered during the investigation for the Phase Two ESA.

5.0 INVESTIGATION METHOD

5.1 General

The Phase Two ESA was carried out in accordance with the Sampling and Analysis Plan provided in Appendix 'C' and in accordance with the SEL Standard Operating Procedures.

The Phase Two ESA consisted of drilling nine (9) boreholes, installation of six (6) monitoring wells in the selected boreholes, and collecting seven (7) shallow soil samples, field measurements, monitoring, and collection of soil samples from the soil sampling locations and groundwater samples from the installed monitoring wells for chemical analyses. The soil and groundwater samples were assessed for the potential contamination with respect to the APECs identified by the Phase One ESA.

The sampling and decontamination procedures were conducted in accordance with the "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", May 1996, revised December 1996, as amended by O. Reg. 511/09.

Laboratory analytical methods, protocols and procedures were carried out in accordance with the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", dated March 9, 2004, amended as of July 1, 2011, in accordance with O. Reg. 511/09 and O. Reg. 269/11.

5.2 Drilling and Excavating

Prior to the field work, the underground utilities were located and marked out in the field by representatives of the major utility companies and a private locator (CL. Underground Locates Inc.).

The field work for this investigation was conducted between August 14 and October 21, 2019 and consisted of conducting nine (9) boreholes (designated as BH1 to BH9) to depths ranging from 2.9 to 6.1 mbgs, and and collecting seven (7) shallow soil samples to a depth of 0.4 mbgs. The selected boreholes (BH1, BH2, and BH6 to BH9) were completed as monitoring well for groundwater observation, sampling and testing. The locations of the boreholes and monitoring wells are shown in Drawing No. 2.

The boreholes were advanced using conventional drilling rigs equipped with a split spoon soil sampler, supplied by the specialist drilling contractors, DBW Drilling Ltd. and Sonic Soil Sampling Inc., and the shallow soil samples using a steel spade. Soil samples retrived from boreholes were recovered at regular intervals, using a split spoon soil sampler, for soil vapour measurement, soil classification and visual and olfactory observations of potential contmination.

Drilling and sampling equipment such as drill rigs, augers, drill pipes, drilling rods, split-spoons, and steel shovel are decontaminated prior to initial use, between borehole locations and at the completion of drilling activities. The drilling equipment is manually scrubbed with a brush using a phosphate-free solution and power washed to remove any adhered soils, foreign material and potential contaminants. In addition, any of sampling equipment is decontaminated prior to each usage.

The field work was monitored by a SEL environmental technician who recorded the findings and observations.

5.3 Soil: Sampling

Soil samples from the boreholes were retrieved at regular intervals, using a split spoon soil sampler and from the test pits were retrieved using a steel spade. Prior to recovering a sample, the sampling equipment was brushed clean using a solution of phosphate-free detergent and distilled water, and each discrete sample was handled by the sampler with new disposable gloves in order to avoid the risk of cross-contamination between the samples. Each soil sample was split with part of the sample sealed in a laboratory-prepared glass jar and stored in a cooler with ice, and the remainder of the sample sealed in a double sealable bag for vapour measurement and soil classification. A small amount of the soil sample was retrieved by a disposable 'T' shaped Terracore sampler and the soil samples from the Terracore sampler were stored in methanol vials for F1 and VOCs analyses.

The subsoil conditions at the borehole locations indicate a layer of topsoil, granular and fill material (sandy silt to silty sand) underlain by silt, sandy silt till, silty clay, and silty clay till at various depths and locations. No bedrock was encountered during the Phase Two ESA. Detailed descriptions of the encountered subsurface conditions are presented on the Borehole

Logs provided in Appendix 'D'.

Generally the representative worst case soil samples from each borehole were selected and sent to the laboratory for chemical analyses, based on the soil vapour measurements and visual and olfactory observations. However, in absence of any evidence of elevated vapor or contamination/unusual observation, the soil samples were selected according to the contaminant of concerns (COCs) behavior (i.e. near the potential source for metals and PAHs, at the zone of water bearing for PHCs, and below the water table for VOCs).

5.4 Field Screening Measurements

The headspace vapour concentrations were measured using a portable RKI Eagle gas detector, TYPE 101 (Serial Number: E091011) set to include combustible gases with the exception of methane (methane elimination mode), and having a minimum detection level of 2 parts per million by volume (ppm). Prior to taking the measurements, the instrument was calibrated to hexane standards for both ppm and lower explosive level (LEL) according to the instruction manual for the instrument. Our technician was trained by the supplier for the proper calibration procedure. The instrument is calibrated or tuned up by the supplier (Pine Environmental Services Inc.) seasonally. The results of the soil vapour measurement are presented in the Borehole Logs, Appendix 'D'.

5.5 Groundwater: Monitoring Well Installation

A total of six (6) monitoring wells were installed at the subject site by DBW Drilling Ltd. and Sonic Soil Sampling Inc. The monitoring wells were constructed using 50 mm diameter PVC screen, 3m in length at the bottom of the borehole. A PVC riser, capped at the top, was installed from the screen section above the top grade for the MW 6. A sand pack, consisting of clean silica sand, was placed around the screened zone with a bentonite seal placed above the sand pack. The top of each well was sealed with concrete to approximately 0.3 mbgs. At each monitoring well location, the above ground riser was protected by a steel monument or flushmount casing that have been sealed into ground with concrete. The monitoring well construction details are provided on the Borehole Logs in Appendix 'D' and in Table I.

The monitoring wells installed at the subject site were instrumented with dedicated low-

density polyethylene tubing to facilitate well development, purging and sampling requirements.

Groundwater development was performed on August 28, 2019. The monitoring wells have been developed to remove any fluids that may have been introduced into the well during drilling and to remove particles that may have become entrained in the well and filter pack (three well casing volumes of groundwater in each well). Purged water was contained and stored at the subject site for future disposal.

5.6 Groundwater: Field Measurement of Water Quality Parameters

Groundwater monitoring and/or purging was conducted at the subject site on August 29, 2019. Water level measurements were taken using a water level meter (Dipper-T) equipped with a thermometer. Groundwater observations were recorded for colour, clarity, the presence or absence of any free product / surface sheen and any odours present during developing the wells. The water level measuring device was cleaned after each measurement using Alconox solution and water, followed by a distilled water rinse and a methanol rinse, in order to prevent cross-contamination between monitoring wells. The records of water level measurement and temperature are presented in Table II.

5.7 Groundwater: Sampling

Groundwater sampling was conducted on August 29, 2019, after purging and allows the water to stabilize. The groundwater purging and sampling activities were carried out using dedicated low-density polyethylene tubing. Groundwater samples were collected into laboratory-supplied containers, prepared with preservative for the analysis being conducted. The samples scheduled for analysis of metals were passed through a 0.45 micron filter as part of the sampling process.

5.8 Sediment: Sampling

Sediment was not assessed as part of this investigation.

5.9 Analytical Testing

The soil and groundwater samples were analysed by Bureau Veritas Laboratories (BV Labs),

in Mississauga, Ontario. BV Labs is accredited by Canadian Association for Laboratory Accreditation (CALA) in accordance with ISO/IEC 17025:2005 – "General Requirements for the Competence of Testing and Calibration Laboratories" for all the parameters analysed during this investigation.

5.10 Residue Management Procedures

Excess soil generated from the drilling program for the investigation was stored at the subject site in metal barrels. Groundwater purged from the monitoring wells was stored in containers, using a separate container for each well. The metal barrels and containers are clearly marked and stored temporarily at the subject site for later disposal.

5.11 Elevation Surveying

The ground surface at the borehole locations were surveyed using a Rugby 620 Rotating Laser (Serial No. 10946205337). The elevations of the boreholes were established using the top of catch basin (CB) as a benchmark (BM). The geodetic elevation of the CB is 176.26 meters abobe sea level (masl).

The elevations at the borehole and monitoring well locations are presented in the Table II and borehole/monitoring well logs in Appendix 'D'.

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

The soil and ground water sampling and analysis plan provided in Appendix 'C' was prepared and executed based on the findings of our Phase One ESA.

The Phase Two ESA was carried out in accordance with the Sampling and Analysis Plan and in accordance with the SEL Standard Operating Procedures.

The sampling and decontamination procedures were conducted in accordance with the "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", May 1996, revised December 1996, as amended by O. Reg. 511/09.

Laboratory analytical methods, protocols and procedures were carried out in accordance with the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1

of the Environmental Protection Act", dated March 9, 2004, amended as of July 1, 2011, in accordance with O. Reg. 511/09 and O. Reg. 269/11.

Field observations were made and documented in a field book in accordance with generally accepted practices and with the procedures developed and utilized by SEL.

SEL field sampling QA/QC protocols, applied to the investigation, are as follows:

- The collection of at least one field duplicate sample per ten (10) samples for every sampling media (where three or more such samples are collected).
- Where volatile organic chemical analysis is required, the collection of discrete samples directly into laboratory-prepared sample vials and immediate placement into a cooler with ice to maintain the temperature at less than 10 ^{o}C for transport to the laboratory.
- The use of dedicated equipment (bailers, Waterra tubing, etc.) for groundwater sampling at different monitors and the thorough cleaning of soil sampling equipment between sample sites.
- If trace organics in the collected samples are anticipated (organic chemicals with a concentration of less than 1 µg/g), precautions are made to avoid any possible cross-contamination (eliminating bare hand or latex glove contacts with the soil or water); soil sampling equipment used for the collection of trace organics are cleaned using a phosphate-free detergent and water, followed by a distilled water rinse and a methanol rinse between sampling locations.
- The inclusion of one trip blank for water samples per submission (where three or more samples are collected) for VOC parameters; the bottles containing the trip blank are prepared by the laboratory; QA/QC samples are kept in the cooler on ice for the duration of the sampling event, and returned to the laboratory for analyses.

The results of the field duplicate and trip blank samples are discussed in Section 6.9 of this report.

6.0 REVIEW AND EVALUATION

6.1 Geology

Detailed descriptions of the encountered subsoil conditions are presented on the Borehole Logs provided in Appendix 'D'. The subsoil conditions at the borehole locations indicate a layer of topsoil, granular and fill material (sandy silt to silty sand) underlain by silt, sandy silt till, silty clay, and silty clay till at various depths and locations. No bedrock was encountered during the Phase Two ESA. The location of cross sections for soil stratigraphy at the subject site is presented on Drawing No. 3. Geological Cross Sections, A-A' and B-B' are presented on Drawing No. 4.

The descriptions of the strata, encountered at the borehole locations, are briefly discussed below.

Topsoil

A layer of topsoil, approximately 0.15 to 0.3 m in thickness, was contacted at the ground surface at the locations of all boreholes excepth the BH7 location.

Granular Fill

A layer of granular fill, approximately 0.6 m in thickness, was located beneath the topsoil at the BH4 location to a depth of 0.8 mbgs.

Fill Material

At the borehole locations, a layer of fill material consist of sandy silt to silty sand, was encountered beneath the topsoil or granular fill. This fill material extends to the depths ranging from 1.2 to 3.2 mbgs in BH8 and BH6, respectively.

Silt

Silt deposit was encountered at depths ranging from 2 to 2.9 mbgs and extending to depths ranging from 4 to 5.2 mbgs at the locations of BH1 and BH4, respoectively. The BH4 was terminated in this deposit.

Sandy Silt Till

sandy silt till was encountered at BH1, BH2, and BH6 locations at depths rangiong from 3.2 to 4.6 mbgs and extending to a depth of 6.1 mbgs. BH1, BH2, and BH6 were terminated in sandy silt deposit.

Silty Clay

Silty clay was encountered at depths ranging from 2.1 to 2.7 mbgs in BH2, BH3, and BH5. The silty clay deposit extends to depths ranging from 2.9 to 5.2 mbgs. The BH3 and BH5 were terminated in this deposits at depths of 5.2 and 2.9 mbgs, respectively.

Silty Clay Till

Silty clay till deposit was encountered at depths ranging from 1.2 to 2.3 mbgs at BH7, BH8, and BH9 Locations. These boreholes boreholes were terminated in the silty clay till deposit at depths ranging from 4.6 to 6.1 mbgs.

Hydrogeology

On completion of the drilling activities, no groundwater was detected in the boreholes/ monitoring wells. Based on the field observation and groundwater monitoring records (as indicated in the section below), shallow groundwater is present in the silt, silty clay, sandy silt till, and silty clay till deposits. This hydrogeologic unit at the subject site was investigated for this Phase Two ESA.

6.2 Groundwater: Elevations and Flow Direction

Six (6) monitoring wells were installed at all borehole locations during the field investigation for the Phase Two ESA between August 14 to 20, 2019. The monitoring wells were inalled at depths ranging from 4.3 to 6.1 mbgs. Groundwater records were documented during the drilling of boreholes and during the groundwater purging and monitoring on the dates indicated above in Sections 5.5 and 5.6 of this report.

On completion of the drilling, no groundwater was detected in any of the boreholes/ monitoring wells. On August 29, 2019 during groundwater monitoring round, water levels were recorded at depths of 2.52, 2.28, 3.21, 2.82, 1.05, and 1.20 mbgs in MW1, MW2, MW6,

MW7, MW8, and MW9, respectively.

The ground surface and groundwater elevations at the monitoring well locations were established using the geodetic catch basin (CB) located on the southern portion of the subject site, as shown in Drawing No. 5, as a benchmark (BM). The geodetic elevation of the CB is 176.26 m.

Water level measurements were taken using a water level meter (Dipper-T) equipped with a thermometer. The top of the well casings were used as a reference point to determine the groundwater table. The measurements were reduced to static elevations based on the monitoring well survey data. Shallow groundwater levels, recorded on August 29, 2019, were used to determine the shallow groundwater flow direction. Based on the groundwater monitoring records, the groundwater flow direction appears to be to the northeast. No free product or surface sheen was observed in any of the monitoring wells.

The groundwater elevations measured in the monitoring wells are summarized in Table II. The shallow groundwater contours and interpreted ground water flow direction are shown in Drawing No. 5.

6.3 Groundwater: Hydraulic Gradients

Based on the groundwater records of August 29, 2019, the horizontal hydraulic gradient for the investigated aquifer within the silt, silty clay, sandy silt till, and silty clay till deposits at the subject site is between 0.008 m/m to 0.012 m/m (average 0.010 m/m).

6.4 Soil Texture

Grain size analyses were performed on four (4) soil samples retrieved at various depths of the borheoles conducted during the investigation. The results, included in Appendix 'A', show that more than 50 percent of the soil consists of particles that are smaller than 75 micrometres in size. Therefore, medium and fine textured soil standard has been applied.

6.5 Soil: Field Screening

Head space vapour screening was conducted for all retrieved soil samples using a combustible gas detector (RKI Eagle) in methane elimination mode, calibrated with hexane and having a

minimum detection level of 2 ppm or 0.1 LEL.

Soil vapour readings of non-detect to 0.9 LEL were recorded for the collected soil samples

6.6 Soil Quality

A representative "worst case" soil sample from each sampling location was selected based on the soil vapour measurements and visual and olfactory observations. The selected soil samples were submitted to the laboratory for chemical analyses of PHCs, VOCs, PAHs, and Metals and/or Inorganic parameters.

The soil test results were reviewed using the MECP Table 3, Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition, for Residential/Parkland/ Institutional Property Use and for medium and fine textured soils (Table 3 Standards), as published in the "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (EPA), dated April 15, 2011.

Soil quality data containing results of the chemical analyses for the tested parameters in the soil samples is presented in Table III. Maximum concentrations of the tested parameters in soil are presented in Table V.

A copy of the Certificates of Analysis for the soil samples is presented in Appendix 'E'.

The findings of the soil test results are summarized below.

Petroleum Hydrocarbons (PHCs)

Four (4) original soil samples were submitted for analysis of PHCs. The test results indicate that the tested parameters in the soil samples meet the Table 3 Standards.

Volatile Organic Compounds (VOCs)

Eight (8) original soil samples and one (1) field duplicate sample were submitted for analysis of VOCs. The test results indicate that the tested parameters in the soil samples meet the Table 3 Standards.

Polycyclic Aromatic Hydrocarbons (PAHs)

Four (4) original soil samples were submitted for analysis of PAHs. The test results indicate that the tested parameters in the soil samples meet the Table 3 Standards.

Metals and/or Inorganic Parameters

Nineteen (19) original soil samples and three (3) duplicated soil samples were submitted for analysis of Metal and/or Inorganic Parameters. The test results indicate that the tested parameters in the soil samples meet the Table 3 Standards.

6.7 Groundwater Quality

Groundwater samples collected from the six (6) monitoring wells at the subject site were submitted to the laboratory for chemical analyses of PHCs, VOCs, and Metals.

The groundwater test results were reviewed using the MECP Table 3, Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition, for All Types of Property Use and for medium and fine textured soils (Table 3 Standards), as published in the "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (EPA), dated April 15, 2011.

Groundwater quality data containing results of the chemical analyses for the tested groundwater samples is presented in Table IV. Maximum concentrations of the tested parameters in groundwater are presented in Table VI.

A copy of the Certificate of Analysis for the groundwater samples is presented in Appendix 'F'.

The findings of the groundwater test results are summarized below.

Petroleum Hydrocarbons (PHCs)

Two (2) original groundwater samples were submitted for analysis of PHCs. The test results indicate that the tested parametres in the groundwater samples meet the Table 3 Standards.

Volatile Organic Compounds (VOCs)

Six (6) original groundwater samples, one (1) field duplicated groundwater sample, and one (1) trip blank sample were submitted for analysis of VOCs. The test results indicate that the tested parametres in the groundwater samples meet the Table 3 Standards.

Metals

Six (6) original groundwater sample and one (1) field duplicate groundwater sample were submitted for analysis of metals. The test results indicate that the tested parametres in the groundwater sample meet the Table 3 Standards.

6.8 Sediment Quality

Sediment was not assessed as part of this investigation.

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

The Phase Two ESA was carried out in accordance with the Sampling and Analysis Plan and in accordance with the SEL Standard Operating Procedures.

The sampling and decontamination procedures were conducted in accordance with the "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", May 1996, revised December 1996, as amended by O. Reg. 511/09.

Laboratory analytical methods, protocols and procedures were carried out in accordance with the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", dated March 9, 2004, amended as of July 1, 2011, in accordance with O. Reg. 511/09 and O. Reg. 269/11 (herein referred to as Analytical Protocol).

6.9.1 Field Quality Assurance and Quality Control (QA/QC) Samples

As part of the QA/QC program for the Phase Two ESA, QC samples in the form of field duplicate and trip blank samples were analysed. Field duplicate samples were collected in the field for the analysis of metals, inorganics, and VOCs in soil and metals and VOCs in groundwater. One (1) trip blank for VOCs was shipped with the batch of the groundwater

samples submitted for the analyses.

Field Duplicate

A total of five (5) field duplicate soil samples and two (2) field duplicate groundwater samples were collected and submitted for chemical analyses. Details of duplicate sampling and analysis are presented in the Table below.

Duplicate Sample ID	Original Sample ID	Media	Test Conducted
D1	BH8 SS3	Soil	Metals
DUP-S	BH8/1	Soil	Metals
Dup-SA	SA1	Soil	Inorganics
Dup-SA2	SA5	Soil	Inorganics
D2	BH7 SS3	Soil	VOCs
DupGW1	MW1	Groundwater	Metals
DupGW2	MW9	Groundwater	VOCs

The results of the analyses of the field duplicate samples are similar to the results for the original sample and relative percent differences (RPDs) for the detectable tested parameters are within the acceptable range with the exception of sample BH8 SS1 and its duplicate DUP-S. This is attributable to hetergenity of fill material. Both the primary and duplicate sample results meet the applicable Standard. the RPDs could not be calculated between the original and duplicate samples in the situation where the average of the original and/or duplicate samples were below five (5) times the reported laboratory detection limits (RDLs).

Trip Blank

One (1) trip blank sample was submitted to the laboratory for analysis of VOCs. The tested parametres in the trip blank sample were found to be below the reported laboratory detection limits (RDLs). There was no issue with the trip blank that was shipped with the batch of the groundwater samples submitted for analysis.

The Certificates of Analysis for the QA/QC samples are included in Appendices 'E' and 'F'.

6.9.2 Sample Handling in Accordance with the Analytical Protocol

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

6.9.3 Certification of Results

Based on the review of the QA/QC sample results for the soil and groundwater samples in this investigation, the Chain of Custody forms and the laboratory Certificate of Analysis, it is certified that:

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

6.9.4 Data Validation

The Analytical Protocol establishes acceptance limits for use when assessing the reliability of data reported by analytical laboratories, including maximum holding times for the storage of samples/sample extracts between collection and analysis, analytical methods, field and/or laboratory quality assurance samples, recovery ranges for spiked samples and surrogates, RDLs, mandatory maximum method detection limits and precision required when analyzing laboratory replicate and spiked samples.

The review of the data in the Certificates of Analysis indicates:

- All samples/sample extracts were analyzed within their applicable holding times using approved analytical methods.
- No tested parameters were detected in any laboratory blank samples.
- The RDLs were met for all tested parameters.
- The result of the laboratory duplicate samples are similar to the results for the original samples and relative percent differences for the detectable tested parameters are within the acceptable range.

6.9.5 Data Quality Objectives

In conclusion, the overall quality of field data did not affect decision making and the overall objectives of the investigation were met.

6.10 Phase Two Conceptual Site Model

The Phase Two Conceptual Site Model is prepared based on the findings of the Phase One Environmental Site Assessment (Phase One ESA) and this Phase Two Environmental site Assessment (Phase Two ESA).

6.10.1 Description and Assessment

The subject site, irregular in shape, encompassing an approximate area of 0.65 hectares (1.61 acres) is located at 1 Heron's Hill Way, Toronto (subject site). The Property Identification Number (PIN) is 10085-1411 (LT). The legal description of the subject site is PART BLOCK 2 ON PLAN 66M2471, PARTS 3, 4 & 5 ON PLAN 66R27325, SALEHURST COURT IS CONFIRMED BY BOUNDARY ACT PLANS 66BA1802 & BA2103 BY REGISTERED INSTRUMENTS A887322 & C102690; SUBJECT TO AN EASEMENT IN GROSS OVER PART 3, PLAN 66R27325 AS IN AT2661981; TOGETHER WITH AN EASEMENT OVER PARTS 1 & 2, PLAN 66R27325 AS IN AT4192814; CITY OF TORONTO.

6.10.1.1 Areas where Potentially Contaminating Activity Has Occurred

Potentially Contaminating Activities (PCAs) were identified at the subject site and in the Phase One Study Area, based on the records review, the interview and the site reconnaissance. The areas of PCAs along with the corresponding list in Table 2 Schedule D of O. Reg. 153/04 are summarized below:

On-Site PCAs

- Fill material of unknown quality is located at the southern and eastern portions of the subject site # 30 Importation of Fill Material of Unknown Quality.

Off-site PCAs:

- Presence of a former fuel storage tank located to the north of the subject site # 28: Gasoline and Associated Products Storage in Fixed Tanks.
- Commercial printing and photoprocessing activities to the north of the subject site # 31: Ink Manufacturing, Processing and Bulk Storage.
- Commercial printing and photoprocessing activities and fuel oil tank to the

northwest of the subject site # 28: Gasoline and Associated Products Storage in Fixed Tanks, and # 31: Ink Manufacturing, Processing and Bulk Storage.

- Presence of photoprocessing activities to the southwest of the subject site # 31: Ink Manufacturing, Processing and Bulk Storage.
- Presence of architectural molding manufacturing to the south of the subject site # 26: Foam and Expanded Foam Manufacturing and Processing.
- Presence of commercial printing to the southeast of the subject site #31: Ink Manufacturing, Processing and Bulk Storage.

The locations of the PCAs are shown on Drawing No. 1.

6.10.1.2 Areas of Potential Environmental Concern

The Phase One ESA were identified the following Areas of Potential Environmental Concern (APECs) at the subject site.

APEC 1: Potential soil impact at the eastern and southern portions of the subject site due to presence of fill material of unknown quality.

APEC 2: Potential soil and/or groundwater impact at the northern portion of the subject site due to former fuel storage tank located to the north of the subject site.

APEC 3: Potential soil and/or groundwater impact at the northern portion of the subject site due to commercial printing and photoprocessing activities to the north of the subject site.

APEC 4: Potential soil and/or groundwater impact at the northwestern portion of the subject site due to commercial printing and photoprocessing activities and fuel oil tank to the northwest of the subject site.

APEC 5: Potential soil and/or groundwater impact at the southwestern portion of the subject site due to photoprocessing activities to the southwest of the subject site.

APEC 6: Potential soil and/or groundwater impact at the southern portion of the subject site due to architectural molding manufacturing to the south of the subject site.

APEC 7: Potential soil and/or groundwater impact at the southeastern portion of the subject site due to commercial printing to the southeast of the subject site.

The locations of the APECs are shown on Drawing No. 2.

6.10.1.3 Subsurface Structures and Utilities

At the time of the assessment, the subject site consisted a commercial office with the associated parking area located at the western and central portions of the subject site. The remaining portion of the subject site is vacant land with no structures. Underground utilities were located in vicinity of the building.

Since no contaminants are found at the subject site at a concentration above the applicable site condition standard, no subsurface structures or utilities with the potential to affect contaminants distribution or transport are identified at the subject site.

6.10.2 **Physical Setting**

6.10.2.1 Stratigraphy

According to the surface and bedrock geology maps of the area, the subject site is located on Halton Till Material, which consists of predominantly silt to silty clay matrix. The Bedrock Geology Map shows the subject site is on undifferentiated units, the Georgian Formation; Blue Mountain Formation; Billings Formation; Collingwood member; Eastview member, which were deposited within the Upper Ordovician epoch. The rock description is shale, limestone, dolostone and siltstone.

The field investigation for this Phase Two ESA consisted of conducting nine (9) boreholes (designated as BH1 to BH9) to depths ranging from 2.9 to 6.1 metres below ground surface (mbgs) and seven (7) hand-dug test pits to a depth of 0.4 mbgs. The subsoil conditions at the borehole locations indicate a layer of topsoil, granular and fill material (sandy silt to silty sand) underlain by silt, sandy silt till, silty clay, and silty clay till at various depths and locations. No bedrock was encountered during the Phase Two ESA. Detailed descriptions of the encountererd conditions are presented on the Borehole Logs provided in Appendix 'D'.

The Sampling Location Plan is shown in Drawing No. 2. The locations of cross-sections for soil stratigraphy at the subject site are presented in Drawing No. 3. Geological Cross-sections A-A' and B-B' are presented in Drawing No. 4.

6.10.2.2 Hydrogeological Characteristics

The subject site is located in a larger hydrogeological region known as the Southern Ontario Region. A Watershed Map provided by the Toronto and Region Conservation Authority (TRCA), shows the subject site is located within the Don River Watershed.

Six (6) monitoring wells (designated as MW1, MW2, and MW6 to MW9) were installed at the selected borehole locations during the field investigation for the Phase Two ESA. The monitoring wells were installed at depths ranging from 4.3 to 6.1 mbgs. Based on the groundwater records, the groundwater flow direction appears to be southeasterly. The shallow groundwater contours and interpreted groundwater flow direction are shown in Drawing No. 5.

Based on the groundwater records of the investigation for the Phase Two ESA, the horizontal hydraulic gradient for the investigated aquifer at the subject site is between 0.008 m/m to 0.012 m/m (average 0.010 m/m).

6.10.2.3 Approximate Depth to Bedrock

Bedrock was not encountered at the subject site during the field investigation within the maximum drilling depth of 6.1 mbgs. According to the Ontario Geological Survey Bedrock Cross Section Viewer, the bedrock at the subject site is overlain by approximately 87 m of drift.

6.10.2.4 Approximate Depth to Water Table

Groundwater records for this investigation, depth to the water table at the subject site ranges from 1.05 to 3.21 mbgs.

6.10.2.5 Section 41 or 43.1 of the Regulation

There is no area of natural significance at the subject site or within 30 m from the subject site boundaries. The analytical results indicated that the pH value of the tested parameters in the soil samples is between 5 and 9 for surface soil, and between 5 and 11 for subsurface soil. Therefore, Section 41 of the Ontario Regulation (O.Reg.) 153/04 (Site Condition Standards, Environmental Sensitive Areas) does not apply to the subject site.

The subject site is not a shallow soil property, as the bedrock was not encountered within 2 mbgs during the investigation. There is no water body at the subject site or within 30m from the subject site boundaries. Therefore, Section 43.1 of the O.Reg. 153/04 (Site Condition Standards, Shallow Soil Property or Water Body) does not apply to the subject site.

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

The findings of the Phase One ESA indicated presence of fill material at the southern and eastern portions of the subject site. The field investigation of the Phase Two ESA indicate fill material at the subject site. The encountered fill material was assessed during this Phase Two ESA.

6.10.2.7 Grain Size Analysis

Grain size analyses were performed on four (4) soil samples retrieved at various depths of the borheoles conducted during the investigation. The results, included in Appendix 'A', show that more than 50 percent of the soil consists of particles that are smaller than 75 micrometres in size. Therefore, medium and fine textured soil standard has been applied.

6.10.2.8 Proposed Building and Other Structures

A residential development is being proposed for the subject site. It is anticipated that the new development will be provided with municipal services meeting urban standards. The location of proposed buildings or any other structures was not known at the time of preparation of this Phase Two Conceptual Site Model.

6.10.3 **Contamination In or Under the Phase Two Property**

Based on the findings of the Phase One ESA, contaminants of potential concern in soil and groundwater with respect to the identified Areas of Potential Environmental Concern (APECs) at the subject site were assessed during the Phase Two ESA.

Based on the information obtained from the Phase One ESA and Phase Two ESA, the Ministry of the Environment, Conservation and Parks (MECP) Table 3, Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition, for Residential/Parkland/ Institutional Property Use and for medium and fine textured soils (Table 3 Standards), as

published in the "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (EPA), April 15, 2011, has been selected for assessing the soil and groundwater condition at the subject site.

6.10.3.1 Area Where Contaminants are Present

Soil and groundwater samples were collected during the Phase Two ESA and submitted for chemical analyses of one or more of the following parameters: petroleum hydrocarbon compounds (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and Metals and/or Inorganic parameters.

A review of the analytical test results of soil and groundwater samples indicate that the tested samples for tested parameters meet the Table 3 Standards.

Consequently, there are no contaminants identified at the subject site at a concentration above the applicable site condition standards (Table 3 Standards) during the Phase Two ESA.

6.10.3.2 Distribution of Contaminants

No contaminants are identified at the subject site at a concentration above applicable site condition standards.

6.10.3.3 Contaminant Medium

No contaminants are identified at the subject site at a concentration above applicable site condition standards.

6.10.3.4 Reasons for Discharge

No contaminants are identified at the subject site at a concentration above applicable site condition standards.

6.10.3.5 Migration of Contaminants

No contaminants are identified at the subject site at a concentration above applicable site condition standards.

6.10.4 Potential Exposure Pathways and Receptors

Since no contaminants are identified at the subject site at a concentration above the applicable site condition standard (Table 3 Standards), no potential exposure pathways and receptors are identified.

7.0 CONCLUSIONS

The purpose of the Phase Two Environmental Site Assessment (Phase Two ESA) was to determine the soil and groundwater quality at the subject site, as related to the following Areas of Potential Environmental Concern (APECs) identified in our Phase One Environmental Site Assessment (Phase One ESA):

APEC 1: Potential soil impact at the eastern and southern portions of the subject site due to presence of fill material of unknown quality.

APEC 2: Potential soil and/or groundwater impact at the northern portion of the subject site due to former fuel storage tank located to the north of the subject site.

APEC 3: Potential soil and/or groundwater impact at the northern portion of the subject site due to commercial printing and photoprocessing activities to the north of the subject site.

APEC 4: Potential soil and/or groundwater impact at the northwestern portion of the subject site due to commercial printing and photoprocessing activities and fuel oil tank to the northwest of the subject site.

APEC 5: Potential soil and/or groundwater impact at the southwestern portion of the subject site due to photoprocessing activities to the southwest of the subject site.

APEC 6: Potential soil and/or groundwater impact at the southern portion of the subject site due to architectural molding manufacturing to the south of the subject site.

APEC 7: Potential soil and/or groundwater impact at the southeastern portion of the subject site due to commercial printing to the southeast of the subject site.

The findings of the field investigation and analytical results of the Phase Two ESA summarized below:

- The field investigation for this Phase Two ESA consisted of conducting nine (9) boreholes (designated as BH1 to BH9) at depths ranging from 2.9 to 6.1 mbgs, installation of six (6) monitoring wells in the selected boreholes, and collecting seven (7) shallow soil samples to a depth of 0.4 mbgs.
- The soil and groundwater samples retrived from the borehole, shallow soil samples and monitoring well locations were examined for visual and olfactory evidence of potential contamination. No evidence of potential contamination was documented in

any of the retrieved soil and groundwater samples.

- The subsoil conditions at the borehole locations indicate a layer of topsoil, granular and fill material (sandy silt to silty sand) underlain by silt, sandy silt till, silty clay, and silty clay till at various depths and locations.
- Head space vapour screening was conducted for all retrieved soil samples using a combustible gas detector (RKI Eagle) in methane elimination mode, calibrated with hexane and having a minimum detection level of 2 parts per million by volume (ppm). No soil vapours were detected for the soil samples retrieved from the boreholes, ranging from non-detected to 0.9 LEL were recorded for the collected soil samples.
- Selected soil samples were submitted for analysis of petroleum hydrocarbon compounds (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and Metals and/or Inorganic parameters.
- Groundwater samples collected from the monitoring wells were submitted for PHCs, VOCs, and Metals.
- As part of the quality assurance/quality control (QA/QC) program for the investigation, QC samples in the form of field duplicates and trip blank samples were analysed. Field duplicate samples were collected in the field for the analyses of metals, inorganics, and VOCs in soil, and metals and VOCs in groundwater. One (1) trip blank for VOCs was shipped with the batch of the groundwater samples submitted for analysis.
- The analytical test results were reviewed using the MECP Table 3, Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition, for Residential/ Parkland/Institutional Property Use and for medium and fine textured soils (Table 3 Standards), in accordance with "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (EPA), dated April 15, 2011.
- The soil and groundwater test results indicate that the concentration of tested parameters at the test locations meet Table 3 Standards.
- The result of the analysis of the duplicate samples is similar to the results for the original sample, and the result of the trip blank sample was below thedetection limit.

A review of the analytical test results of soil and groundwater samples indicates the tested parameters at the test locations meet the Table 3 Standards. Consequently, there are no contaminants identified at the subject site at a concentration above the applicable site condition standards (Table 3 Standards) during the Phase Two ESA.

Based on the findings of the Phase Two ESA, it is our opinion that the property is suitable for the proposed development. No further environmental investigation is recommended at this time.

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As per: Ansar.

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8.0 REFERENCES

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

MECP. "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", dated March 9, 2004, amended as of July 1, 2011, in accordance with O. Reg. 511/09 and O. Reg. 269/11.

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

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TABLES

REFERENCE NO. 1906-E146

Table I: Monitoring Well Installation

Monitoring Well ID.	Bottom of Monitoring Well (mbgs)	Screen Length (m)	Screen Interval (mbgs)	Filter Pack (mbgs)	Bentonite Plug (mbgs)
BH/MW1	4.3	3	1.3 - 4.3	0.9 - 4.3	0.3 - 0.9
BH/MW2	4.3	3	1.3 - 4.3	0.9 - 4.3	0.3 - 0.9
BH/MW6	6.1	3	3.1 - 6.1	2.4 - 6.1	0.0 - 2.4
BH/MW7	4.9	3	1.9 - 4.9	1.2 - 4.9	0.3 - 1.2
BH/MW8	6.0	3	3.0 - 6.0	2.4 - 6.0	0.3 - 2.4
BH/MW9	4.6	3	1.6 - 4.6	1.2 - 1.5	0.3 - 1.2

mbgs – metres below ground surface

Table II: Groundwater Levels

Monitoring Well ID.	Ground Elevation (masl)	Depth to Groundwater (mbg)	Elevation of Groundwater (masl)	Field Observations		
				Odour	Colour	Sheen or Free Product
Date		29-Aug-19	29-Aug-19			
BH/MW1	176.21	2.52	173.69	None	Brown	None
BH/MW2	176.30	2.28	174.02	None	Brown	None
BH/MW6	176.64	3.21	173.43	None	Brown	None
BH/MW7	175.23	2.82	172.41	None	Brown	None
BH/MW8	176.46	1.05	175.41	None	Brown	None
BH/MW9	176.29	1.20	175.09	None	Brown	None

mbgs – metres below ground surface

masl – metres above sea level

Table III-A: Soil Analysis Data - O. Reg. 153(511)
Metals and Inorganic Parameters

Sample ID	Unit	BH1SS4	BH4SS2	BH8SS3	BH9SS4	D1 (original sample ID BH8 SS3)	BH6 SS7	Table 3 Standards	RDL
Sample Depth (mbgs)		2.3-2.3	0.8-1.2	1.5-2.3	2.3-3	1.5-2.3	3.6-4.2		
Sample Date		15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	15-Aug-19	16-Aug-19		
Laboratory ID		KNT378	KNT379	KNT380	KNT383	KNT384	KOJ874		
Antimony	µg/g	<0.20	0.32	<0.20	<0.20	<0.20	<0.20	7.5	0.2
Arsenic	µg/g	1.9	2.9	2.1	1.9	1.9	2.5	18	1
Barium	µg/g	82	54	100	100	100	62	390	0.5
Beryllium	µg/g	0.43	0.47	0.47	0.48	0.47	0.39	5	0.2
Boron (Hot Water Soluble)	µg/g	-	-	-	-	-	-	1.5	0.05
Cadmium	µg/g	0.14	0.11	<0.10	<0.10	<0.10	<0.10	1.2	0.1
Chromium	µg/g	17	19	20	19	19	17	160	1
Chromium VI	µg/g	-	<0.2	-	-	-	-	10	0.2
Cobalt	µg/g	7.4	7.5	8	7.9	7.7	6.4	22	0.1
Copper	µg/g	13	18	15	16	15	16	180	0.5
Lead	µg/g	7.3	14	7.3	7.5	7	7.3	120	1
Mercury	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	1.8	0.05
Molybdenum	µg/g	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6.9	0.5
Nickel	µg/g	15	16	18	18	17	15	130	0.5
Selenium	µg/g	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2.4	0.5
Silver	µg/g	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	25	0.2
Thallium	µg/g	0.11	0.096	0.16	0.14	0.16	0.13	1	0.05
Vanadium	µg/g	24	25	29	27	28	28	86	5
Zinc	µg/g	36	48	38	40	37	35	340	5
pH	-	-	-	-	7.86	-	-	NV	-
Conductivity	ms/cm	-	-	-	-	-	-	0.7	-
Sodium Adsorption Ratio	µg/g	-	-	-	-	-	-	5	-
Cyanide, Free	µg/g	-	<0.01	-	-	-	-	0.051	0.01
Boron (Total)	µg/g	6.8	8.3	8.5	8	8.3	7	120	5
Uranium	µg/g	0.58	0.5	0.51	0.5	0.51	0.52	23	0.05

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for Residential/Parkland/Institutional Property Use, for medium and fine Textured Soils

mbgs: metres below ground surface
RDL: Reported Detection Limit

Cont's of Table III-A: Soil Analysis Data - O. Reg. 153(511)
Metals and Inorganic Parameters

Sample ID	Unit	BH9/2	DUP-S (original sample ID BH8/1)	SA1	SA2	SA3	SA4	Table 3 Standards	RDL
Sample Depth (mbgs)		0.75-1.5	0-0.75	0.1-0.4	0.1-0.4	0.1-0.4	0.1-0.4		
Sample Date		15-Aug-19	15-Aug-19	21-Oct-19	21-Oct-19	21-Oct-19	21-Oct-19		
Laboratory ID		LAU412	LAU413	LCQ352	LCQ353	LCQ354	LCQ355		
Antimony	µg/g	<0.20	<0.20	<0.20	-	<0.20	-	7.5	0.2
Arsenic	µg/g	3.4	3	2.5	-	2.3	-	18	1
Barium	µg/g	83	180	44	-	47	-	390	0.5
Beryllium	µg/g	0.55	0.92	0.46	-	0.46	-	5	0.2
Boron (Hot Water Soluble)	µg/g	-	-	0.37	-	0.33	-	1.5	0.05
Cadmium	µg/g	0.11	0.11	0.13	-	0.15	-	1.2	0.1
Chromium	µg/g	20	34	16	-	16	-	160	1
Chromium VI	µg/g	-	-	<0.2	-	<0.2	-	10	0.2
Cobalt	µg/g	8.8	12	6.2	-	6.1	-	22	0.1
Copper	µg/g	20	22	9.9	-	9	-	180	0.5
Lead	µg/g	12	10	9.4	-	9.8	-	120	1
Mercury	µg/g	<0.050	<0.050	<0.050	-	<0.050	-	1.8	0.05
Molybdenum	µg/g	0.67	<0.50	<0.50	-	<0.50	-	6.9	0.5
Nickel	µg/g	20	29	12	-	12	-	130	0.5
Selenium	µg/g	<0.50	<0.50	<0.50	-	<0.50	-	2.4	0.5
Silver	µg/g	<0.20	<0.20	<0.20	-	<0.20	-	25	0.2
Thallium	µg/g	0.15	0.23	0.1	-	0.11	-	1	0.05
Vanadium	µg/g	28	40	28	-	28	-	86	5
Zinc	µg/g	63	70	38	-	35	-	340	5
pH	-	-	-	6.96	-	6.93	-	NV	
Conductivity	ms/cm	-	-	0.19	0.19	0.32	0.22	0.7	-
Sodium Adsorption Ratio	µg/g	-	-	0.73	0.5	0.18	1.3	5	-
Cyanide, Free	µg/g	-	-	<0.01	-	<0.01	-	0.051	0.01
Boron (Total)	µg/g	8.8	11	<5.0	-	<5.0	-	120	5
Uranium	µg/g	0.45	0.59	0.41	-	0.41	-	23	0.05

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for Residential/Parkland/Institutional Property Use, for medium and fine Textured Soils

mbgs: metres below ground surface
RDL: Reported Detection Limit

Cont's of Table III-A: Soil Analysis Data - O. Reg. 153(511)
Metals and Inorganic Parameters

Sample ID	Unit	BH2 SS4	BH7 SS5	BH5 SS4	BH1/2	BH2/1	BH8/1	Table 3 Standards	RDL
Sample Depth (mbgs)		2.3-2.9	3-3.8	2.3-2.9	0.8-1.2	0-0.6	0-0.75		
Sample Date		20-Aug-19	20-Aug-19	20-Aug-19	14-Aug-19	20-Aug-19	15-Aug-19		
Laboratory ID		KOZ948	KOZ951	KOZ952	LAU407	LAU408	LAU410		
Antimony	µg/g	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	7.5	0.2
Arsenic	µg/g	1.9	2.1	2.3	3.5	2.5	2.1	18	1
Barium	µg/g	68	61	76	71	150	120	390	0.5
Beryllium	µg/g	0.39	0.34	0.68	0.52	0.84	1	5	0.2
Boron (Hot Water Soluble)	µg/g	-	-	-	-	-	-	1.5	0.05
Cadmium	µg/g	<0.10	<0.10	0.1	0.11	<0.10	0.27	1.2	0.1
Chromium	µg/g	16	16	25	20	32	33	160	1
Chromium VI	µg/g	-	-	<0.2	-	-	-	10	0.2
Cobalt	µg/g	7.5	5.8	9	7.9	12	12	22	0.1
Copper	µg/g	14	14	18	19	21	23	180	0.5
Lead	µg/g	7.5	6	10	14	10	14	120	1
Mercury	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.051	1.8	0.05
Molybdenum	µg/g	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	6.9	0.5
Nickel	µg/g	16	14	20	18	28	27	130	0.5
Selenium	µg/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.81	2.4	0.5
Silver	µg/g	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	25	0.2
Thallium	µg/g	0.14	0.099	0.095	0.15	0.2	0.2	1	0.05
Vanadium	µg/g	24	25	37	26	40	37	86	5
Zinc	µg/g	34	31	46	54	64	94	340	5
pH	-	7.79	-	-	-	-	-	NV	
Conductivity	ms/cm	-	-	-	-	-	-	0.7	-
Sodium Adsorption Ratio	µg/g	-	-	-	-	-	-	5	-
Cyanide, Free	µg/g	-	-	<0.01	-	-	-	0.051	0.01
Boron (Total)	µg/g	6.5	5.6	5.2	7.8	11	8.7	120	5
Uranium	µg/g	0.51	0.57	0.47	0.45	0.58	0.65	23	0.05

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for Residential/Parkland/Institutional Property Use, for medium and fine Textured Soils

mbgs: metres below ground surface
RDL: Reported Detection Limit

Cont's of Table III-A: Soil Analysis Data - O. Reg. 153(511)
Metals and Inorganic Parameters

Sample ID	Unit	SA5	SA6	SA7	DUP-SA (original sample ID SA1)	DUP-SA2 (original sample ID SA5)	Table 3 Standards	RDL
Sample Depth (mbgs)		0.1-0.4	0.1-0.4	0.1-0.4	0.1-0.4	0.1-0.4		
Sample Date		21-Oct-19	21-Oct-19	21-Oct-19	21-Oct-19	21-Oct-19		
Laboratory ID		LCQ356	LCQ357	LCQ358	LCQ359	LFE274		
Antimony	µg/g	-	-	-	-	-	7.5	0.2
Arsenic	µg/g	-	-	-	-	-	18	1
Barium	µg/g	-	-	-	-	-	390	0.5
Beryllium	µg/g	-	-	-	-	-	5	0.2
Boron (Hot Water Soluble)	µg/g	-	-	-	-	-	1.5	0.05
Cadmium	µg/g	-	-	-	-	-	1.2	0.1
Chromium	µg/g	-	-	-	-	-	160	1
Chromium VI	µg/g	<0.2	<0.2	-	-	<0.2	10	0.2
Cobalt	µg/g	-	-	-	-	-	22	0.1
Copper	µg/g	-	-	-	-	-	180	0.5
Lead	µg/g	-	-	-	-	-	120	1
Mercury	µg/g	-	-	-	-	-	1.8	0.05
Molybdenum	µg/g	-	-	-	-	-	6.9	0.5
Nickel	µg/g	-	-	-	-	-	130	0.5
Selenium	µg/g	-	-	-	-	-	2.4	0.5
Silver	µg/g	-	-	-	-	-	25	0.2
Thallium	µg/g	-	-	-	-	-	1	0.05
Vanadium	µg/g	-	-	-	-	-	86	5
Zinc	µg/g	-	-	-	-	-	340	5
pH	-	5.51	7.05	-	-	5.45	NV	-
Conductivity	ms/cm	0.31	0.42	0.25	0.19	-	0.7	-
Sodium Adsorption Ratio	µg/g	1.2	1.3	0.63	0.71	-	5	-
Cyanide, Free	µg/g	0.02	0.01	-	-	0.02	0.051	0.01
Boron (Total)	µg/g	-	-	-	-	-	120	5
Uranium	µg/g	-	-	-	-	-	23	0.05

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for Residential/Parkland/Institutional Property Use, for medium and fine Textured Soils

mbgs: metres below ground surface
RDL: Reported Detection Limit

Table III-B: Soil Analysis Data - O. Reg. 153(511) - Petroleum Hydrocarbon Compounds (PHCs F1 - F4) and BTEX

Sample ID	Unit	BH8SS6	BH6 SS4	BH7 SS3	BH7 SS5	Table 3 Standards	RDL
Sample Depth (mbgs)		4.55-5.3	1.8-2.4	1.5-2.3	3.05-3.8		
Sample Date		15-Aug-2019	16-Aug-2019	20-Aug-2019	20-Aug-2019		
Laboratory ID		KNT381	KOJ873	KOZ950	KOZ951		
Benzene	µg/g	<0.020	<0.020	<0.020	<0.020	0.17	0.02
Toluene	µg/g	<0.020	<0.020	<0.020	<0.020	6	0.02
Ethylbenzene	µg/g	<0.020	<0.020	<0.020	<0.020	15	0.02
m/p xylenes	µg/g	<0.020	<0.020	<0.020	<0.020	NV	0.04
o xylene	µg/g	<0.020	<0.020	<0.020	<0.020	NV	0.02
Total Xylenes	µg/g	<0.020	<0.020	<0.020	<0.020	25	0.04
F1 (C6-C10)	µg/g	<10	<10	<10	<10	65	10
F1 (C6-C10) - BTEX	µg/g	<10	<10	<10	<10	65	10
F2 (C10-C16)	µg/g	<10	<10	<10	<10	150	10
F3 (C16-C34)	µg/g	<50	<50	<50	<50	1300	50
F4 (C34-C50)	µg/g	<50	<50	<50	<50	5600	50

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for Residential/Parkland/Institutional Property Use, for medium and fine Textured Soils

mbgs: metres below ground surface
RDL: Reported Detection Limit

Table III-C: Soil Analysis Data -
O. Reg. 153(511) - Volatile Organic Compounds (VOCs)

Sample ID	Unit	BH1SS4	BH8SS6	BH9SS3	BH6 SS4	BH6 SS7	BH2 SS4	Table 3 Standards	RDL
Sample Depth (mbgs)		2.3-2.3	4.6-5.3	1.5-2.3	1.8-2.4	3.6-4.2	2.3-2.9		
Sample Date		15-Aug-2019	15-Aug-2019	15-Aug-2019	16-Aug-2019	16-Aug-2019	20-Aug-2019		
Laboratory ID		KNT378	KNT381	KNT382	KOJ873	KOJ874	KOZ948		
Acetone	µg/g	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	28	0.5
Benzene	µg/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.17	0.02
Bromodichloromethane	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	13	0.05
Bromoform	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.26	0.05
Bromomethane	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.05
Carbon Tetrachloride	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.12	0.05
Chlorobenzene	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	2.7	0.05
Chloroform	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.18	0.05
Dibromochloromethane	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	9.4	0.05
1,2-Dichlorobenzene	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	4.3	0.05
1,3-Dichlorobenzene	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	6	0.05
1,4-Dichlorobenzene	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.097	0.05
1,1-Dichloroethane	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	11	0.05
1,2-Dichloroethane	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.05
1,1-Dichloroethylene	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.05
Cis-1,2-Dichloroethylene	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	30	0.05
Trans-1,2-Dichloroethylene	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.75	0.05
1,2-Dichloropropane	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.085	0.05
Cis-1,3-Dichloropropylene	µg/g	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	NV	0.03
Trans-1,3-Dichloropropylene	µg/g	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	NV	0.04
Ethylbenzene	µg/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	15	0.02
Ethylene Dibromide	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.05
Methyl Ethyl Ketone	µg/g	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	44	0.5
Methylene Chloride	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.96	0.05
Methyl Isobutyl Ketone	µg/g	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	4.3	0.5
Methyl-t-Butyl Ether	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	1.4	0.05
Styrene	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	2.2	0.05
1,1,1,2-Tetrachloroethane	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.05
1,1,2,2-Tetrachloroethane	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.05
Toluene	µg/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	6	0.02

Cont's of Table III-C: Soil Analysis Data -
O. Reg. 153(511) - Volatile Organic Compounds (VOCs)

Sample ID	Unit	BH1SS4	BH8SS6	BH9SS3	BH6 SS4	BH6 SS7	BH2 SS4	Table 3 Standards	RDL
Sample Depth (mbgs)		2.3-2.3	4.6-5.3	1.5-2.3	1.8-2.4	3.6-4.2	2.3-2.9		
Sample Date		15-Aug-2019	15-Aug-2019	15-Aug-2019	16-Aug-2019	16-Aug-2019	20-Aug-2019		
Laboratory ID		KNT378	KNT381	KNT382	KOJ873	KOJ874	KOZ948		
Tetrachloroethylene	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	2.3	0.05
1,1,1-Trichloroethane	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	3.4	0.05
1,1,2-Trichloroethane	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.05
Trichloroethylene	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.52	0.05
Vinyl Chloride	µg/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.022	0.02
m-Xylene & p-Xylene	µg/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	NV	0.02
o-Xylene	µg/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	NV	0.02
Total Xylenes	µg/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	25	0.02
Dichlorodifluoromethane	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	25	0.05
Hexane(n)	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	34	0.05
Trichlorofluoromethane	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	5.8	0.05
1,3-Dichloropropene (cis + trans)	µg/g	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.083	0.05

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for Residential/Parkland/Institutional Property Use, for medium and fine Textured Soils

mbgs: metres below ground surface
RDL: Reported Detection Limit

Cont'd of Table III-C: Soil Analysis Data -
O. Reg. 153(511) - Volatile Organic Compounds (VOCs)

Sample ID	Unit	BH7 SS3	BH7 SS5	D2 (original sample ID BH7 SS3)	Table 3 Standards	RDL
Sample Depth (mbgs)		1.5-2.3	3.05-3.8	1.5-2.3		
Sample Date		20-Aug-2019	20-Aug-2019	20-Aug-2019		
Laboratory ID		KOZ950	KOZ951	KOZ953		
Acetone	µg/g	<0.50	<0.50	<0.50	28	0.5
Benzene	µg/g	<0.020	<0.020	<0.020	0.17	0.02
Bromodichloromethane	µg/g	<0.050	<0.050	<0.050	13	0.05
Bromoform	µg/g	<0.050	<0.050	<0.050	0.26	0.05
Bromomethane	µg/g	<0.050	<0.050	<0.050	0.05	0.05
Carbon Tetrachloride	µg/g	<0.050	<0.050	<0.050	0.12	0.05
Chlorobenzene	µg/g	<0.050	<0.050	<0.050	2.7	0.05
Chloroform	µg/g	<0.050	<0.050	<0.050	0.18	0.05
Dibromochloromethane	µg/g	<0.050	<0.050	<0.050	9.4	0.05
1,2-Dichlorobenzene	µg/g	<0.050	<0.050	<0.050	4.3	0.05
1,3-Dichlorobenzene	µg/g	<0.050	<0.050	<0.050	6	0.05
1,4-Dichlorobenzene	µg/g	<0.050	<0.050	<0.050	0.097	0.05
1,1-Dichloroethane	µg/g	<0.050	<0.050	<0.050	11	0.05
1,2-Dichloroethane	µg/g	<0.050	<0.050	<0.050	0.05	0.05
1,1-Dichloroethylene	µg/g	<0.050	<0.050	<0.050	0.05	0.05
Cis-1,2-Dichloroethylene	µg/g	<0.050	<0.050	<0.050	30	0.05
Trans-1,2-Dichloroethylene	µg/g	<0.050	<0.050	<0.050	0.75	0.05
1,2-Dichloropropane	µg/g	<0.050	<0.050	<0.050	0.085	0.05
Cis-1,3-Dichloropropylene	µg/g	<0.030	<0.030	<0.030	NV	0.03
Trans-1,3-Dichloropropylene	µg/g	<0.040	<0.040	<0.040	NV	0.04
Ethylbenzene	µg/g	<0.020	<0.020	<0.020	15	0.02
Ethylene Dibromide	µg/g	<0.050	<0.050	<0.050	0.05	0.05
Methyl Ethyl Ketone	µg/g	<0.50	<0.50	<0.50	44	0.5
Methylene Chloride	µg/g	<0.050	<0.050	<0.050	0.96	0.05
Methyl Isobutyl Ketone	µg/g	<0.50	<0.50	<0.50	4.3	0.5
Methyl-t-Butyl Ether	µg/g	<0.050	<0.050	<0.050	1.4	0.05
Styrene	µg/g	<0.050	<0.050	<0.050	2.2	0.05
1,1,1,2-Tetrachloroethane	µg/g	<0.050	<0.050	<0.050	0.05	0.05
1,1,2,2-Tetrachloroethane	µg/g	<0.050	<0.050	<0.050	0.05	0.05
Toluene	µg/g	<0.020	<0.020	<0.020	6	0.02

Cont's of Table III-C: Soil Analysis Data -
O. Reg. 153(511) - Volatile Organic Compounds (VOCs)

Sample ID	Unit	BH7 SS3	BH7 SS5	D2 (original sample ID BH7 SS3)	Table 3 Standards	RDL
Sample Depth (mbgs)		1.5-2.3	3.05-3.8	1.5-2.3		
Sample Date		20-Aug-2019	20-Aug-2019	20-Aug-2019		
Laboratory ID		KOZ950	KOZ951	KOZ953		
Tetrachloroethylene	µg/g	<0.050	<0.050	<0.050	2.3	0.05
1,1,1-Trichloroethane	µg/g	<0.050	<0.050	<0.050	3.4	0.05
1,1,2-Trichloroethane	µg/g	<0.050	<0.050	<0.050	0.05	0.05
Trichloroethylene	µg/g	<0.050	<0.050	<0.050	0.52	0.05
Vinyl Chloride	µg/g	<0.020	<0.020	<0.020	0.022	0.02
m-Xylene & p-Xylene	µg/g	<0.020	<0.020	<0.020	NV	0.02
o-Xylene	µg/g	<0.020	<0.020	<0.020	NV	0.02
Total Xylenes	µg/g	<0.020	<0.020	<0.020	25	0.02
Dichlorodifluoromethane	µg/g	<0.050	<0.050	<0.050	25	0.05
Hexane(n)	µg/g	<0.050	<0.050	<0.050	34	0.05
Trichlorofluoromethane	µg/g	<0.050	<0.050	<0.050	5.8	0.05
1,3-Dichloropropene (cis + trans)	µg/g	<0.050	<0.050	<0.050	0.083	0.05

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for Residential/Parkland/Institutional Property Use, for medium and fine Textured Soils

Table III-D: Soil Analysis Data - O. Reg. 153(511)
Polycyclic Aromatic Hydrocarbons (PAHs)

Sample ID	Unit	BH3 SS2	BH2/2	BH9/1	SA2	Table 3 Standards	RDL
Sample Depth (mbgs)		0.8-1.5	0.8-1.4	0-0.75	0.1-0.4		
Sample Date		20-Aug-2019	20-Aug-2019	15-Aug-2019	21-Oct-2109		
Laboratory ID		KOZ949	LAU409	LAU411	LFE270		
Acenaphthene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	58	0.005
Acenaphthylene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	0.17	0.005
Anthracene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	0.74	0.005
Benzo(a)anthracene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	0.63	0.005
Benzo(a)pyrene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	0.3	0.005
Benzo(b/j)fluoranthene	µg/g	0.006	<0.0050	<0.0050	<0.0050	0.78	0.005
Benzo(ghi)perylene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	7.8	0.005
Benzo(k)fluoranthene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	0.78	0.005
Chrysene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	7.8	0.005
Dibenzo(a,h)anthracene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	0.1	0.005
Fluoranthene	µg/g	0.011	<0.0050	<0.0050	<0.0050	0.69	0.005
Fluorene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	69	0.005
Indeno(1,2,3-cd)pyrene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	0.48	0.005
1-Methylnaphthalene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	3.4	0.005
2-Methylnaphthalene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	3.4	0.005
Naphthalene	µg/g	<0.0050	<0.0050	<0.0050	<0.0050	0.75	0.005
Phenanthrene	µg/g	0.0075	<0.0050	<0.0050	<0.0050	7.8	0.005
Pyrene	µg/g	0.0097	<0.0050	<0.0050	<0.0050	78	0.005
Methylnaphthalene, 2-(1-)	µg/g	<0.0071	<0.0071	<0.0071	<0.0071	3.4	0.0071

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for Residential/Parkland/Institutional Property Use, for medium and fine Textured Soils

mbgs: metres below ground surface
RDL: Reported Detection Limit

Table IV-A: Groundwater Analysis Data - O. Reg. 153(511) - Petroleum Hydrocarbon Compounds (PHCs F1 - F4) and BTEX

Sample ID	Unit	MW7	MW8	Table 3 Standards	RDL
Sample Depth/ Screen Depth (mbgs)		1.9-4.9	3.0-6.0		
Sample Date		29-Aug-19	29-Aug-19		
Laboratory ID		KQY578	KQY579		
Benzene	µg/L	<0.20	<0.20	430	0.2
Toluene	µg/L	<0.20	0.63	18000	0.2
Ethylbenzene	µg/L	<0.20	0.27	2300	0.2
m/p xylenes	µg/L	<0.20	0.64	NV	0.4
o xylene	µg/L	<0.20	0.48	NV	0.2
Total Xylenes	µg/L	<0.20	1.1	4200	0.4
F1 (C6-C10)	µg/L	<25	<25	750	25
F1 (C6-C10) - BTEX	µg/L	<25	<25	750	25
F2 (C10-C16)	µg/L	<100	<100	150	100
F3 (C16-C34)	µg/L	<200	<200	500	200
F4 (C34-C50)	µg/L	<200	<200	500	200

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for All Types of Property Use, for medium and fine Textured Soils

mbgs: metres below ground surface
RDL: Reported Detection Limit

Table IV-B: Groundwater Analysis Data -
O. Reg. 153(511) - Volatile Organic Compounds (VOCs)

Sample ID	Unit	MW1	MW2	MW6	MW7	MW8	MW9	Table 3 Standards	RDL
Sample Depth/ Screen Depth (mbgs)		1.3-4.3	1.3-4.3	3.1-6.1	1.9-4.9	3.0-6.0	1.6-4.6		
Sample Date		29-Aug-19	29-Aug-19	29-Aug-19	29-Aug-19	29-Aug-19	29-Aug-19		
Laboratory ID		KQY575	KQY576	KQY577	KQY578	KQY579	KQY580		
Acetone	µg/L	<10	<10	<10	<10	<10	430	130000	10
Benzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	430	0.2
Bromodichloromethane	µg/L	0.63	<0.50	<0.50	<0.50	3.8	<0.50	85000	0.5
Bromoform	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	770	1
Bromomethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	56	0.5
Carbon Tetrachloride	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	8.4	0.2
Chlorobenzene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	630	0.2
Chloroform	µg/L	0.91	<0.20	<0.20	<0.20	4.3	<0.20	22	0.2
Dibromochloromethane	µg/L	<0.50	<0.50	<0.50	<0.50	2.5	<0.50	82000	0.5
1,2-Dichlorobenzene	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	9600	0.5
1,3-Dichlorobenzene	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	9600	0.5
1,4-Dichlorobenzene	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	67	0.5
1,1-Dichloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	3100	0.2
1,2-Dichloroethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	12	0.5
1,1-Dichloroethylene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	17	0.2
Cis-1,2-Dichloroethylene	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	17	0.5
Trans-1,2-Dichloroethylene	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	17	0.5
1,2-Dichloropropane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	140	0.2
Cis-1,3-Dichloropropylene	µg/L	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	NV	0.3
Trans-1,3-Dichloropropylene	µg/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	NV	0.4
Ethylbenzene	µg/L	<0.20	<0.20	<0.20	<0.20	0.27	<0.20	2300	0.2
Ethylene Dibromide	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.83	0.2
Methyl Ethyl Ketone	µg/L	<10	<10	<10	<10	<10	41	1500000	10
Methylene Chloride	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	5500	2
Methyl Isobutyl Ketone	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	580000	5
Methyl-t-Butyl Ether	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	1400	0.5
Styrene	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	9100	0.5
1,1,1,2-Tetrachloroethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	28	0.5
1,1,2,2-Tetrachloroethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	15	0.5
Toluene	µg/L	<0.20	<0.20	<0.20	<0.20	0.63	0.21	18000	0.2

Cont's of Table IV-B: Groundwater Analysis Data - O. Reg. 153(511) - Volatile Organic Compounds (VOCs)

Sample ID	Unit	MW1	MW2	MW6	MW7	MW8	MW9	Table 3 Standards	RDL
Sample Depth/ Screen Depth (mbgs)		1.3-4.3	1.3-4.3	3.1-6.1	1.9-4.9	3.0-6.0	1.6-4.6		
Sample Date		29-Aug-19	29-Aug-19	29-Aug-19	29-Aug-19	29-Aug-19	29-Aug-19		
Laboratory ID		KQY575	KQY576	KQY577	KQY578	KQY579	KQY580		
Tetrachloroethylene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	17	0.2
1,1,1-Trichloroethane	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	6700	0.2
1,1,2-Trichloroethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	30	0.5
Trichloroethylene	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	17	0.2
Vinyl Chloride	µg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	1.7	0.2
m-Xylene & p-Xylene	µg/L	<0.20	<0.20	<0.20	<0.20	0.64	0.22	NV	0.2
o-Xylene	µg/L	0.89	<0.20	<0.20	<0.20	0.48	<0.20	NV	0.2
Total Xylenes	µg/L	0.89	<0.20	<0.20	<0.20	1.1	0.22	4200	0.2
Dichlorodifluoromethane	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4400	1
Hexane(n)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	520	1
Trichlorofluoromethane	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	2500	0.5
1,3-Dichloropropene (cis + trans)	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	45	0.5

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for All Types of Property Use, for medium and fine Textured Soils

mbgs: metres below ground surface
RDL: Reported Detection Limit

Sample ID	Unit	DUPGW2 (original sample ID MW9)	TRIP BLANK	Table 3 Standards	RDL
Sample Depth/ Screen Depth (mbgs)		1.6-4.6	-		
Sample Date		29/08/2019	-		
Laboratory ID		KQY582	KQY583		
Acetone	µg/L	410	<10	130000	10
Benzene	µg/L	<0.20	<0.20	430	0.2
Bromodichloromethane	µg/L	<0.50	<0.50	85000	0.5
Bromoform	µg/L	<1.0	<1.0	770	1
Bromomethane	µg/L	<0.50	<0.50	56	0.5
Carbon Tetrachloride	µg/L	<0.20	<0.20	8.4	0.2
Chlorobenzene	µg/L	<0.20	<0.20	630	0.2
Chloroform	µg/L	<0.20	<0.20	22	0.2
Dibromochloromethane	µg/L	<0.50	<0.50	82000	0.5
1,2-Dichlorobenzene	µg/L	<0.50	<0.50	9600	0.5
1,3-Dichlorobenzene	µg/L	<0.50	<0.50	9600	0.5
1,4-Dichlorobenzene	µg/L	<0.50	<0.50	67	0.5
1,1-Dichloroethane	µg/L	<0.20	<0.20	3100	0.2
1,2-Dichloroethane	µg/L	<0.50	<0.50	12	0.5
1,1-Dichloroethylene	µg/L	<0.20	<0.20	17	0.2
Cis-1,2-Dichloroethylene	µg/L	<0.50	<0.50	17	0.5
Trans-1,2-Dichloroethylene	µg/L	<0.50	<0.50	17	0.5
1,2-Dichloropropane	µg/L	<0.20	<0.20	140	0.2
Cis-1,3-Dichloropropylene	µg/L	<0.30	<0.30	NV	0.3
Trans-1,3-Dichloropropylene	µg/L	<0.40	<0.40	NV	0.4
Ethylbenzene	µg/L	<0.20	<0.20	2300	0.2
Ethylene Dibromide	µg/L	<0.20	<0.20	0.83	0.2
Methyl Ethyl Ketone	µg/L	41	<10	1500000	10
Methylene Chloride	µg/L	<2.0	<2.0	5500	2
Methyl Isobutyl Ketone	µg/L	<5.0	<5.0	580000	5
Methyl-t-Butyl Ether	µg/L	<0.50	<0.50	1400	0.5
Styrene	µg/L	<0.50	<0.50	9100	0.5
1,1,1,2-Tetrachloroethane	µg/L	<0.50	<0.50	28	0.5
1,1,2,2-Tetrachloroethane	µg/L	<0.50	<0.50	15	0.5
Toluene	µg/L	<0.20	<0.20	18000	0.2

Cont's of Table IV-B: Groundwater Analysis Data -
O. Reg. 153(511) - Volatile Organic Compounds (VOCs)

Sample ID	Unit	DUPGW2 (original sample ID MW9)	TRIP BLANK	Table 3 Standards	RDL
Sample Depth/ Screen Depth (mbgs)		1.6-4.6	-		
Sample Date		29-Aug-19	-		
Laboratory ID		KQY582	KQY583		
Tetrachloroethylene	µg/L	<0.20	<0.20	17	0.2
1,1,1-Trichloroethane	µg/L	<0.20	<0.20	6700	0.2
1,1,2-Trichloroethane	µg/L	<0.50	<0.50	30	0.5
Trichloroethylene	µg/L	<0.20	<0.20	17	0.2
Vinyl Chloride	µg/L	<0.20	<0.20	1.7	0.2
m-Xylene & p-Xylene	µg/L	0.22	<0.20	NV	0.2
o-Xylene	µg/L	<0.20	<0.20	NV	0.2
Total Xylenes	µg/L	0.22	<0.20	4200	0.2
Dichlorodifluoromethane	µg/L	<1.0	<1.0	4400	1
Hexane(n)	µg/L	<1.0	<1.0	520	1
Trichlorofluoromethane	µg/L	<0.50	<0.50	2500	0.5
1,3-Dichloropropene (cis + trans)	µg/L	<0.50	<0.50	45	0.5

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for All Types of Property Use, for medium and fine Textured Soils

mbgs: metres below ground surface
RDL: Reported Detection Limit

Table IV-C: Groundwater Analysis Data - O. Reg. 153(511)
Metals and/or Inorganic Parameters

Metals and Inorganics	Unit	MW1	MW2	MW6	MW7	MW8	MW9	Table 3 Standards	RDL
Sample Depth/ Screen Depth (mbgs)		1.3-4.3	1.3-4.3	3.1-6.1	1.9-4.9	3.0-6.0	1.6-4.6		
Sample Date		29-Aug-19	29-Aug-19	29-Aug-19	29-Aug-19	29-Aug-19	29-Aug-19		
Laboratory ID		KQY575	KQY576	KQY577	KQY578	KQY579	KQY580		
Antimony	µg/L	<0.50	0.58	<0.50	<0.50	<0.50	1.1	20000	0.5
Arsenic	µg/L	3.2	2.4	<1.0	<1.0	<1.0	2.3	1900	1
Barium	µg/L	72	59	63	85	61	21	29000	2
Beryllium	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	67	0.5
Boron	µg/L	43	190	140	130	39	58	45000	10
Cadmium	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	2.7	0.1
Chromium	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	810	5
Cobalt	µg/L	0.54	2.2	0.67	0.99	<0.50	1.3	66	0.5
Copper	µg/L	3.3	3.4	1.5	1.9	1.2	6.2	87	1
Lead	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	25	0.5
Molybdenum	µg/L	35	11	2.7	1.2	1.6	26	9200	0.5
Nickel	µg/L	2.9	15	5.2	3.6	2.4	2.2	490	1
Selenium	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	63	2
Silver	µg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.5	0.1
Thallium	µg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	510	0.05
Vanadium	µg/L	9	7.9	0.65	<0.50	0.73	12	250	0.5
Zinc	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1100	5
Uranium	µg/L	0.95	0.41	2.3	5.8	3.6	0.11	420	0.1

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for All Types of Property Use, for medium and fine Textured Soils

mbgs: metres below ground surface
RDL: Reported Detection Limit

Table IV-C: Groundwater Analysis Data - O. Reg. 153(511)
Metals and/or Inorganic Parameters

Metals and Inorganics	Unit	DUPGW1	Table 3 Standards	RDL
Sample Depth/ Screen Depth (mbgs)		1.3-4.3		
Sample Date		29-Aug-19		
Laboratory ID		KQY581		
Antimony	µg/L	0.76	20000	0.5
Arsenic	µg/L	3.3	1900	1
Barium	µg/L	75	29000	2
Beryllium	µg/L	<0.50	67	0.5
Boron	µg/L	42	45000	10
Cadmium	µg/L	<0.10	2.7	0.1
Chromium	µg/L	<5.0	810	5
Cobalt	µg/L	0.54	66	0.5
Copper	µg/L	3.2	87	1
Lead	µg/L	<0.50	25	0.5
Molybdenum	µg/L	37	9200	0.5
Nickel	µg/L	3	490	1
Selenium	µg/L	<2.0	63	2
Silver	µg/L	<0.10	1.5	0.1
Thallium	µg/L	<0.050	510	0.05
Vanadium	µg/L	9.4	250	0.5
Zinc	µg/L	<5.0	1100	5
Uranium	µg/L	0.92	420	0.1

Table 3, Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for All Types of Property Use, for medium and fine Textured Soils

mbgs: metres below ground surface
RDL: Reported Detection Limit

Table V – Maximum Concentration (Soil)
Summary of Metal and Inorganic Parameters

Parameter	Unit	Max. Conc.	Sample ID	Sampling Depth (mbgs)
Antimony	µg/g	0.32	BH4SS2	0.8-1.2
Arsenic	µg/g	3.5	BH1/2	0.8-1.2
Barium	µg/g	180	BH8/1	0-0.75
Beryllium	µg/g	1	BH8/1	0-0.75
Boron (Hot Water Soluble)	µg/g	0.37	SA1	0.1-0.4
Cadmium	µg/g	0.27	BH8/1	0-0.75
Chromium	µg/g	34	BH8/1	0-0.75
Chromium VI	µg/g	<0.2	-	-
Cobalt	µg/g	12	BH2/1	0-0.6
Copper	µg/g	23	BH8/1	0-0.75
Lead	µg/g	14	BH8/1	0-0.75
Mercury	µg/g	0.051	BH8/1	0-0.75
Molybdenum	µg/g	0.67	BH9/2	0.75-1.5
Nickel	µg/g	29	BH8/1	0-0.75
Selenium	µg/g	0.81	BH8/1	0-0.75
Silver	µg/g	<0.20	-	-
Thallium	µg/g	0.23	BH8/1	0-0.75
Vanadium	µg/g	40	BH8/1	0-0.75
Zinc	µg/g	94	BH8/1	0-0.75
pH	-	7.86	BH9SS4	2.3-3
Conductivity	ms/cm	0.42	SA6	0.1-0.4
Sodium Adsorption Ratio	µg/g	1.3	SA6	0.1-0.4
Cyanide, Free	µg/g	0.02	SA5	0.1-0.4
Boron (Total)	µg/g	11	BH8/1	0-0.75
Uranium	µg/g	0.65	BH8/1	0-0.75

Max. Conc. - Maximum Concentration
mbgs: Metres below ground surface

Table V – Maximum Concentration (Soil)
Summary of PHCs (F1-F4) and BTEX

Parameter	Unit	Max. Conc.	Sample ID	Sampling Depth (mbgs)
Benzene	µg/g	<0.020	-	-
Toluene	µg/g	<0.020	-	-
Ethylbenzene	µg/g	<0.020	-	-
m/p xylenes	µg/g	<0.040	-	-
o xylene	µg/g	<0.020	-	-
Total Xylenes	µg/g	<0.040	-	-
F1 (C6-C10)	µg/g	<10	-	-
F1 (C6-C10) - BTEX	µg/g	<10	-	-
F2 (C10-C16)	µg/g	<10	-	-
F3 (C16-C34)	µg/g	<50	-	-
F4 (C34-C50)	µg/g	<50	-	-

Max. Conc. - Maximum Concentration
mbgs: Metres below ground surface

Table V – Maximum Concentration (Soil)
Summary of VOCs

Parameter	Unit	Max. Conc.	Sample ID	Sampling Depth (mbgs)
Acetone	µg/g	<0.50	-	-
Benzene	ug/g	<0.020	-	-
Bromodichloromethane	ug/g	<0.050	-	-
Bromoform	ug/g	<0.050	-	-
Bromomethane	ug/g	<0.050	-	-
Carbon Tetrachloride	ug/g	<0.050	-	-
Chlorobenzene	ug/g	<0.050	-	-
Chloroform	ug/g	<0.050	-	-
Dibromochloromethane	ug/g	<0.050	-	-
1,2-Dichlorobenzene	ug/g	<0.050	-	-
1,3-Dichlorobenzene	ug/g	<0.050	-	-
1,4-Dichlorobenzene	ug/g	<0.050	-	-
1,1-Dichloroethane	ug/g	<0.050	-	-
1,2-Dichloroethane	ug/g	<0.050	-	-
1,1-Dichloroethylene	ug/g	<0.050	-	-
Cis-1,2-Dichloroethylene	ug/g	<0.050	-	-
Trans-1,2-Dichloroethylene	ug/g	<0.050	-	-
1,2-Dichloropropane	ug/g	<0.050	-	-
Cis-1,3-Dichloropropylene	ug/g	<0.030	-	-
Trans-1,3-Dichloropropylene	ug/g	<0.040	-	-
Ethylbenzene	ug/g	<0.020	-	-
Ethylene Dibromide	ug/g	<0.050	-	-
Methyl Ethyl Ketone	ug/g	<0.50	-	-
Methylene Chloride	ug/g	<0.050	-	-
Methyl Isobutyl Ketone	ug/g	<0.50	-	-
Methyl-t-Butyl Ether	ug/g	<0.050	-	-
Styrene	ug/g	<0.050	-	-
1,1,1,2-Tetrachloroethane	ug/g	<0.050	-	-
1,1,2,2-Tetrachloroethane	ug/g	<0.050	-	-
Toluene	ug/g	<0.020	-	-

Cont's of Table V – Maximum Concentration (Soil)
Summary of VOCs

Parameter	Unit	Max. Conc.	Sample ID	Sampling Depth (mbgs)
Tetrachloroethylene	ug/g	<0.050	-	-
1,1,1-Trichloroethane	ug/g	<0.050	-	-
1,1,2-Trichloroethane	ug/g	<0.050	-	-
Trichloroethylene	ug/g	<0.050	-	-
Vinyl Chloride	ug/g	<0.020	-	-
m-Xylene & p-Xylene	ug/g	<0.020	-	-
o-Xylene	ug/g	<0.020	-	-
Total Xylenes	ug/g	<0.020	-	-
Dichlorodifluoromethane	ug/g	<0.050	-	-
Hexane(n)	ug/g	<0.050	-	-
Trichlorofluoromethane	ug/g	<0.050	-	-
1,3-Dichloropropene (cis + trans)	µg/g	<0.050	-	-

Max. Conc. - Maximum Concentration
mbgs: Metres below ground surface

Table V – Maximum Concentration (Soil)
Summary of PAHs

Parameter	Unit	Max. Conc.	Sample ID	Sampling Depth (mbgs)
Acenaphthene	µg/g	<0.0050	-	-
Acenaphthylene	µg/g	<0.0050	-	-
Anthracene	µg/g	<0.0050	-	-
Benzo(a)anthracene	µg/g	<0.0050	-	-
Benzo(a)pyrene	µg/g	<0.0050	-	-
Benzo(b/j)fluoranthene	µg/g	0.006	BH3 SS2	0.8-1.5
Benzo(ghi)perylene	µg/g	<0.0050	-	-
Benzo(k)fluoranthene	µg/g	<0.0050	-	-
Chrysene	µg/g	<0.0050	-	-
Dibenzo(a,h)anthracene	µg/g	<0.0050	-	-
Fluoranthene	µg/g	0.011	BH3 SS2	0.8-1.5
Fluorene	µg/g	<0.0050	-	-
Indeno(1,2,3-cd)pyrene	µg/g	<0.0050	-	-
1-Methylnaphthalene	µg/g	<0.0050	-	-
2-Methylnaphthalene	µg/g	<0.0050	-	-
Naphthalene	µg/g	<0.0050	-	-
Phenanthrene	µg/g	0.0075	-	-
Pyrene	µg/g	0.0097	BH3 SS2	0.8-1.5
Methylnaphthalene, 2-(1-)	µg/g	<0.0071	BH3 SS2	0.8-1.5

Max. Conc. - Maximum Concentration
mbgs: Metres below ground surface

Table VI – Maximum Concentration (Groundwater)
Summary of Metals and Inorganic Parameters

Parameter	Unit	Max. Conc.	Sample ID	Borehole No.	Sampling Depth (mbgs)
Antimony	µg/L	1.1	MW9	MW9	1.6-4.6
Arsenic	µg/L	3.2	MW1	MW1	1.3-4.3
Barium	µg/L	85	MW7	MW7	1.9-4.9
Beryllium	µg/L	<0.50	-	-	-
Boron	µg/L	190	MW2	MW2	1.3-4.3
Cadmium	µg/L	<0.10	-	-	-
Chromium	µg/L	<5.0	-	-	-
Cobalt	µg/L	2.2	MW2	MW2	1.3-4.3
Copper	µg/L	6.2	MW9	MW9	1.6-4.6
Lead	µg/L	<0.50	-	-	-
Molybdenum	µg/L	35	MW1	MW1	1.3-4.3
Nickel	µg/L	15	MW2	MW2	1.3-4.3
Selenium	µg/L	<2.0	-	-	-
Silver	µg/L	<0.10	-	-	-
Thallium	µg/L	<0.050	-	-	-
Vanadium	µg/L	12	MW9	MW9	1.6-4.6
Zinc	µg/L	<5.0	-	-	-
Uranium	µg/L	5.8	MW7	MW7	1.9-4.9

Max. Conc. - Maximum Concentration
mbgs: metres below ground surface

Table VI – Maximum Concentration (Groundwater)
Summary of PHCs (F1 - F4)

Parameter	Unit	Max. Conc.	Sample ID	Borehole No.	Sampling Depth (mbgs)
Benzene	µg/L	<0.20	-	-	-
Toluene	µg/L	0.63	MW8	MW8	3.0-6.0
Ethylbenzene	µg/L	0.27	MW8	MW8	3.0-6.0
m/p xylenes	µg/L	0.64	MW8	MW8	3.0-6.0
o xylene	µg/L	0.48	MW8	MW8	3.0-6.0
Total Xylenes	µg/L	1.1	MW8	MW8	3.0-6.0
F1 (C6-C10)	µg/L	<25	-	-	-
F1 (C6-C10) - BTEX	µg/L	<25	-	-	-
F2 (C10-C16)	µg/L	<100	-	-	-
F3 (C16-C34)	µg/L	<200	-	-	-
F4 (C34-C50)	µg/L	<200	-	-	-

Max. Conc. - Maximum Concentration
mbgs: metres below ground surface

Table VI – Maximum Concentration (Groundwater)
Summary of VOCs

Parameter	Unit	Max. Conc.	Sample ID	Borehole No.	Sampling Depth (mbgs)
Acetone	µg/L	430	MW9	MW9	1.6-4.6
Benzene	µg/L	<0.20	-	-	-
Bromodichloromethane	µg/L	3.8	MW8	MW8	3.0-6.0
Bromoform	µg/L	<1.0	-	-	-
Bromomethane	µg/L	<0.50	-	-	-
Carbon Tetrachloride	µg/L	<0.20	-	-	-
Chlorobenzene	µg/L	<0.20	-	-	-
Chloroform	µg/L	4.3	MW8	MW8	3.0-6.0
Dibromochloromethane	µg/L	2.5	MW8	MW8	3.0-6.0
1,2-Dichlorobenzene	µg/L	<0.50	-	-	-
1,3-Dichlorobenzene	µg/L	<0.50	-	-	-
1,4-Dichlorobenzene	µg/L	<0.50	-	-	-
1,1-Dichloroethane	µg/L	<0.20	-	-	-
1,2-Dichloroethane	µg/L	<0.50	-	-	-
1,1-Dichloroethylene	µg/L	<0.20	-	-	-
Cis-1,2-Dichloroethylene	µg/L	<0.50	-	-	-
Trans-1,2-Dichloroethylene	µg/L	<0.50	-	-	-
1,2-Dichloropropane	µg/L	<0.20	-	-	-
Cis-1,3-Dichloropropylene	µg/L	<0.30	-	-	-
Trans-1,3-Dichloropropylene	µg/L	<0.40	-	-	-
Ethylbenzene	µg/L	0.27	MW8	MW8	3.0-6.0
Ethylene Dibromide	µg/L	<0.20	-	-	-
Methyl Ethyl Ketone	µg/L	41	MW9	MW9	1.6-4.6
Methylene Chloride	µg/L	<2.0	-	-	-
Methyl Isobutyl Ketone	µg/L	<5.0	-	-	-
Methyl-t-Butyl Ether	µg/L	<0.50	-	-	-
Styrene	µg/L	<0.50	-	-	-
1,1,1,2-Tetrachloroethane	µg/L	<0.50	-	-	-
1,1,2,2-Tetrachloroethane	µg/L	<0.50	-	-	-
Toluene	µg/L	0.63	MW8	MW8	3.0-6.0

Cont's of Table VI – Maximum Concentration (Groundwater)
Summary of VOCs

Parameter	Unit	Max. Conc.	Sample ID	Borehole No.	Sampling Depth (mbgs)
Tetrachloroethylene	µg/L	<0.20	-	-	-
1,1,1-Trichloroethane	µg/L	<0.20	-	-	-
1,1,2-Trichloroethane	µg/L	<0.50	-	-	-
Trichloroethylene	µg/L	<0.20	-	-	-
Vinyl Chloride	µg/L	<0.20	-	-	-
m-Xylene & p-Xylene	µg/L	0.64	MW8	MW8	3.0-6.0
o-Xylene	µg/L	0.89	MW1	MW1	1.3-4.3
Total Xylenes	µg/L	0.22	-	-	-
Dichlorodifluoromethane	µg/L	<1.0	-	-	-
Hexane(n)	µg/L	<1.0	-	-	-
Trichlorofluoromethane	µg/L	<0.50	-	-	-
1,3-Dichloropropene (cis + trans)	µg/L	<0.50	-	-	-

Max. Conc. - Maximum Concentration
mbgs: metres below ground surface

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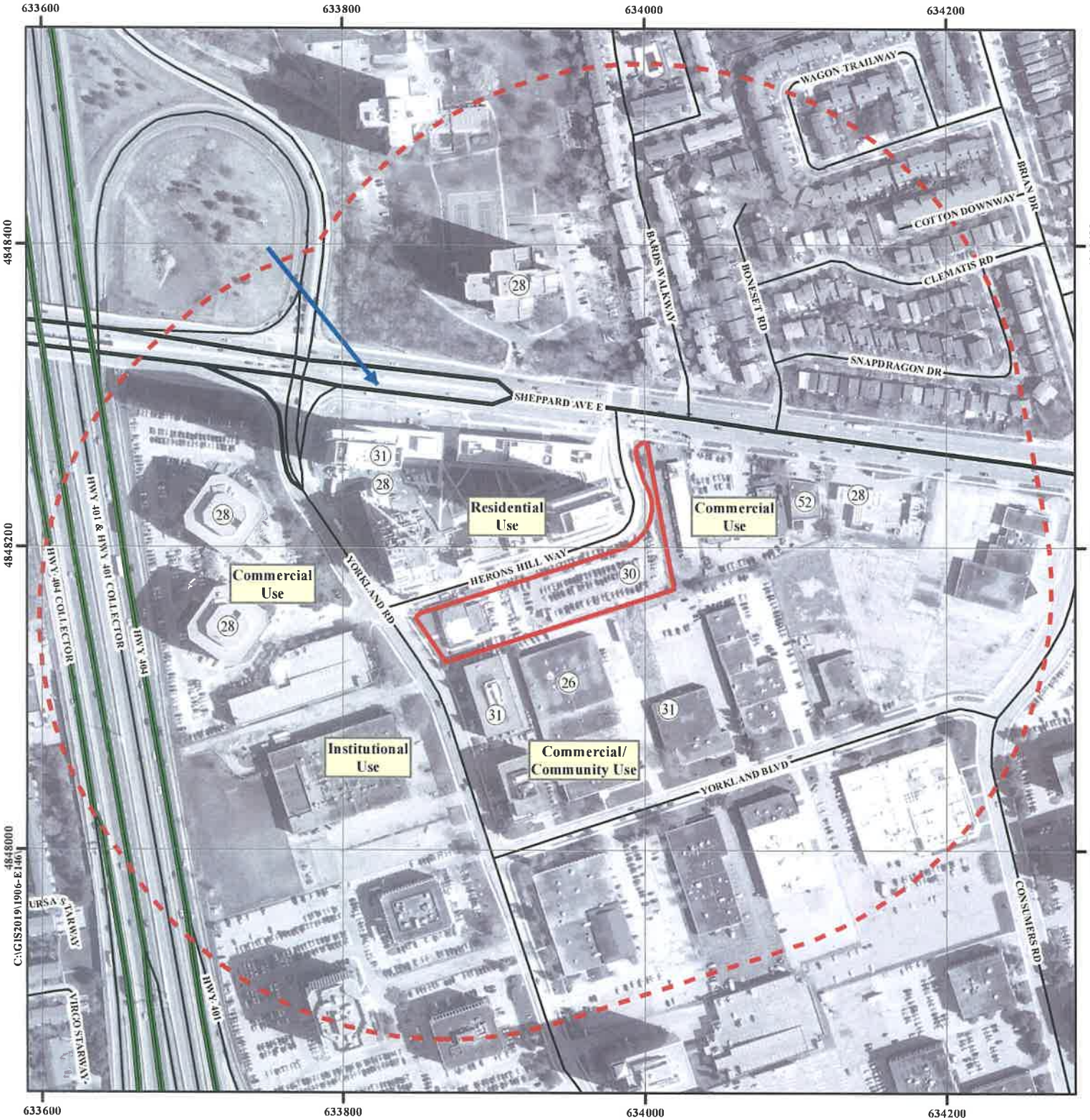
DRAWINGS

REFERENCE NO. 1906-E146



N

Subject Site

Phase One Study Area

Inferred Groundwater Flow Direction

Expressway/Freeway

Major Road

Local Road

Potentially Contaminating Activities (PCAs)

(26) Foam and Expanded Foam Manufacturing and Processing

(28) Gasoline and Associated Products Storage in Fixed Tanks

(30) Importation of Fill Material of Unknown Quality

(31) Ink Manufacturing, Processing, and Bulk Storage

(52) Storage, Maintenance, Fuelling, and Repair of Transportation Systems

Soil Engineers Ltd.

Title: Site Location Plan

Project:
Proposed Residential Development
1 Heron's Hill Way
City of Toronto

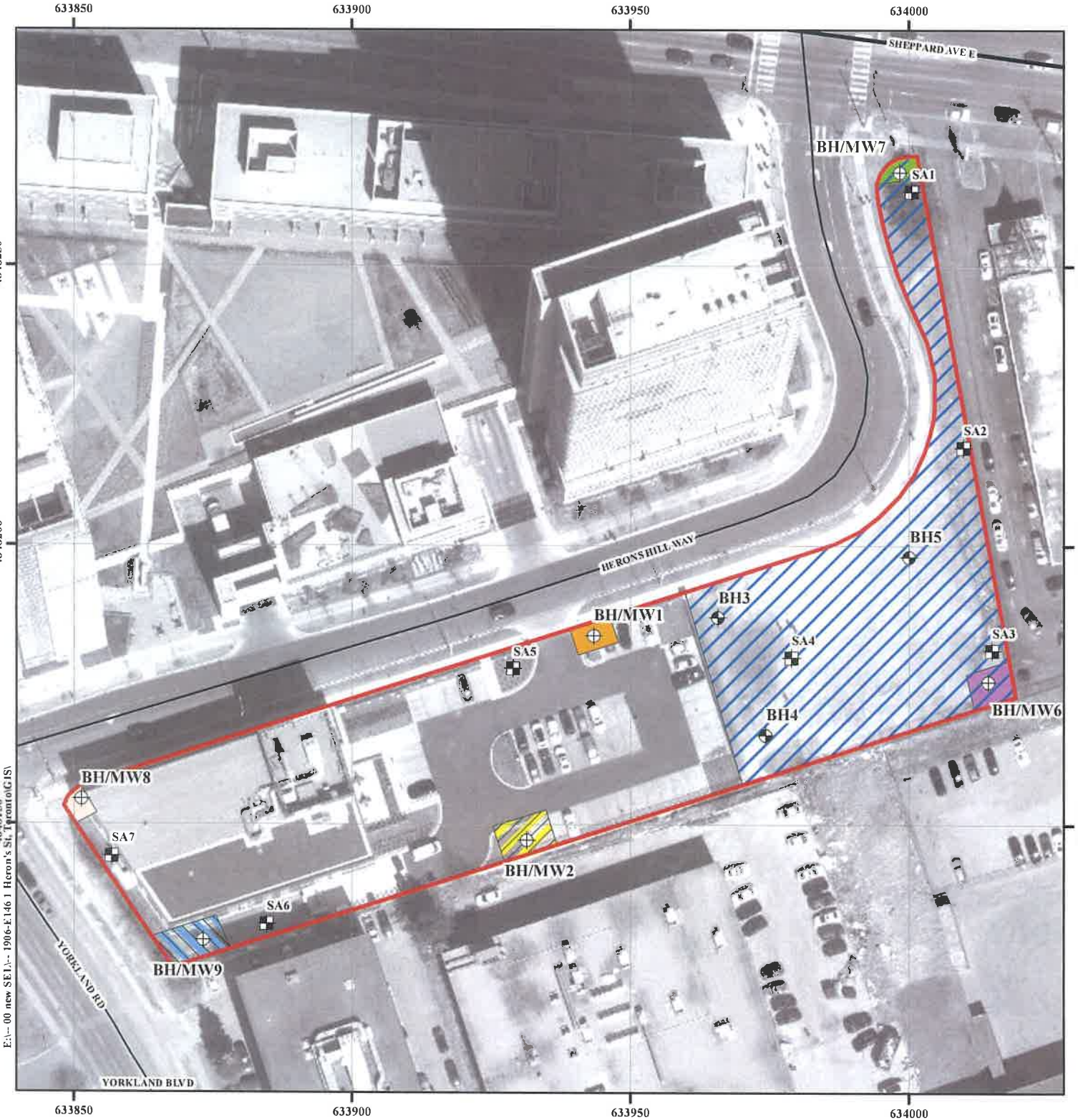
Reference No. 1906-E146

Date: October 23, 2019

Scale:
0 15 30 60 90 120 150
Metres

Drawing No. 1

Source: Ministry of Natural Resources and Forestry



N

Subject Site
Borehole
Borehole with Monitoring Well
Hand-dug Test Pit
Major Road
Local Road

Areas of Potential Environmental Concern (APEC)

APEC 1
APEC 2
APEC 3
APEC 4
APEC 5
APEC 6
APEC 7

Soil Engineers Ltd.

Title: Sampling Location Plan

Project:
Proposed Residential Development
1 Heron's Hill Way
City of Toronto

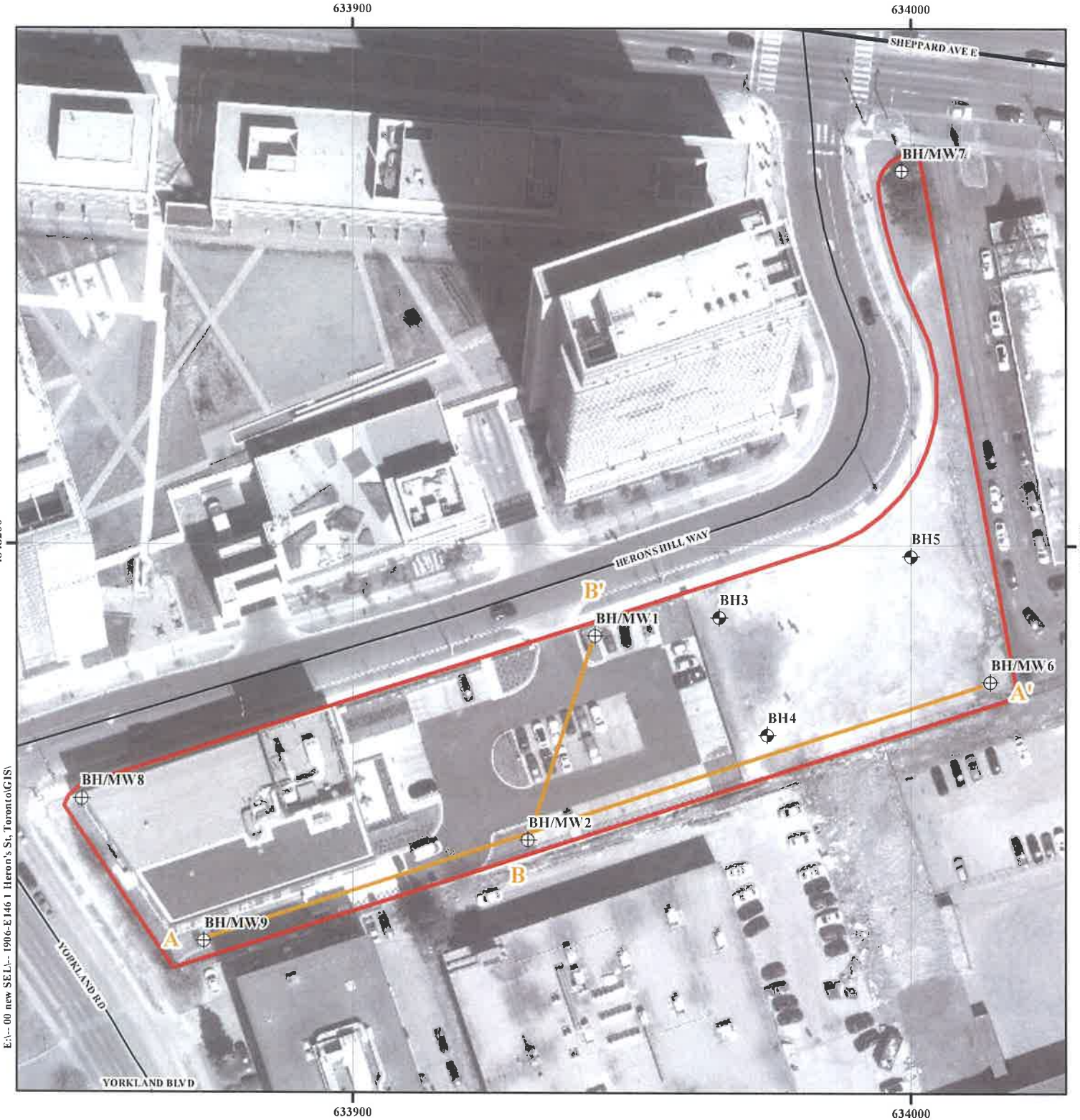
Reference No. 1906-E146

Date: October 23, 2019

Scale:
0 5 10 20 30 40 50
Metres

Drawing No. 2

Source: Ministry of Natural Resources and Forestry



N

Subject Site

Borehole with Monitoring Well

Boreholes

Hand-dug Test Pit

Major Road

Local Road

Cross-Section Direction

Soil Engineers Ltd.

Title: Cross-Section Key Plan

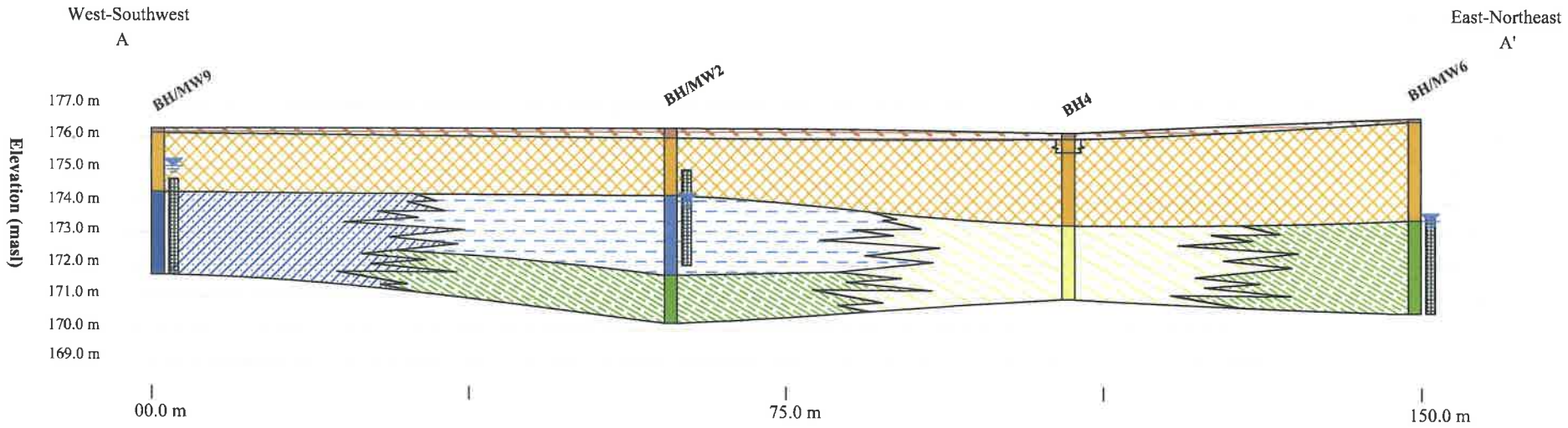
Project:
Proposed Residential Development
1 Heron's Hill Way
City of Toronto

Reference No. 1906-E146

Date: October 23, 2019

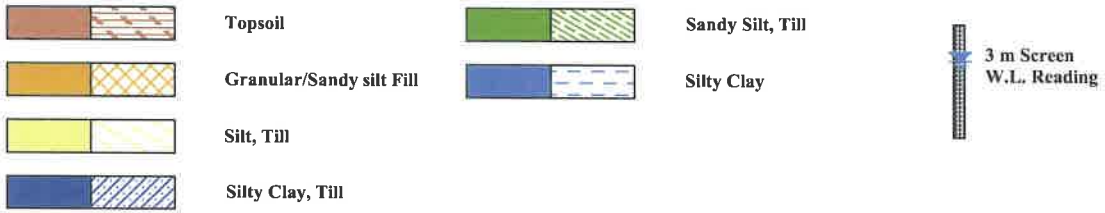
Scale:
0 5 10 20 30 40 50
Metres

Drawing No. 3



SECTION A-A'

SECTION B-B'



G: Projects/2019\Jobs/1906–E146

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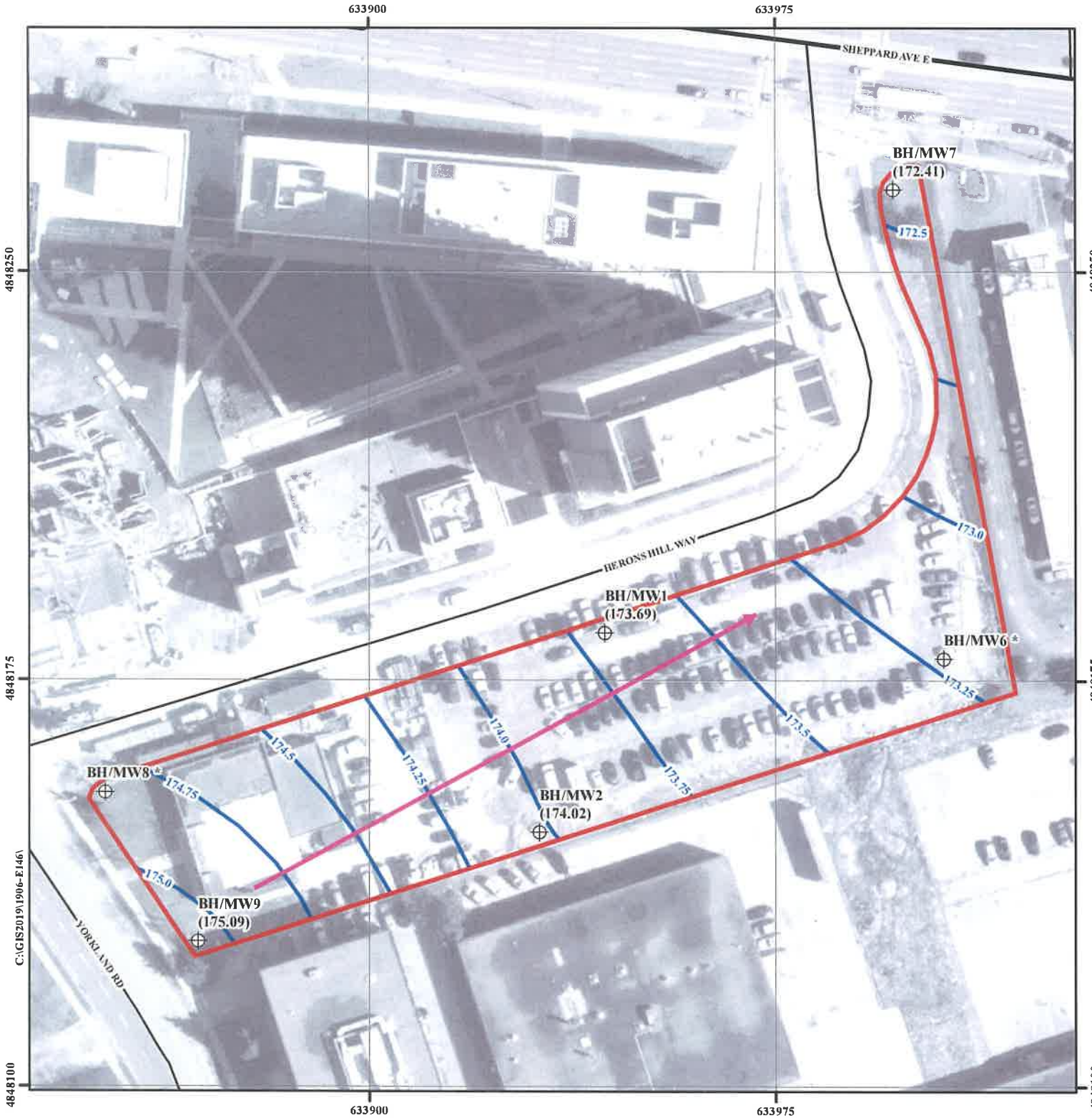
Title: Geological Cross-Sections A-A' and B-B'

Project:
Proposed Residential Development
1 Heron's Hill Way
City of Toronto

Reference No:	Date:	Scale: V	Scale: H	Drawing No.
1906-E146	November 1, 2019	1:200	1:750	4



N

Subject Site

Borehole with Monitoring Well

Interpreted Shallow Groundwater Flow Direction

173.5 Groundwater Elevation Contour

Major Road

Local Road

* Groundwater elevation not considered when calculating groundwater flow direction

Soil Engineers Ltd.

Title: Shallow Groundwater Contour Map

Project:
Proposed Residential Development
1 Heron's Hill Way
City of Toronto

Reference No. 1906-E146

Date: November 19, 2019

Scale:
0 5 10 20 30 40 50
Metres

Drawing No. 5

Source: Ministry of Natural Resources and Forestry

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FAX: (705) 721-7864	FAX: (905) 542-2769	FAX: (905) 725-1315	FAX: (905) 881-8335	FAX: (705) 684-8522	FAX: (905) 725-1315	FAX: (905) 542-2769

APPENDIX 'A'

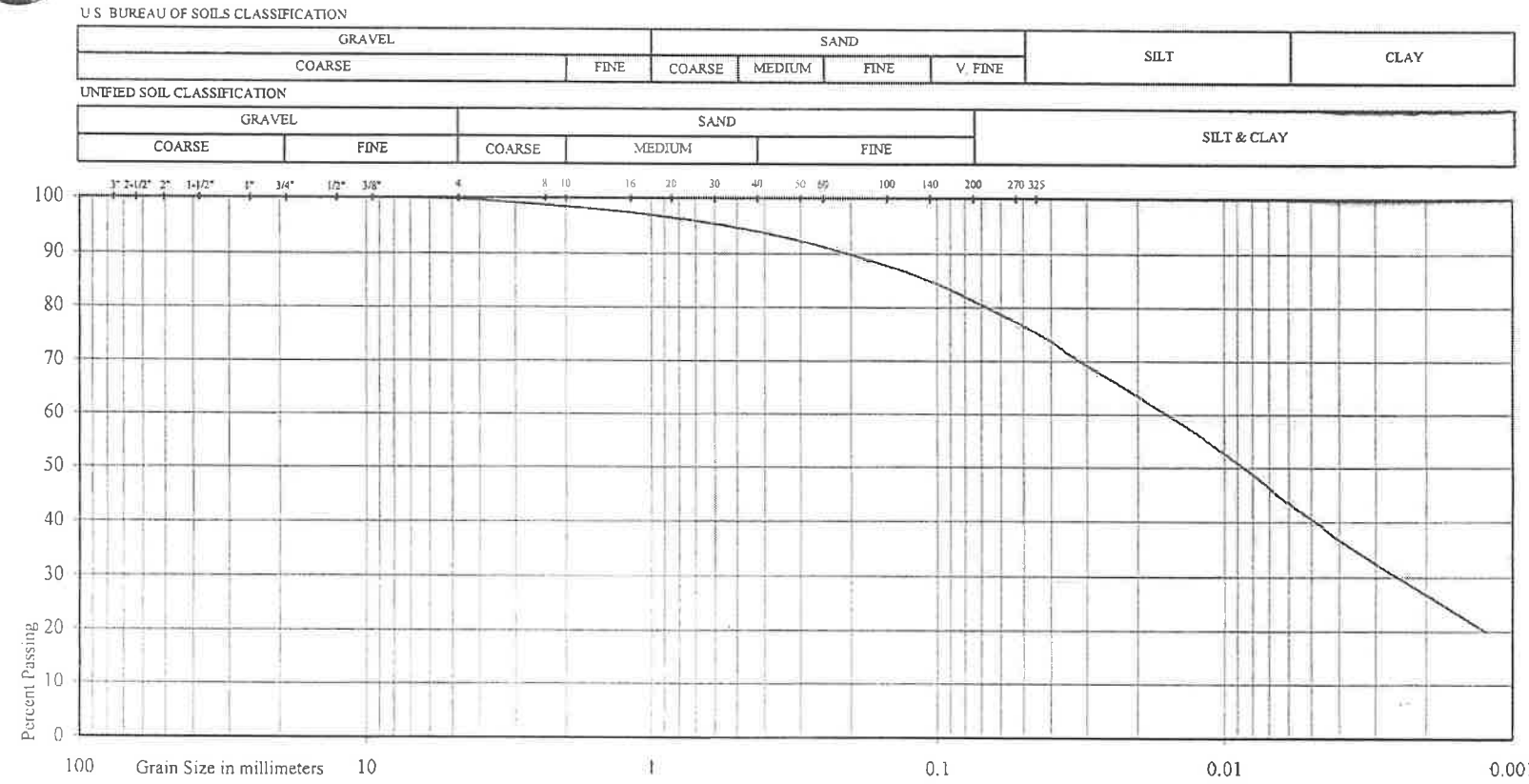
GRAIN SIZE ANALYSIS

REFERENCE NO. 1906-E146

Soil Engineers Ltd.

GRAIN SIZE DISTRIBUTION

Reference No: 1906-E146



Project: Proposed Residential Development

Location: 1, 15 and 25 Herons Hill Way

Borehole No: 2

Sample No: 5

Depth (m):

Elevation (m):

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = -

Estimated Permeability (cm./sec.) = 10^{-7}

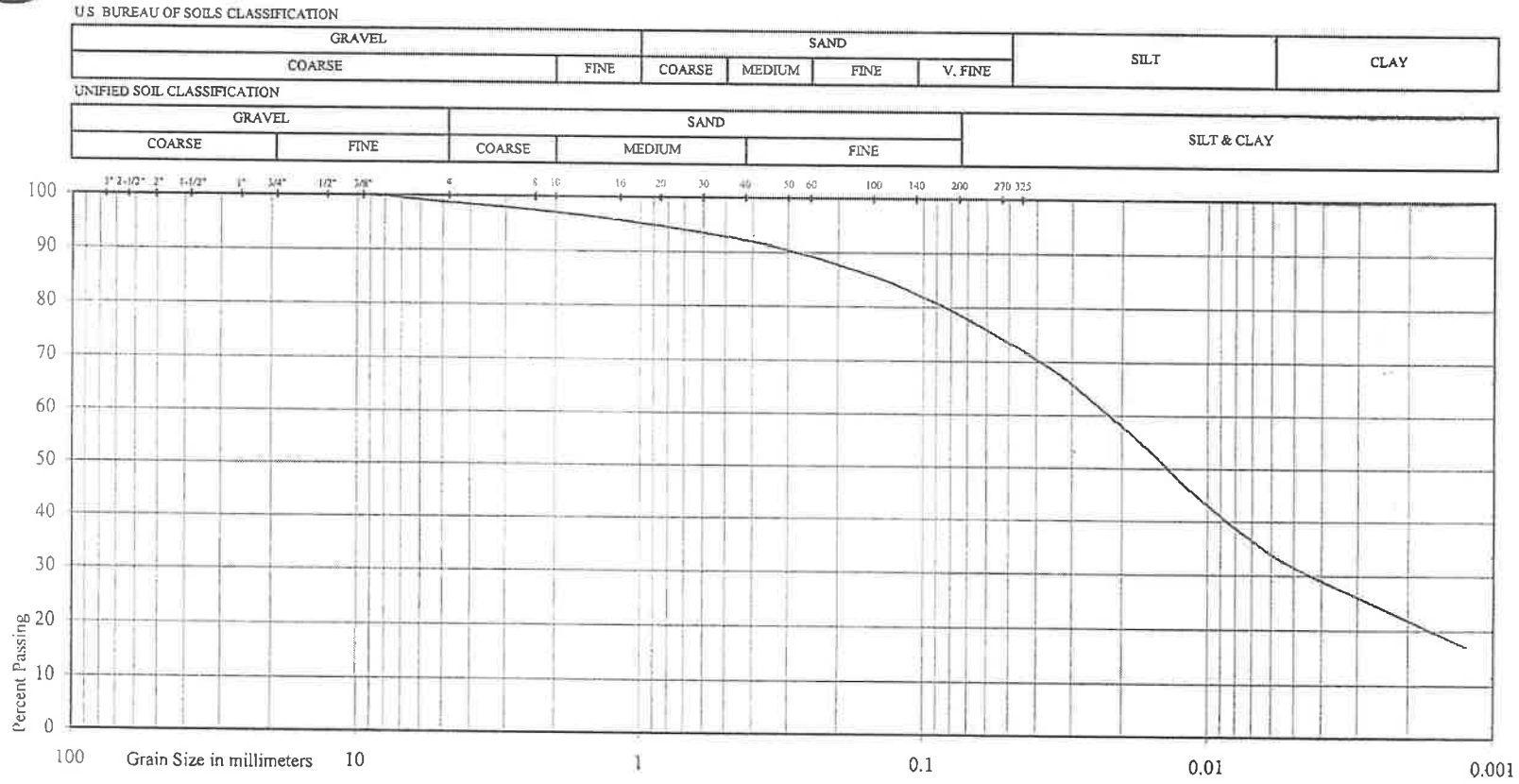
Classification of Sample [& Group Symbol]:	SILTY CLAY some sand

Figure: 1

Soil Engineers Ltd.

GRAIN SIZE DISTRIBUTION

Reference No: 1906-E146



Project: Proposed Residential Development

Location: 1, 15 and 25 Herons Hill Way

Borehole No: 7

Sample No: 6

Depth (m):

Elevation (m):

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = -

Estimated Permeability (cm./sec.) = 10^{-7}

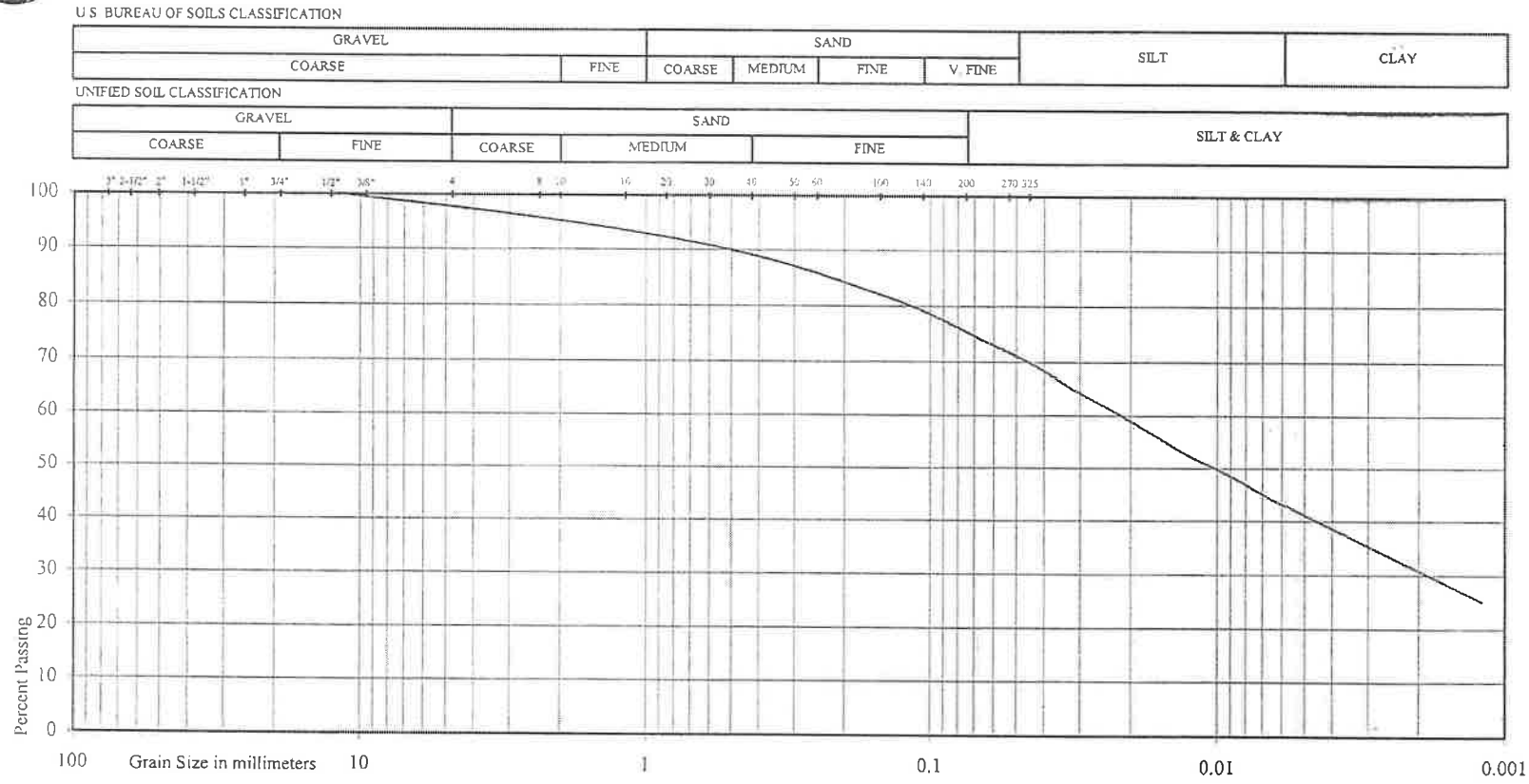
Classification of Sample [& Group Symbol]: SILTY CLAY, TILL
some sand to sandy, a trace of gravel

Figure: 2

Soil Engineers Ltd.

GRAIN SIZE DISTRIBUTION

Reference No: 1906-E146



Project: Proposed Residential Development

Location: 1, 15 and 25 Herons Hill Way

Borehole No: 8

Sample No: 4

Depth (m):

Elevation (m):

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = -

Estimated Permeability (cm./sec.) = 10^{-7}

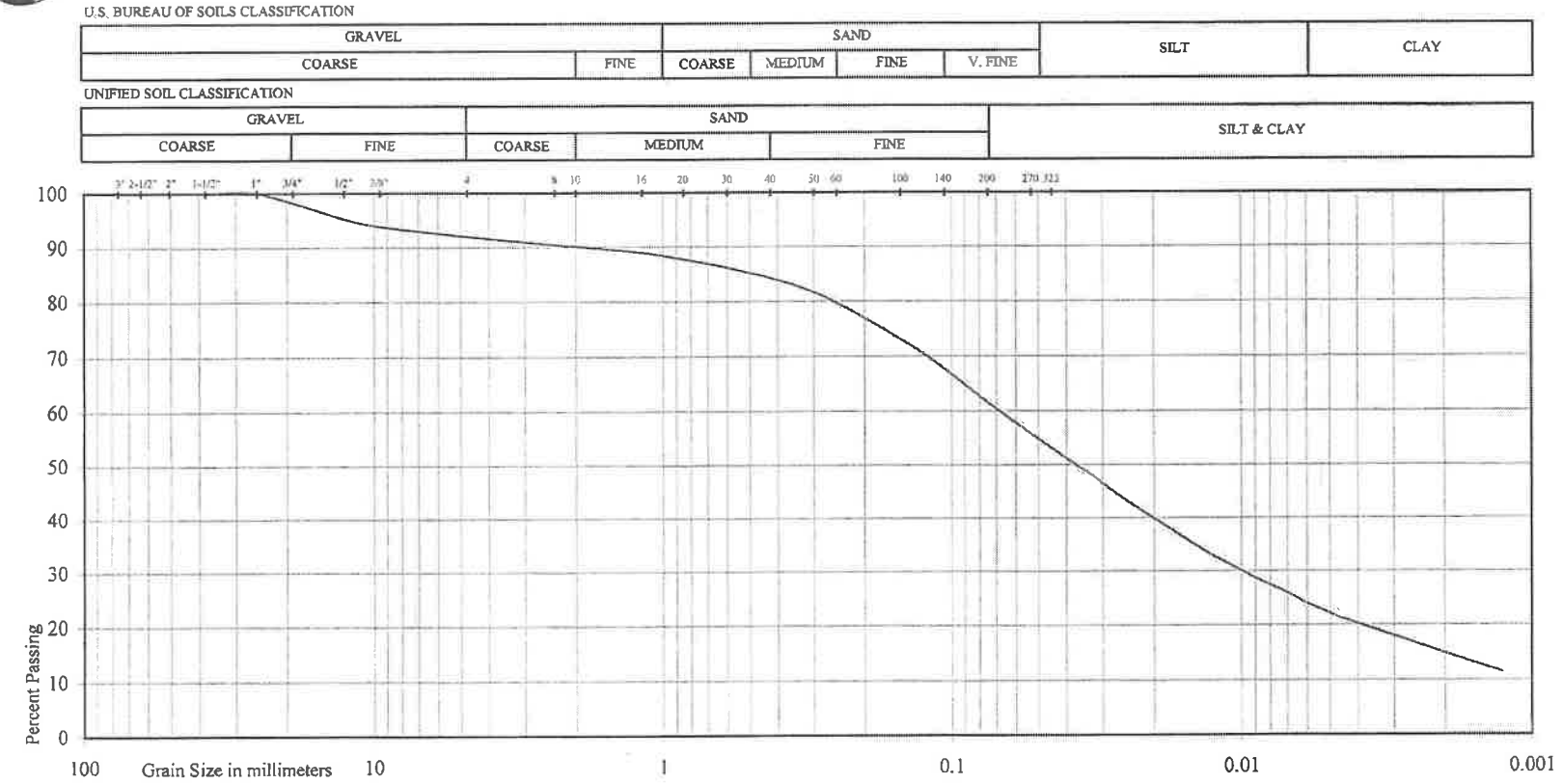
Classification of Sample [& Group Symbol]:	SILTY CLAY, TILL sandy, a trace of gravel

Figure: 3

Soil Engineers Ltd.

GRAIN SIZE DISTRIBUTION

Reference No: 1906-E146



Project: Proposed Residential Development

Location: 1, 15 and 25 Herons Hill Way

Borehole No: 6

Sample No: 9

Depth (m):

Elevation (m):

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = -

Estimated Permeability (cm./sec.) = 10^{-6}

Classification of Sample [& Group Symbol]:	SANDY SILT, TILL some clay, a trace of gravel

Figure: 1

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APPENDIX 'B'

NO OBJECTION LETTER FOR NON-POTABLE GROUNDWATER USE

REFERENCE NO. 1906-E146

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October 31, 2019 Reference No. 1906-E146

City of Toronto
City Hall
100 Queen St. West
Toronto, Ontario
M5H 2N2

Attention:

Re: Non-Potable Water Usage
Authorization for Confirmation of Groundwater Criteria
Proposed Residential Development
1 Heron's Hill Way
City of Toronto

Dear Sir/Madam:

We request written confirmation that Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition as set out the "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (EPA), April 15, 2011, are applicable to the captioned site. Please kindly forward this letter to the department which oversees this request.

Your immediate attention to this request will be greatly appreciated. However, should you have any questions concerning the above, please feel free to contact the undersigned at your earliest convenience.

Yours very truly,

SOIL ENGINEERS LTD.

Hamid Rezaei
hrezaei@soilengineersltd.com

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APPENDIX 'C'

SAMPLING AND ANALYSIS PLAN

REFERENCE NO. 1906-E146

This Sampling and Analysis Plan is prepared for the Phase Two Environmental Site Assessment (Phase Two ESA) as defined by Ontario Regulation (O. Reg.) 153/04, as amended. The subject property is located at 1 Heron's Hill Way, in the City of Toronto (hereinafter referred to as "the subject site").

The Sampling and Analysis Plan is based on the findings of our Phase One Environmental Site Assessment (Phase One ESA), Reference No. 1906-E146, dated September 18, 2019.

1) OBJECTIVE

The objective of the initial investigation of the Phase Two ESA was to determine the soil and groundwater quality at the subject site, as related to the following Areas of Potential Environmental Concerns (APECs) at the subject site:

APEC 1: Potential soil impact at the eastern and southern portions of the subject site due to presence of fill material of unknown quality.

APEC 2: Potential soil and/or groundwater impact at the northern portion of the subject site due to former fuel storage tank located to the north of the subject site.

APEC 3: Potential soil and/or groundwater impact at the northern portion of the subject site due to commercial printing and photoprocessing activities to the north of the subject site.

APEC 4: Potential soil and/or groundwater impact at the northwestern portion of the subject site due to commercial printing and photoprocessing activities and fuel oil tank to the northwest of the subject site.

APEC 5: Potential soil and/or groundwater impact at the southwestern portion of the subject site due to photoprocessing activities to the southwest of the subject site.

APEC 6: Potential soil and/or groundwater impact at the southern portion of the subject site due to architectural molding manufacturing to the south of the subject site.

APEC 7: Potential soil and/or groundwater impact at the eastern portion of the subject site due to commercial printing to the southeast of the subject site.

2) SCOPE OF WORK

The scope of work for the initial investigation of the Phase Two ESA includes:

- Locate the underground and overhead utilities.
- Conduct nine (9) boreholes to depths ranging from 2.9 to 6.1 mbgs and collecting seven (7) shallow soil samples to a depth of 0.4 mbgs.
- Collect representative soil samples from the sampling locations.
- Undertake field examination of the retrieved soil samples for visual and olfactory evidence of potential contamination.
- Undertake soil vapour measurements for the retrieved soil samples using a combustible gas detector (RKI Eagle) in methane elimination mode.
- Install six (6) monitoring wells in the selected boreholes for groundwater sampling and testing.
- Conduct groundwater monitoring and collect groundwater samples for chemical testing.
- Carry out analytical testing program on selected soil and groundwater samples including quality assurance and quality control (QA/QC) samples for one or more of the following parameters: petroleum hydrocarbon compounds (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and Metals and Inorganic parameters.
- Review analytical testing results of submitted soil and groundwater samples using applicable Site Condition Standards.
- Prepare a Phase Two ESA report containing the findings of the investigation.

3) RATIONALE FOR BOREHOLE / MONITORING WELL LOCATIONS

The rationale for the selection of the borehole/monitoring well locations is presented in the table below:

Areas of Potential Environmental Concerns (APECs)	Borehole/Monitoring Well and hand-dug Test Pit ID.
APEC 1: Potential soil impact at the eastern and southern portions of the subject site due to presence of fill material of unknown quality.	BH3 to BH9, and SA1 to SA6
APEC 2: Potential soil and/or groundwater impact at the northern portion of the subject site due to former fuel storage tank located to the north of the subject site.	BH/MW7
APEC 3: Potential soil and/or groundwater impact at the northern portion of the subject site due to commercial printing and photoprocessing activities to the north of the subject site.	BH/MW1
APEC 4: Potential soil and/or groundwater impact at the northwestern portion of the subject site due to commercial printing and photoprocessing activities and fuel oil tank to the northwest of the subject site.	BH/MW8
APEC 5: Potential soil and/or groundwater impact at the southwestern portion of the subject site due to photoprocessing activities to the southwest of the subject site.	BH/MW9
APEC 6: Potential soil and/or groundwater impact at the southern portion of the subject site due to architectural molding manufacturing to the south of the subject site.	BH/MW2
APEC 7: Potential soil and/or groundwater impact at the southeastern portion of the subject site due to commercial printing to the southeast of the subject site.	BH/MW6

The location of proposed sampling locations for the Phase Two ESA is shown in Drawing No. 2. It should be noted that based on the analytical results of submitted soil samples, if further activities of the Phase Two ESA such as re-sampling and testing is required, additional samples from the area of interest will be submitted for analysis of contaminants of concern.

4) SOIL AND GROIUNDWATER SAMPLES (INCLUDING QA/QC SAMPLES) ANALYTICAL SCHEDULE

A summary of soil and groundwater samples (including QA/QC samples) to be submitted is presented in the table below:

Borehole / Monitoring Well	M &/or I	PAHs	PHC	VOC
Soil Sample (QA/QC samples)				
BH 1	2	-	-	1
BH 2	2	1	-	1
BH 3	-	1	-	-
BH 4	1	-	-	-
BH 5	1	-	-	-
BH 6	1	-	1	2
BH 7	1	-	2	2
BH 8	2	-	1	1
BH9	2	1	-	1
SA1	1	-	-	-
SA 2	1	1	-	-
SA 3	1	-	-	-
SA 4	1	-	-	-
SA 5	1	-	-	-
SA 6	1	-	-	-
SA 7	1	-	-	-
Duplicate Soil Sample	3	-	-	1
Groundwater Sample (QA/QC samples)				
MW 1	1	-	-	1
MW 2	1	-	-	1
MW 6	1	-	-	1
MW 7	1	-	1	1
MW 8	1	-	1	1
MW 9	1	-	-	1
Duplicate GW Sample	1	-	-	1
Trip Blank	-	-	-	1

5) SOIL AND GROUNDWATER SAMPLING PROCEDURES

Soil Engineers Ltd.'s (SEL) Standard Operation Procedures (SOPs) will be followed throughout the field investigation (sampling, decontamination of equipment, observation and documentation) including the field QA/QC program. SEL SOPs are presented in Section 7 of this sampling and analysis plan.

6) DATA QUALITY OBJECTIVES

Sampling and decontamination procedures including QA/QC program should be carried out in accordance with:

- SEL SOPs, as presented in Section 7.
- The "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", May 1996, revised December 1996, as amended by O. Reg. 511/09.

Laboratory analytical methods, protocols and procedures should be carried out in accordance with the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", dated March 9, 2004, amended as of July 1, 2011, in accordance with O. Reg. 511/09 and O. Reg. 269/11.

7) STANDARD OPERATING PROCEDURES (SOPs)

7.1) Borehole Drilling

The purpose of borehole drilling is to provide access to subsurface soils at specified locations and depths. Soil borings also allow for installation of groundwater monitoring wells.

7.1.1) Underground Utilities

Prior to drilling, the public utility service (One Call) and private utility services are contacted. The underground utility services are located and marked out in the field.

7.1.2) Drilling Methods

Direct Push Drilling (i.e. Geoprobe, Powerprobe, Pionjar, etc.)

The direct push drilling machine is a hydraulically powered hammer/ram sampling device. The unit is designed so that the weight of the vehicle provides the majority of downward force. The hydraulics, with the aid of a percussion hammer, push lengths of specially modified 54 mm (2.125 inch) outside diameter (OD), hardened steel rod into the ground. The rod is advanced to target sampling depth is reached. The steel rod has been specially modified for specific types of sample collection.

Flight-Auger Drilling

The flight-auger drilling machine is a hydraulically powered feed and retract system that provides 28,275 pounds (12,826 kg) of retract force and 18,650 pounds (8,460 kg) of down pressure. The 183 cm (72 inch) stroke, hydraulic vertical drive system has no chains or cables which can stretch. It is equipped with hollow-stem augers. It is extended to pre-determined sampling intervals using conventional drilling methods, at which time a decontaminated 51 mm

split-spoon sampler is extended ahead of the lead auger to collect a soil sample. The split-spoon sampler is then brought to surface and opened, exposing the soil core sample.

Hand Dug Test Pit

The hand-dug test pits were hand-dug using shovel. Prior to digging and sampling at each test pit location, the shovel was brushed clean using a solution of phosphate-free detergent and distilled water.

7.1.3) Occupational Health and Safety

Prior to drilling, the site is inspected to ensure that no potentially hazardous material is present near/around the drilling area. Safety procedures are reviewed and a safety check of the equipment is conducted including locating the emergency stop button on the drill rig, checking personal protective equipment (hard hats, safety shoes, eye/ear protection), locating the first aid kit and confirming the location of the nearest hospital, and verifying the standard procedure in case of injury.

7.1.4) Drilling Spoils

Excess soil generated during sampling and drilling procedure is stored at the site in metal barrels. If the analytical results indicate the soil is contaminated, a licensed disposal company is notified to collect the barrels of soil for proper disposal.

7.1.5) Borehole Abandonment

After drilling, logging and/or sampling, boreholes will be backfilled by the method described below:

- Bentonite is thoroughly mixed into the grout within the specified percentage range. The tremie grout is usually placed into the hole; however, for selected boreholes (e.g., shallow borings well above the water table) at certain sites, the grout may be allowed to free fall, taking care to ensure the grout does not bridge and form gaps or voids in the grout column.
- The volume of the borehole is calculated and compared to the grout volume used during grouting to aid in verifying that bridging did not occur.
- When using a tremie to place grout in the borehole, the bottom of the tremie is submerged into the grout column and withdrawn slowly as the hole fills with grout. If allowing the grout to free fall (and not using a tremie), the grout is poured slowly into the boring. The rise of the grout column is visually monitored or sounded with a weighted tape.
- If the method used to drill the boring utilized a drive casing, the casing is slowly extracted during grouting such that the bottom of the casing does not come above the top of the grout column.
- During the grouting process, no contaminating material (oil, grease, or fuels from gloves, pumps, hoses, et. al) is permitted to enter the grout mix and personnel wear personal protective equipment as specified in the Project Health and Safety Plan.
- Following grouting, barriers are placed over grouted boreholes as the grout is likely to settle in time, creating a physical hazard. Grouted boreholes typically require at least a second visit to 'top off' the hole.
- The surface hole condition should match the pre-drilling condition (asphalt, concrete, or smoothed flush with native surface), unless otherwise specified in the project work plans.

7.1.6) Subsurface Obstruction

Where refusal to drilling occurs due to rock, foundation or underground services, the borehole is relocated within 2.0 m downstream from the original borehole location.

7.2) Soil Sampling

7.2.1) Introduction

Soil sampling is conducted in accordance with the "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, May 1996" as revised December 1996 (MOE Guidance Manual) and as amended by O. Reg. 366/05, 66/08, 511/09, 245/10, 179/11, 269/11 and 333/13. The sampling procedures are described herein.

Drilling Rig Decontamination

Geoprobe

One-time use Shelby tube (thin-walled) samples are recovered from the boreholes in clear disposable PVC liners to prevent cross-contamination.

CME 55

Drilling equipment such as drill rigs, augers, drill pipes, drilling rods and split-spoons are decontaminated prior to initial use, between borehole locations and at the completion of drilling activities. The drilling equipment is manually scrubbed with a brush using a phosphate-free solution and thoroughly steam cleaned and/or power washed to remove any foreign material and potential contaminants.

In addition, the spilt-spoon sampler and any sub-sampling equipment is decontaminated prior to each usage. Various solutions are used for sampling equipment decontamination as described below:

- Phosphate-free soap solution (i.e., Alconox), tap water and distilled water are used for suspected petroleum hydrocarbon soil sampling.
- A reagent-grade methanol solution and distilled water are used for suspected VOCs soil sampling. The reinstate waste is collected.
- Reagent-grade 10% nitric acid solution and distilled water are used for suspected metals soil sampling. The reinstate waste will be collected.

7.2.2) Sample Logging and Field Screening

Samples are typically collected at 1.5 m intervals in the overburden. Tactile examination of the samples is made to classify the soil, and a log is recorded for each borehole detailing the physical characteristics of the soil including colour, soil type, structure, and any observed staining or odour. The organic vapour readings, the moisture content of the samples as determined in the laboratory, the groundwater and cave-in levels measured at the time of investigation, and the groundwater monitoring well construction details are given on the borehole logs.

7.2.3) Field Screening and Calibration Procedures

The soil samples are classified based on physical characteristics including colour, soil type, moisture, and visible observation of staining and/or odour. In addition, the organic vapour reading for each soil sample is determined using a gas detector. Based on the overall soil physical characteristics, representative soil sample are selected for chemical analysis.

The organic vapour readings are measured using a portable RKI Eagle gas detector, TYPE 101 (Serial Number: E091015) set to include all gases, and having a minimum detection of 2 ppm. Prior to measurement, the detector is calibrated using a Hexane 40% LEL gas. The allowable range of calibration is 38% to 42%.

7.2.4) Soil Sampling

The soil from the disposable sampler liner is handled using new disposable gloves in order to avoid the risk of cross-contamination between the samples. Sufficient amounts of the soil samples are placed into clean glass jars with Teflon lined lids for analyses for Polychlorinated Biphenyls, Polyaromatic Hydrocarbons, moisture content, medium to heavy PHCs, and Metals and Inorganics.

Small amounts of the soil samples are collected using a disposable 'T'-shaped Terracore sampler and stored in methanol or sodium bisulfate vials for light PHCs (CCME F1) and VOCs analysis, respectively; the remainder of the samples is placed into a sealable bag for vapour measurement and soil classification. The samples are stored in an insulated container with ice after sampling and during shipment to the laboratory.

The minimum requirements for the number, type and frequency of field quality control are given below:

i. Field Duplicates: At least 1 field duplicate sample is collected and submitted for laboratory analysis for every 10 soil samples that are collected to ensure the soil sampling technique is accurate.

7.3) **Well Installation**

7.3.1) Introduction

The well installation procedures are described herein.

7.3.2) Screen and Riser Pipe

Monitoring wells are constructed from individually wrapped 38 or 50 mm inside diameter (ID) schedule 40 polyvinyl chloride (PVC) flush threaded casing equipped with O-rings. The screen consists of casing material which is factory slotted (slot width = 0.25 mm) to permit the entry of water into the well. The bottom of the screens are equipped with threaded end caps. The appropriate number of risers are coupled with the screen section(s) via threaded joints to construct the well. The top of the wells are tightly capped using a locking well cap, which prevents the infiltration of surface water and foreign material into the well and also provides security. A watertight, traffic-rated protective casing is installed over each monitoring well within a concrete pad extending approximately 0.5 mbgs. No PVC cements or other solvent based cements are used in the construction of the monitoring wells.

7.3.3) Well Materials Decontamination

Dedicated sampling equipment, such as submersible pumps, are decontaminated prior to installation inside monitoring wells.

Where factory-cleaned, hermetically sealed materials are used, no decontamination is conducted.

Setting Screen, Riser Casings and Filter Materials

At total depth, the soil cuttings are removed through circulation or rapidly spinning the augers prior to constructing the well. The drill pipe and bit or centre bit boring is removed. The well construction materials are then installed inside the open borehole or through the centre of the drive casing or augers.

After the monitoring well assembly is lowered to the bottom of the borehole, the filter pack is added until its height is approximately two feet above the top of the screen, and placement is verified. The filter pack is then surged using a surge block or swab in order to settle the pack material and reduce the possibility of bridging.

Setting Seals and Grouting

Once the top of the filter pack is verified to be in the correct position, a bentonite seal is placed above the filter pack. The seal is allowed to hydrate for at least one hour before proceeding with the grouting operation.

After hydration of the bentonite seal, grout is then pumped through a tremie pipe and filled from the top of the bentonite seal upward. The bottom of the tremie pipe should be maintained below the top of the grout to prevent free fall and bridging. When using drive casing or hollow-stem auger techniques, the drive casing/augers should be raised in incremental intervals, keeping the bottom of the drive casing/augers below the top of the grout. Grouting will cease when the grout level has risen to within approximately one to two feet of the ground surface, depending on the surface completion type (flush-mount versus above-ground). Grout levels are monitored to assure that grout taken into the formation is replaced by additional grout.

Capping the Wells

For above-ground completions, the protective steel casing will be centered on the well casing and inserted into the grouted annulus. Prior to installation, a 2-inch deep temporary spacer may be placed between the PVC well cap and the bottom of the protective casing cover to keep the protective casing from settling onto the well cap. A minimum of 24 hours after grouting should elapse before installation of the concrete pad and steel guard posts for above-ground completions, or street boxes or vaults for flush mount completions. For above-ground completions, a concrete pad, usually 3-foot by 3-foot by 4-inch thick, is constructed at ground surface around the protective steel casing. The concrete is sloped away from the protective casing to promote surface drainage from the well.

For flush-mount (or subgrade) completions, a street box or vault is set and cemented in position. The top of the street box or vault will be raised slightly above grade and the cement sloped to grade to promote surface drainage away from the well.

7.3.4) Documentation of Monitoring Well Configuration

The following information is recorded:

- Length of well screen
- Total depth of well boring
- Depth from ground surface to top of grout or bentonite plug in bottom of borehole (if present)
- Depth to base of well string
- Depth to top and bottom of well screen

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APPENDIX 'D'

BOREHOLE LOGS

REFERENCE NO. 1906-E146

JOB NO.: 1906-E146

LOG OF BOREHOLE NO.: 1

FIGURE NO.: 1

PROJECT DESCRIPTION: Proposed Residential Development

METHOD OF BORING: Hollow Stem Auger (Split Spoon)

PROJECT LOCATION: 1 Heron's Hill Way, City of Toronto

DRILLING DATE: August 14, 2019

El. (masl) / Depth (mbgs)	SOIL DESCRIPTION	SAMPLES: Number	SAMPLES: Type	SAMPLES: Organic Headspace Reading	Depth Scale (mbgs)	Organic Headspace Reading (ppm)	REMARKS	WATER LEVEL
176.21	Ground Surface							
0.0	**30 cm TOPSOIL**				0			
	Grey **SANDY SILT, Fill** occ. sand and gravel layers asphalt fragments at 1.5 m	1	DO	0.3				
		2	DO	0	1		BH1/2: Metals	
		3	DO	0				
174.2					2			
2.0	Brown **SILT** a trace of clay	4	DO	0.4			BH1/4: Metals, VOC, pH	▼
		5	DO	0.1	3			W L @ 2.52 mbgs on August 29, 2019
172.2					4			
4.0	Brown **SANDY SILT TILL** traces of clay and gravel occ. sand seams and layers	6	DO	0.2	5			
170.1					6			
6.1	END OF BOREHOLE Installed 51 mm standpipe to 4.3 m. Concrete from 0.0 to 0.3 m. Bentonite seal from 0.3 to 0.9 m. Sand backfill from 0.9 to 4.3 m. 3 m screen from 1.3 to 4.3 m. Provided with flushmount protective casing.				7			
					8			

Soil Engineers Ltd.

JOB NO.: 1906-E146

LOG OF BOREHOLE NO.: 2

FIGURE NO.: 2

PROJECT DESCRIPTION: Proposed Residential Development

METHOD OF BORING: Hollow Stem Auger (Split Spoon)

PROJECT LOCATION: 1 Heron's Hill Way, City of Toronto

DRILLING DATE: August 20, 2019

El. (masl) / Depth (mbgs)	SOIL DESCRIPTION	SAMPLES: Number	SAMPLES: Type	SAMPLES: Organic Headspace Reading	Depth Scale (mbgs)	Organic Headspace Reading (ppm)	REMARKS	WATER LEVEL
176.30 / 0.0	Ground Surface				0	20 60 100 140 180		
	30 cm TOPSOIL							
	Brown **SANDY SILT, Fill** occ. gravel and asphalt debris at 1.5 m	1	DO	0.3			BH2/1: Metals	
		2	DO	0.7	1		BH2/2: PAHs	
		3	DO	0.2				
174.2 / 2.1	Brown **SILTY CLAY** occ. wet silt and sand seams and layers	4	DO	0.2	2		BH2/4: Metals, VOC, pH	▼ W L @ 2.28 mbgs on August 29, 2019
		5	DO	0.3	3			
		6	DO	0.2	4			
171.7 / 4.6	**SANDY SILT TILL** traces of clay and gravel occ. sand seams and boulders	7	DO	0.1	5			
170.2 / 6.1	END OF BOREHOLE Installed 51 mm standpipe to 4.3 m. Concrete from 0.0 to 0.3 m. Bentonite seal from 0.3 to 0.9 m. Sand backfill from 0.9 to 4.3 m. 3 m screen from 1.3 to 4.3 m. Provided with flushmount protective casing.				6 7 8			

Soil Engineers Ltd.

JOB NO.: 1906-E146

LOG OF BOREHOLE NO.: 3

FIGURE NO.: 3

PROJECT DESCRIPTION: Proposed Residential Development

METHOD OF BORING: Hollow Stem Auger (Split Spoon)

PROJECT LOCATION: 1 Heron's Hill Way, City of Toronto

DRILLING DATE: August 20, 2019

El. (masl) / Depth (mbgs)	SOIL DESCRIPTION	SAMPLES: Number	SAMPLES: Type	SAMPLES: Organic Headspace Reading	Depth Scale (mbgs)	Organic Headspace Reading (ppm)	REMARKS	WATER LEVEL
176.08 / 0.0	Ground Surface							
	10 cm TOPSOIL							
	Dark brown to grey **SANDY SILT, Fill** some clay occ. topsoil and rootlet inclusions	1	DO	0.1				
		2	DO	0			BH3/2: PAH	
		3	DO	0				
173.4 / 2.7		4	DO	0				
	Brown **SILTY CLAY** occ. silt seams and layers	5	DO	0.1				
		6	DO	0.1				
170.9 / 5.2	END OF BORHOLE							

Organic Headspace Reading (ppm): 20, 60, 100, 140, 180

Depth Scale (mbgs): 0, 1, 2, 3, 4, 5, 6, 7, 8

Soil Engineers Ltd.

JOB NO.: 1906-E146

LOG OF BOREHOLE NO.: 4

FIGURE NO.: 4

PROJECT DESCRIPTION: Proposed Residential Development

METHOD OF BORING: Hollow Stem Auger (Split Spoon)

PROJECT LOCATION: 1 Heron's Hill Way, City of Toronto

DRILLING DATE: August 14, 2019

El. (masl) / Depth (mbgs)	SOIL DESCRIPTION	SAMPLES: Number	SAMPLES: Type	SAMPLES: Organic Headspace Reading	Depth Scale (mbgs)	Organic Headspace Reading (ppm)	REMARKS	WATER LEVEL
176.17 / 0.0	Ground Surface **20 cm TOPSOIL** **GRANULAR FILL**	1	DO	0.3	0			
	Brown **SANDY SILT, Fill** occ. topsoil inclusion and asphalt debris at 1.8 m silty clay layers	2	DO	0.2	1		BH4/2: Metals	
		3	DO	0.2	2			
		4	DO	0				
173.3 / 2.9	Brown **SILT** a trace of clay occ. fine sand seams	5	DO	0.4	3			
		6	DO	0.1	4			
171.0 / 5.2	END OF BORHOLE				5			
					6			
					7			
					8			

Organic Headspace Reading (ppm): 20 60 100 140 180

Soil Engineers Ltd.

JOB NO.: 1906-E146

LOG OF BOREHOLE NO.: 5

FIGURE NO.: 5

PROJECT DESCRIPTION: Proposed Residential Development

METHOD OF BORING: Hollow Stem Auger (Split Spoon)

PROJECT LOCATION: 1 Heron's Hill Way, City of Toronto

DRILLING DATE: August 20, 2019

El. (masl) / Depth (mbgs)	SOIL DESCRIPTION	SAMPLES: Number	SAMPLES: Type	SAMPLES: Organic Headspace Reading	Depth Scale (mbgs)	Organic Headspace Reading (ppm)	REMARKS	WATER LEVEL
176.05	Ground Surface							
0.0	**10 cm TOPSOIL**				0			
	Brown **SANDY SILT, Fill** some sand and gravel occ. topsoil and rootlet inclusions	1	DO	0				
		2	DO	0	1			
		3	DO	0				
					2			
173.5		4	DO	0			BH5/4: Metals	
2.6	Brown **SILTY CLAY** occ. silt layers				3			
173.2 2.9	END OF BORHOLE							
					4			
					5			
					6			
					7			
					8			

Organic Headspace Reading (ppm): 20 60 100 140 180

Soil Engineers Ltd.

JOB NO.: 1906-E146

LOG OF BOREHOLE NO.: 6

FIGURE NO.: 6

PROJECT DESCRIPTION: Proposed Residential Development

METHOD OF BORING: Hollow Stem Auger (Split Spoon)

PROJECT LOCATION: 1 Heron's Hill Way, City of Toronto

DRILLING DATE: August 16 & 19, 2019

El. (masl) / Depth (mbgs)	SOIL DESCRIPTION	SAMPLES: Number	SAMPLES: Type	SAMPLES: Organic Headspace Reading	Depth Scale (mbgs)	Organic Headspace Reading (ppm)	REMARKS	WATER LEVEL
176.64	Ground Surface							
0.0	**10 cm TOPSOIL**							
	Brown **SANDY SILT, Fill** traces of sand and gravel	1	DO	0.9				
		2	DO	0.3				
		3	DO	1.3				
		4	DO	1.3			BH6/4: PHC, VOC	
		5	DO	0.3				
173.4								
3.2	Grey **SANDY SILT TILL** some clay a trace of gravel occ. sand layers, cobbles and boulders	6	DO	0.5				
		7	DO	0.8			BH6/7: Metals, VOC	
		8	DO	0.5				
		9	DO	0.5				
170.5								
6.1	END OF BOREHOLE Installed 51 mm standpipe to 6.1 m. Bentonite seal from 0 to 2.4 m. Sand backfill from 2.4 to 6.1 m. 3 m screen from 3.1 to 6.1 m. Provided with monument protective casing.							

Organic Headspace Reading (ppm): 20, 60, 100, 140, 180

Depth Scale (mbgs): 0, 1, 2, 3, 4, 5, 6, 7, 8

W.L @ 3.21 mbgs on August 29, 2019

Soil Engineers Ltd.

JOB NO.: 1906-E146

LOG OF BOREHOLE NO.: 7

FIGURE NO.: 7

PROJECT DESCRIPTION: Proposed Residential Development

METHOD OF BORING: Hollow Stem Auger (Split Spoon)

PROJECT LOCATION: 1 Heron's Hill Way, City of Toronto

DRILLING DATE: August 20, 2019

El. (masl) / Depth (mbgs)	SOIL DESCRIPTION	SAMPLES: Number	SAMPLES: Type	SAMPLES: Organic Headspace Reading	Depth Scale (mbgs)	Organic Headspace Reading (ppm)	REMARKS	WATER LEVEL
175.23 / 0.0	Ground Surface				0	20 60 100 140 180		
	Brown **SILTY SAND, Fill** occ. organics	1	DO	0.1				
	brown silty clay	2	DO	0.3	1			
		3	DO	0.4	2		BH7/3: PHC, VOC Dup D2: VOC	
172.9 / 2.3	**SILTY CLAY TILL** occ. wet silt seams	4	DO	0.3	3			
	brown grey	5	DO	0.2			BH7/5: Metals, PHC, VOC	
		6	DO	0.1	4			
		7	DO	0.2	5			
169.9 / 5.3	END OF BOREHOLE Installed 51 mm standpipe to 4.9 m. Concrete from 0.0 to 0.3 m. Bentonite seal from 0.3 to 1.2 m. Sand backfill from 1.2 to 4.9 m. 3.1 m screen from 1.8 to 4.9 m. Provided with flushmount protective casing.				6 7 8			W.L @ 2.82 mbgs on August 29, 2019

Soil Engineers Ltd.

JOB NO.: 1906-E146

LOG OF BOREHOLE NO.: 8

FIGURE NO.: 8

PROJECT DESCRIPTION: Proposed Residential Development

METHOD OF BORING: Handheld Pionjar (Split Spoon)

PROJECT LOCATION: 1 Heron's Hill Way, City of Toronto

DRILLING DATE: August 15, 2019

El. (masl) / Depth (mbgs)	SOIL DESCRIPTION	SAMPLES: Number	SAMPLES: Type	SAMPLES: Organic Headspace Reading	Depth Scale (mbgs)	Organic Headspace Reading (ppm)	REMARKS
176.46	Ground Surface						
0.0	**15 cm TOPSOIL**				0		
	Granular, Fill Brown to dark brown	1	DO	0			BH8/1: Metals DUP-S: Metals
	SANDY SILT, Fill occ. gravel and organics	2	DO	0	1		
175.2 1.2	**SILTY CLAY TILL** traces of sand and gravel occ. silt seams	3	DO	0	2		BH8/3: Metals Dup D1: Metals
		4	DO	0			
		5	DO	0	3		
					4		
	brown / grey	6	DO	0	5		BH8/6: PHC, VOC
		7	DO	0			
170.4 6.1	END OF BOREHOLE Installed 51 mm standpipe. Concrete from 0.0 to 0.3 m. Bentonite seal from 0.3 to 2.4 m. Sand backfill from 2.4 to 6 m. 3 m screen from 3 to 6 m. Provided with flushmount protective casing.				6 7 8		

Organic Headspace Reading (ppm): 20 60 100 140 180

WATER LEVEL: W.L @ 1.05 mbgs on August 29, 2019

Soil Engineers Ltd.

JOB NO.: 1906-E146

LOG OF BOREHOLE NO.: 9

FIGURE NO.: 9

PROJECT DESCRIPTION: Proposed Residential Development

METHOD OF BORING: Handheld Pionjar (Split Spoon)

PROJECT LOCATION: 1 Heron's Hill Way, City of Toronto

DRILLING DATE: August 15, 2019

El. (masl) / Depth (mbgs)	SOIL DESCRIPTION	SAMPLES: Number	SAMPLES: Type	SAMPLES: Organic Headspace Reading	Depth Scale (mbgs)	Organic Headspace Reading (ppm)	REMARKS	WATER LEVEL
176.29 / 0.0	Ground Surface				0	20 60 100 140 180		
	15 cm TOPSOIL							
	Brown **SANDY SILT, Fill** occ. sand and gravel pockets	1	DO	0			BH9/1: PAHs	
		2	DO	0	1		BH9/2: Metals	
174.3 / 2.0		3	DO	0	2		BH9/3: VOC	
	Brown **SILTY CLAY TILL** occ. sand layers	4	DO	0			BH9/4: pH, Metals	
		5	DO	0	3			
171.7		6	DO	0	4			
4.6	END OF BOREHOLE Installed 51 mm standpipe to 4.6 m. Concrete from 0.0 to 0.3 m. Bentonite seal from 0.3 to 1.2 m. Sand backfill from 1.2 to 1.5 m. 3.1 m screen from 1.5 to 4.6 m. Provided with flushmount protective casing.				5 6 7 8			W.L @ 1.20 mbgs on August 29, 2019

Soil Engineers Ltd.

Soil Engineers Ltd.
CONSULTING ENGINEERS
GEOTECHNICAL • ENVIRONMENTAL • HYDROGEOLOGICAL • BUILDING SCIENCE
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APPENDIX 'E'

CERTIFICATE OF ANALYSIS
(SOIL SAMPLES)

REFERENCE NO. 1906-E146

Your Project #: 1906-E146
Site Location: PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY TORONTO
Your C.O.C. #: 733013-01-01

Attention: Munir Ahmad

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/08/22
Report #: R5850309
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9M8387
Received: 2019/08/16, 16:49

Sample Matrix: Soil
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	1	N/A	2019/08/20		EPA 8260C m
1,3-Dichloropropene Sum	2	N/A	2019/08/21		EPA 8260C m
Free (WAD) Cyanide	1	2019/08/20	2019/08/21	CAM SOP-00457	OMOE E3015 m
Hexavalent Chromium in Soil by IC (1)	1	2019/08/20	2019/08/20	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydrocarbons F2-F4 in Soil (2)	1	2019/08/20	2019/08/20	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS	5	2019/08/20	2019/08/22	CAM SOP-00447	EPA 6020B m
Moisture	4	N/A	2019/08/19	CAM SOP-00445	Carter 2nd ed 51.2 m
pH CaCl2 EXTRACT	1	2019/08/20	2019/08/20	CAM SOP-00413	EPA 9045 D m
Volatile Organic Compounds and F1 PHCs	1	N/A	2019/08/20	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Soil	2	N/A	2019/08/20	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Your Project #: 1906-E146
Site Location: PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY TORONTO
Your C.O.C. #: 733013-01-01

Attention: Munir Ahmad

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/08/22
Report #: R5850309
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9M8387
Received: 2019/08/16, 16:49

(1) Soils are reported on a dry weight basis unless otherwise specified.
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: Antonella.Brasil@bvlabs.com
Phone# (905)817-5817

This report has been generated and distributed using a secure automated process.
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

BV Labs Job #: B9M8387
Report Date: 2019/08/22

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY TORONTO
Sampler Initials: MA

O.REG 153 ICPMS METALS (SOIL)

BV Labs ID			KNT378	KNT379	KNT380	KNT383	KNT384		
Sampling Date			2019/08/15 11:30	2019/08/14 09:30	2019/08/15 15:00	2019/08/15 11:00	2019/08/15		
COC Number			733013-01-01	733013-01-01	733013-01-01	733013-01-01	733013-01-01		
	UNITS	Criteria	BH1SS4	BH4SS2	BH8SS3	BH9SS4	D1	RDL	QC Batch
Metals									
Acid Extractable Antimony (Sb)	ug/g	**7.5**	<0.20	0.32	<0.20	<0.20	<0.20	0.20	6289417
Acid Extractable Arsenic (As)	ug/g	**18**	1.9	2.9	2.1	1.9	1.9	1.0	6289417
Acid Extractable Barium (Ba)	ug/g	**390**	82	54	100	100	100	0.50	6289417
Acid Extractable Beryllium (Be)	ug/g	**4**	0.43	0.47	0.47	0.48	0.47	0.20	6289417
Acid Extractable Boron (B)	ug/g	**120**	6.8	8.3	8.5	8.0	8.3	5.0	6289417
Acid Extractable Cadmium (Cd)	ug/g	**1.2**	0.14	0.11	<0.10	<0.10	<0.10	0.10	6289417
Acid Extractable Chromium (Cr)	ug/g	**160**	17	19	20	19	19	1.0	6289417
Acid Extractable Cobalt (Co)	ug/g	**22**	7.4	7.5	8.0	7.9	7.7	0.10	6289417
Acid Extractable Copper (Cu)	ug/g	**140**	13	18	15	16	15	0.50	6289417
Acid Extractable Lead (Pb)	ug/g	**120**	7.3	14	7.3	7.5	7.0	1.0	6289417
Acid Extractable Molybdenum (Mo)	ug/g	**6.9**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6289417
Acid Extractable Nickel (Ni)	ug/g	**100**	15	16	18	18	17	0.50	6289417
Acid Extractable Selenium (Se)	ug/g	**2.4**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6289417
Acid Extractable Silver (Ag)	ug/g	**20**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6289417
Acid Extractable Thallium (Tl)	ug/g	**1**	0.11	0.096	0.16	0.14	0.16	0.050	6289417
Acid Extractable Uranium (U)	ug/g	**23**	0.58	0.50	0.51	0.50	0.51	0.050	6289417
Acid Extractable Vanadium (V)	ug/g	**86**	24	25	29	27	28	5.0	6289417
Acid Extractable Zinc (Zn)	ug/g	**340**	36	48	38	40	37	5.0	6289417
Acid Extractable Mercury (Hg)	ug/g	**0.27**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6289417

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9M8387
Report Date: 2019/08/22

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY TORONTO
Sampler Initials: MA

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

BV Labs ID			KNT381		
Sampling Date			2019/08/15 16:15		
COC Number			733013-01-01		
	UNITS	Criteria	BH8SS6	RDL	QC Batch
Inorganics					
Moisture	%	-	14	1.0	6287068
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/g	**0.05**	<0.050	0.050	6285580
Volatile Organics					
Acetone (2-Propanone)	ug/g	**16**	<0.50	0.50	6287312
Benzene	ug/g	**0.21**	<0.020	0.020	6287312
Bromodichloromethane	ug/g	**13**	<0.050	0.050	6287312
Bromoform	ug/g	**0.27**	<0.050	0.050	6287312
Bromomethane	ug/g	**0.05**	<0.050	0.050	6287312
Carbon Tetrachloride	ug/g	**0.05**	<0.050	0.050	6287312
Chlorobenzene	ug/g	**2.4**	<0.050	0.050	6287312
Chloroform	ug/g	**0.05**	<0.050	0.050	6287312
Dibromochloromethane	ug/g	**9.4**	<0.050	0.050	6287312
1,2-Dichlorobenzene	ug/g	**3.4**	<0.050	0.050	6287312
1,3-Dichlorobenzene	ug/g	**4.8**	<0.050	0.050	6287312
1,4-Dichlorobenzene	ug/g	**0.083**	<0.050	0.050	6287312
Dichlorodifluoromethane (FREON 12)	ug/g	**16**	<0.050	0.050	6287312
1,1-Dichloroethane	ug/g	**3.5**	<0.050	0.050	6287312
1,2-Dichloroethane	ug/g	**0.05**	<0.050	0.050	6287312
1,1-Dichloroethylene	ug/g	**0.05**	<0.050	0.050	6287312
cis-1,2-Dichloroethylene	ug/g	**3.4**	<0.050	0.050	6287312
trans-1,2-Dichloroethylene	ug/g	**0.084**	<0.050	0.050	6287312
1,2-Dichloropropane	ug/g	**0.05**	<0.050	0.050	6287312
cis-1,3-Dichloropropene	ug/g	**0.05**	<0.030	0.030	6287312
trans-1,3-Dichloropropene	ug/g	**0.05**	<0.040	0.040	6287312
Ethylbenzene	ug/g	**2**	<0.020	0.020	6287312
Ethylene Dibromide	ug/g	**0.05**	<0.050	0.050	6287312
Hexane	ug/g	**2.8**	<0.050	0.050	6287312
Methylene Chloride(Dichloromethane)	ug/g	**0.1**	<0.050	0.050	6287312

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9M8387
Report Date: 2019/08/22

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY TORONTO
Sampler Initials: MA

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

BV Labs ID			KNT381		
Sampling Date			2019/08/15 16:15		
COC Number			733013-01-01		
	UNITS	Criteria	BH8SS6	RDL	QC Batch
Methyl Ethyl Ketone (2-Butanone)	ug/g	**16**	<0.50	0.50	6287312
Methyl Isobutyl Ketone	ug/g	**1.7**	<0.50	0.50	6287312
Methyl t-butyl ether (MTBE)	ug/g	**0.75**	<0.050	0.050	6287312
Styrene	ug/g	**0.7**	<0.050	0.050	6287312
1,1,1,2-Tetrachloroethane	ug/g	**0.058**	<0.050	0.050	6287312
1,1,2,2-Tetrachloroethane	ug/g	**0.05**	<0.050	0.050	6287312
Tetrachloroethylene	ug/g	**0.28**	<0.050	0.050	6287312
Toluene	ug/g	**2.3**	<0.020	0.020	6287312
1,1,1-Trichloroethane	ug/g	**0.38**	<0.050	0.050	6287312
1,1,2-Trichloroethane	ug/g	**0.05**	<0.050	0.050	6287312
Trichloroethylene	ug/g	**0.061**	<0.050	0.050	6287312
Trichlorofluoromethane (FREON 11)	ug/g	**4**	<0.050	0.050	6287312
Vinyl Chloride	ug/g	**0.02**	<0.020	0.020	6287312
p+m-Xylene	ug/g	-	<0.020	0.020	6287312
o-Xylene	ug/g	-	<0.020	0.020	6287312
Total Xylenes	ug/g	**3.1**	<0.020	0.020	6287312
F1 (C6-C10)	ug/g	**55**	<10	10	6287312
F1 (C6-C10) - BTEX	ug/g	**55**	<10	10	6287312
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	<10	10	6288772
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	<50	50	6288772
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	<50	50	6288772
Reached Baseline at C50	ug/g	-	Yes		6288772
Surrogate Recovery (%)					
o-Terphenyl	%	-	102		6288772
4-Bromofluorobenzene	%	-	98		6287312
D10-o-Xylene	%	-	117		6287312
D4-1,2-Dichloroethane	%	-	84		6287312
D8-Toluene	%	-	97		6287312

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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O.REG 153 VOCS BY HS (SOIL)

BV Labs ID			KNT378	KNT382		
Sampling Date			2019/08/15 11:30	2019/08/15 10:45		
COC Number			733013-01-01	733013-01-01		
	UNITS	Criteria	BH1SS4	BH9SS3	RDL	QC Batch
Inorganics						
Moisture	%	-	12	11	1.0	6287068
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/g	**0.05**	<0.050	<0.050	0.050	6285580
Volatile Organics						
Acetone (2-Propanone)	ug/g	**16**	<0.50	<0.50	0.50	6288843
Benzene	ug/g	**0.21**	<0.020	<0.020	0.020	6288843
Bromodichloromethane	ug/g	**13**	<0.050	<0.050	0.050	6288843
Bromoform	ug/g	**0.27**	<0.050	<0.050	0.050	6288843
Bromomethane	ug/g	**0.05**	<0.050	<0.050	0.050	6288843
Carbon Tetrachloride	ug/g	**0.05**	<0.050	<0.050	0.050	6288843
Chlorobenzene	ug/g	**2.4**	<0.050	<0.050	0.050	6288843
Chloroform	ug/g	**0.05**	<0.050	<0.050	0.050	6288843
Dibromochloromethane	ug/g	**9.4**	<0.050	<0.050	0.050	6288843
1,2-Dichlorobenzene	ug/g	**3.4**	<0.050	<0.050	0.050	6288843
1,3-Dichlorobenzene	ug/g	**4.8**	<0.050	<0.050	0.050	6288843
1,4-Dichlorobenzene	ug/g	**0.083**	<0.050	<0.050	0.050	6288843
Dichlorodifluoromethane (FREON 12)	ug/g	**16**	<0.050	<0.050	0.050	6288843
1,1-Dichloroethane	ug/g	**3.5**	<0.050	<0.050	0.050	6288843
1,2-Dichloroethane	ug/g	**0.05**	<0.050	<0.050	0.050	6288843
1,1-Dichloroethylene	ug/g	**0.05**	<0.050	<0.050	0.050	6288843
cis-1,2-Dichloroethylene	ug/g	**3.4**	<0.050	<0.050	0.050	6288843
trans-1,2-Dichloroethylene	ug/g	**0.084**	<0.050	<0.050	0.050	6288843
1,2-Dichloropropane	ug/g	**0.05**	<0.050	<0.050	0.050	6288843
cis-1,3-Dichloropropene	ug/g	**0.05**	<0.030	<0.030	0.030	6288843
trans-1,3-Dichloropropene	ug/g	**0.05**	<0.040	<0.040	0.040	6288843
Ethylbenzene	ug/g	**2**	<0.020	<0.020	0.020	6288843
Ethylene Dibromide	ug/g	**0.05**	<0.050	<0.050	0.050	6288843
Hexane	ug/g	**2.8**	<0.050	<0.050	0.050	6288843
Methylene Chloride(Dichloromethane)	ug/g	**0.1**	<0.050	<0.050	0.050	6288843

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9M8387
Report Date: 2019/08/22

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY TORONTO
Sampler Initials: MA

O.REG 153 VOCS BY HS (SOIL)

BV Labs ID			KNT378	KNT382		
Sampling Date			2019/08/15 11:30	2019/08/15 10:45		
COC Number			733013-01-01	733013-01-01		
	UNITS	Criteria	BH1SS4	BH9SS3	RDL	QC Batch
Methyl Ethyl Ketone (2-Butanone)	ug/g	**16**	<0.50	<0.50	0.50	6288843
Methyl Isobutyl Ketone	ug/g	**1.7**	<0.50	<0.50	0.50	6288843
Methyl t-butyl ether (MTBE)	ug/g	**0.75**	<0.050	<0.050	0.050	6288843
Styrene	ug/g	**0.7**	<0.050	<0.050	0.050	6288843
1,1,1,2-Tetrachloroethane	ug/g	**0.058**	<0.050	<0.050	0.050	6288843
1,1,2,2-Tetrachloroethane	ug/g	**0.05**	<0.050	<0.050	0.050	6288843
Tetrachloroethylene	ug/g	**0.28**	<0.050	<0.050	0.050	6288843
Toluene	ug/g	**2.3**	<0.020	<0.020	0.020	6288843
1,1,1-Trichloroethane	ug/g	**0.38**	<0.050	<0.050	0.050	6288843
1,1,2-Trichloroethane	ug/g	**0.05**	<0.050	<0.050	0.050	6288843
Trichloroethylene	ug/g	**0.061**	<0.050	<0.050	0.050	6288843
Trichlorofluoromethane (FREON 11)	ug/g	**4**	<0.050	<0.050	0.050	6288843
Vinyl Chloride	ug/g	**0.02**	<0.020	<0.020	0.020	6288843
p+m-Xylene	ug/g	-	<0.020	<0.020	0.020	6288843
o-Xylene	ug/g	-	<0.020	<0.020	0.020	6288843
Total Xylenes	ug/g	**3.1**	<0.020	<0.020	0.020	6288843
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	-	88	92		6288843
D10-o-Xylene	%	-	108	98		6288843
D4-1,2-Dichloroethane	%	-	100	99		6288843
D8-Toluene	%	-	91	91		6288843

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9M8387
Report Date: 2019/08/22

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY TORONTO
Sampler Initials: MA

RESULTS OF ANALYSES OF SOIL

BV Labs ID			KNT379			KNT383	
Sampling Date			2019/08/14 09:30			2019/08/15 11:00	
COC Number			733013-01-01			733013-01-01	
	UNITS	Criteria	BH4SS2	RDL	QC Batch	BH9SS4	QC Batch
Inorganics							
Moisture	%	-	8.2	1.0	6287068		
Available (CaCl2) pH	pH	-				7.86	6288884
WAD Cyanide (Free)	ug/g	**0.051**	<0.01	0.01	6289308		

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9M8387
Report Date: 2019/08/22

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY TORONTO
Sampler Initials: MA

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

BV Labs ID			KNT379		
Sampling Date			2019/08/14 09:30		
COC Number			733013-01-01		
	UNITS	Criteria	BH4SS2	RDL	QC Batch
Inorganics					
Chromium (VI)	ug/g	8	<0.2	0.2	6288707

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9M8387
Report Date: 2019/08/22

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY TORONTO
Sampler Initials: MA

TEST SUMMARY

BV Labs ID: KNT378
Sample ID: BH1SS4
Matrix: Soil

Collected: 2019/08/15
Shipped:
Received: 2019/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6285580	N/A	2019/08/21	Automated Statchk
Strong Acid Leachable Metals by ICPMS	ICP/MS	6289417	2019/08/20	2019/08/22	Daniel Teclu
Moisture	BAL	6287068	N/A	2019/08/19	Mithunaa Sasitheepan
Volatile Organic Compounds in Soil	GC/MS	6288843	N/A	2019/08/20	Chandni Khawas

BV Labs ID: KNT379
Sample ID: BH4SS2
Matrix: Soil

Collected: 2019/08/14
Shipped:
Received: 2019/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	6289308	2019/08/20	2019/08/21	Barbara Kalbasi Esfahani
Hexavalent Chromium in Soil by IC	IC/SPEC	6288707	2019/08/20	2019/08/20	Rupinder Sihota
Strong Acid Leachable Metals by ICPMS	ICP/MS	6289417	2019/08/20	2019/08/22	Daniel Teclu
Moisture	BAL	6287068	N/A	2019/08/19	Mithunaa Sasitheepan

BV Labs ID: KNT380
Sample ID: BH8SS3
Matrix: Soil

Collected: 2019/08/15
Shipped:
Received: 2019/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6289417	2019/08/20	2019/08/22	Daniel Teclu

BV Labs ID: KNT381
Sample ID: BH8SS6
Matrix: Soil

Collected: 2019/08/15
Shipped:
Received: 2019/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6285580	N/A	2019/08/20	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6288772	2019/08/20	2019/08/20	Atoosa Keshavarz
Moisture	BAL	6287068	N/A	2019/08/19	Mithunaa Sasitheepan
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6287312	N/A	2019/08/20	Denis Reid

BV Labs ID: KNT382
Sample ID: BH9SS3
Matrix: Soil

Collected: 2019/08/15
Shipped:
Received: 2019/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6285580	N/A	2019/08/21	Automated Statchk
Moisture	BAL	6287068	N/A	2019/08/19	Mithunaa Sasitheepan
Volatile Organic Compounds in Soil	GC/MS	6288843	N/A	2019/08/20	Chandni Khawas

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BV Labs Job #: B9M8387
Report Date: 2019/08/22

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY TORONTO
Sampler Initials: MA

TEST SUMMARY

BV Labs ID: KNT383
Sample ID: BH9SS4
Matrix: Soil

Collected: 2019/08/15
Shipped:
Received: 2019/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6289417	2019/08/20	2019/08/22	Daniel Teclu
pH CaCl2 EXTRACT	AT	6288884	2019/08/20	2019/08/20	Surinder Rai

BV Labs ID: KNT384
Sample ID: D1
Matrix: Soil

Collected: 2019/08/15
Shipped:
Received: 2019/08/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6289417	2019/08/20	2019/08/22	Daniel Teclu

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	8.3°C

Results relate only to the items tested.

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BV Labs Job #: B9M8387
Report Date: 2019/08/22

QUALITY ASSURANCE REPORT

Soil Engineers Ltd
Client Project #: 1906-E146
PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY
Site Location: TORONTO
Sampler Initials: MA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6287312	4-Bromofluorobenzene	2019/08/19	104	60 - 140	104	60 - 140	98	%		
6287312	D10-o-Xylene	2019/08/19	110	60 - 130	111	60 - 130	104	%		
6287312	D4-1,2-Dichloroethane	2019/08/19	80	60 - 140	98	60 - 140	100	%		
6287312	D8-Toluene	2019/08/19	103	60 - 140	107	60 - 140	97	%		
6288772	o-Terphenyl	2019/08/20	93	60 - 130	100	60 - 130	106	%		
6288843	4-Bromofluorobenzene	2019/08/20	98	60 - 140	99	60 - 140	112	%		
6288843	D10-o-Xylene	2019/08/20	120	60 - 130	98	60 - 130	91	%		
6288843	D4-1,2-Dichloroethane	2019/08/20	91	60 - 140	97	60 - 140	105	%		
6288843	D8-Toluene	2019/08/20	108	60 - 140	107	60 - 140	88	%		
6287068	Moisture	2019/08/19							1.3	20
6287312	1,1,1,2-Tetrachloroethane	2019/08/20	94	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
6287312	1,1,1-Trichloroethane	2019/08/20	76	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
6287312	1,1,2,2-Tetrachloroethane	2019/08/20	85	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6287312	1,1,2-Trichloroethane	2019/08/20	89	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6287312	1,1-Dichloroethane	2019/08/20	73	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
6287312	1,1-Dichloroethylene	2019/08/20	75	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6287312	1,2-Dichlorobenzene	2019/08/20	86	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
6287312	1,2-Dichloroethane	2019/08/20	70	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
6287312	1,2-Dichloropropane	2019/08/20	69	60 - 140	86	60 - 130	<0.050	ug/g	NC	50
6287312	1,3-Dichlorobenzene	2019/08/20	88	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6287312	1,4-Dichlorobenzene	2019/08/20	91	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6287312	Acetone (2-Propanone)	2019/08/20	53 (1)	60 - 140	95	60 - 140	<0.50	ug/g	NC	50
6287312	Benzene	2019/08/20	71	60 - 140	89	60 - 130	<0.020	ug/g	NC	50
6287312	Bromodichloromethane	2019/08/20	69	60 - 140	86	60 - 130	<0.050	ug/g	NC	50
6287312	Bromoform	2019/08/20	90	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
6287312	Bromomethane	2019/08/20	78	60 - 140	99	60 - 140	<0.050	ug/g	NC	50
6287312	Carbon Tetrachloride	2019/08/20	75	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
6287312	Chlorobenzene	2019/08/20	83	60 - 140	86	60 - 130	<0.050	ug/g	NC	50
6287312	Chloroform	2019/08/20	70	60 - 140	88	60 - 130	<0.050	ug/g	NC	50
6287312	cis-1,2-Dichloroethylene	2019/08/20	66	60 - 140	82	60 - 130	<0.050	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6287312	cis-1,3-Dichloropropene	2019/08/20	60 (1)	60 - 140	75	60 - 130	<0.030	ug/g	NC	50
6287312	Dibromochloromethane	2019/08/20	91	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
6287312	Dichlorodifluoromethane (FREON 12)	2019/08/20	72	60 - 140	93	60 - 140	<0.050	ug/g	NC	50
6287312	Ethylbenzene	2019/08/20	80	60 - 140	83	60 - 130	<0.020	ug/g	NC	50
6287312	Ethylene Dibromide	2019/08/20	82	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
6287312	F1 (C6-C10) - BTEX	2019/08/20					<10	ug/g	NC	30
6287312	F1 (C6-C10)	2019/08/20	104	60 - 140	95	80 - 120	<10	ug/g	NC	30
6287312	Hexane	2019/08/20	74	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
6287312	Methyl Ethyl Ketone (2-Butanone)	2019/08/20	55 (1)	60 - 140	91	60 - 140	<0.50	ug/g	NC	50
6287312	Methyl Isobutyl Ketone	2019/08/20	63	60 - 140	88	60 - 130	<0.50	ug/g	NC	50
6287312	Methyl t-butyl ether (MTBE)	2019/08/20	61	60 - 140	77	60 - 130	<0.050	ug/g	NC	50
6287312	Methylene Chloride(Dichloromethane)	2019/08/20	67	60 - 140	83	60 - 130	<0.050	ug/g	NC	50
6287312	o-Xylene	2019/08/20	82	60 - 140	85	60 - 130	<0.020	ug/g	NC	50
6287312	p+m-Xylene	2019/08/20	86	60 - 140	89	60 - 130	<0.020	ug/g	NC	50
6287312	Styrene	2019/08/20	84	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
6287312	Tetrachloroethylene	2019/08/20	89	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
6287312	Toluene	2019/08/20	84	60 - 140	88	60 - 130	<0.020	ug/g	NC	50
6287312	Total Xylenes	2019/08/20					<0.020	ug/g	NC	50
6287312	trans-1,2-Dichloroethylene	2019/08/20	73	60 - 140	91	60 - 130	<0.050	ug/g	NC	50
6287312	trans-1,3-Dichloropropene	2019/08/20	77	60 - 140	82	60 - 130	<0.040	ug/g	NC	50
6287312	Trichloroethylene	2019/08/20	74	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
6287312	Trichlorofluoromethane (FREON 11)	2019/08/20	85	60 - 140	107	60 - 130	<0.050	ug/g	NC	50
6287312	Vinyl Chloride	2019/08/20	96	60 - 140	96	60 - 130	<0.020	ug/g	NC	50
6288707	Chromium (VI)	2019/08/20	41 (2)	70 - 130	97	80 - 120	<0.2	ug/g	NC	35
6288772	F2 (C10-C16 Hydrocarbons)	2019/08/20	84	50 - 130	90	80 - 120	<10	ug/g	NC	30
6288772	F3 (C16-C34 Hydrocarbons)	2019/08/20	90	50 - 130	95	80 - 120	<50	ug/g	NC	30
6288772	F4 (C34-C50 Hydrocarbons)	2019/08/20	98	50 - 130	103	80 - 120	<50	ug/g	NC	30
6288843	1,1,1,2-Tetrachloroethane	2019/08/20	108	60 - 140	110	60 - 130	<0.050	ug/g	NC	50
6288843	1,1,1-Trichloroethane	2019/08/20	102	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6288843	1,1,2,2-Tetrachloroethane	2019/08/20	100	60 - 140	107	60 - 130	<0.050	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6288843	1,1,2-Trichloroethane	2019/08/20	97	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6288843	1,1-Dichloroethane	2019/08/20	94	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
6288843	1,1-Dichloroethylene	2019/08/20	104	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
6288843	1,2-Dichlorobenzene	2019/08/20	98	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
6288843	1,2-Dichloroethane	2019/08/20	96	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6288843	1,2-Dichloropropane	2019/08/20	91	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6288843	1,3-Dichlorobenzene	2019/08/20	97	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6288843	1,4-Dichlorobenzene	2019/08/20	104	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
6288843	Acetone (2-Propanone)	2019/08/20	98	60 - 140	106	60 - 140	<0.50	ug/g	NC	50
6288843	Benzene	2019/08/20	97	60 - 140	98	60 - 130	<0.020	ug/g	NC	50
6288843	Bromodichloromethane	2019/08/20	99	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
6288843	Bromoform	2019/08/20	105	60 - 140	112	60 - 130	<0.050	ug/g	NC	50
6288843	Bromomethane	2019/08/20	114	60 - 140	116	60 - 140	<0.050	ug/g	NC	50
6288843	Carbon Tetrachloride	2019/08/20	129	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
6288843	Chlorobenzene	2019/08/20	99	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
6288843	Chloroform	2019/08/20	93	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
6288843	cis-1,2-Dichloroethylene	2019/08/20	94	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
6288843	cis-1,3-Dichloropropene	2019/08/20	98	60 - 140	103	60 - 130	<0.030	ug/g	NC	50
6288843	Dibromochloromethane	2019/08/20	103	60 - 140	108	60 - 130	<0.050	ug/g	NC	50
6288843	Dichlorodifluoromethane (FREON 12)	2019/08/20	128	60 - 140	124	60 - 140	<0.050	ug/g	NC	50
6288843	Ethylbenzene	2019/08/20	98	60 - 140	95	60 - 130	<0.020	ug/g	NC	50
6288843	Ethylene Dibromide	2019/08/20	100	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
6288843	Hexane	2019/08/20	110	60 - 140	106	60 - 130	<0.050	ug/g	NC	50
6288843	Methyl Ethyl Ketone (2-Butanone)	2019/08/20	91	60 - 140	101	60 - 140	<0.50	ug/g	NC	50
6288843	Methyl Isobutyl Ketone	2019/08/20	103	60 - 140	117	60 - 130	<0.50	ug/g	NC	50
6288843	Methyl t-butyl ether (MTBE)	2019/08/20	89	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
6288843	Methylene Chloride(Dichloromethane)	2019/08/20	89	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
6288843	o-Xylene	2019/08/20	104	60 - 140	102	60 - 130	<0.020	ug/g	NC	50
6288843	p+m-Xylene	2019/08/20	89	60 - 140	87	60 - 130	<0.020	ug/g	NC	50
6288843	Styrene	2019/08/20	90	60 - 140	91	60 - 130	<0.050	ug/g	NC	50

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			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6288843	Tetrachloroethylene	2019/08/20	101	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
6288843	Toluene	2019/08/20	102	60 - 140	99	60 - 130	<0.020	ug/g	NC	50
6288843	Total Xylenes	2019/08/20					<0.020	ug/g	NC	50
6288843	trans-1,2-Dichloroethylene	2019/08/20	101	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
6288843	trans-1,3-Dichloropropene	2019/08/20	102	60 - 140	109	60 - 130	<0.040	ug/g	NC	50
6288843	Trichloroethylene	2019/08/20	106	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
6288843	Trichlorofluoromethane (FREON 11)	2019/08/20	118	60 - 140	115	60 - 130	<0.050	ug/g	NC	50
6288843	Vinyl Chloride	2019/08/20	116	60 - 140	113	60 - 130	<0.020	ug/g	NC	50
6288884	Available (CaCl2) pH	2019/08/20			100	97 - 103			0.16	N/A
6289308	WAD Cyanide (Free)	2019/08/21	100	75 - 125	101	80 - 120	<0.01	ug/g	NC	35
6289417	Acid Extractable Antimony (Sb)	2019/08/22	108	75 - 125	104	80 - 120	<0.20	ug/g	9.6	30
6289417	Acid Extractable Arsenic (As)	2019/08/22	111	75 - 125	105	80 - 120	<1.0	ug/g	2.7	30
6289417	Acid Extractable Barium (Ba)	2019/08/22	114	75 - 125	105	80 - 120	<0.50	ug/g	5.3	30
6289417	Acid Extractable Beryllium (Be)	2019/08/22	106	75 - 125	102	80 - 120	<0.20	ug/g	NC	30
6289417	Acid Extractable Boron (B)	2019/08/22	102	75 - 125	101	80 - 120	<5.0	ug/g	2.8	30
6289417	Acid Extractable Cadmium (Cd)	2019/08/22	108	75 - 125	103	80 - 120	<0.10	ug/g	7.7	30
6289417	Acid Extractable Chromium (Cr)	2019/08/22	111	75 - 125	104	80 - 120	<1.0	ug/g	0.052	30
6289417	Acid Extractable Cobalt (Co)	2019/08/22	104	75 - 125	103	80 - 120	<0.10	ug/g	18	30
6289417	Acid Extractable Copper (Cu)	2019/08/22	107	75 - 125	106	80 - 120	<0.50	ug/g	1.6	30
6289417	Acid Extractable Lead (Pb)	2019/08/22	101	75 - 125	102	80 - 120	<1.0	ug/g	3.5	30
6289417	Acid Extractable Mercury (Hg)	2019/08/22	93	75 - 125	96	80 - 120	<0.050	ug/g		
6289417	Acid Extractable Molybdenum (Mo)	2019/08/22	112	75 - 125	103	80 - 120	<0.50	ug/g	5.3	30
6289417	Acid Extractable Nickel (Ni)	2019/08/22	111	75 - 125	103	80 - 120	<0.50	ug/g	0.44	30
6289417	Acid Extractable Selenium (Se)	2019/08/22	110	75 - 125	104	80 - 120	<0.50	ug/g	NC	30
6289417	Acid Extractable Silver (Ag)	2019/08/22	91	75 - 125	88	80 - 120	<0.20	ug/g	NC	30
6289417	Acid Extractable Thallium (Tl)	2019/08/22	102	75 - 125	101	80 - 120	<0.050	ug/g	2.2	30
6289417	Acid Extractable Uranium (U)	2019/08/22	103	75 - 125	99	80 - 120	<0.050	ug/g	7.6	30
6289417	Acid Extractable Vanadium (V)	2019/08/22	113	75 - 125	102	80 - 120	<5.0	ug/g	4.1	30

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BV Labs Job #: B9M8387
Report Date: 2019/08/22

QUALITY ASSURANCE REPORT(CONT'D)

Soil Engineers Ltd
Client Project #: 1906-E146
PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY
Site Location: TORONTO
Sampler Initials: MA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6289417	Acid Extractable Zinc (Zn)	2019/08/22	NC	75 - 125	104	80 - 120	<5.0	ug/g	3.1	30

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

(2) The matrix spike recovery was below the lower control limit. This may be due in part to the reducing environment of the sample. The matrix spike was reanalyzed to confirm result.

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BV Labs Job #: B9M8387
Report Date: 2019/08/22

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE II ESA/ 1,15 & 25 HERON'S HILL WAY TORONTO
Sampler Initials: MA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, Scientific Service Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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BV Labs Job #: B9M8387
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Sampler Initials: MA

Exceedence Summary Table – Reg153/04 T3-Soil/Res-C

Result Exceedences

Sample ID	BV Labs ID	Parameter	Criteria	Result	DL	Units
No Exceedences						

The exceedence summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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Your Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Your C.O.C. #: 733218-01-01

Attention: Munir Ahmad

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/08/28
Report #: R5858030
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B9N1258
Received: 2019/08/20, 16:16

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	1	N/A	2019/08/23		EPA 8260C m
1,3-Dichloropropene Sum	1	N/A	2019/08/24		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Soil (1)	1	2019/08/22	2019/08/23	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS	1	2019/08/23	2019/08/23	CAM SOP-00447	EPA 6020B m
Moisture	2	N/A	2019/08/22	CAM SOP-00445	Carter 2nd ed 51.2 m
Volatile Organic Compounds and F1 PHCs	1	N/A	2019/08/23	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Soil	1	N/A	2019/08/22	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1

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Your Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Your C.O.C. #: 733218-01-01

Attention: Munir Ahmad

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/08/28
Report #: R5858030
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B9N1258
Received: 2019/08/20, 16:16
Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: Antonella.Brasil@bvlabs.com
Phone# (905)817-5817

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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BV Labs Job #: B9N1258
Report Date: 2019/08/28

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Sampler Initials: MA

O.REG 153 ICPMS METALS (SOIL)

BV Labs ID			KOJ874		
Sampling Date			2019/08/16 11:45		
COC Number			733218-01-01		
	UNITS	Criteria	BH6 SS7	RDL	QC Batch
Metals					
Acid Extractable Antimony (Sb)	ug/g	**7.5**	<0.20	0.20	6296138
Acid Extractable Arsenic (As)	ug/g	**18**	2.5	1.0	6296138
Acid Extractable Barium (Ba)	ug/g	**390**	62	0.50	6296138
Acid Extractable Beryllium (Be)	ug/g	**4**	0.39	0.20	6296138
Acid Extractable Boron (B)	ug/g	**120**	7.0	5.0	6296138
Acid Extractable Cadmium (Cd)	ug/g	**1.2**	<0.10	0.10	6296138
Acid Extractable Chromium (Cr)	ug/g	**160**	17	1.0	6296138
Acid Extractable Cobalt (Co)	ug/g	**22**	6.4	0.10	6296138
Acid Extractable Copper (Cu)	ug/g	**140**	16	0.50	6296138
Acid Extractable Lead (Pb)	ug/g	**120**	7.3	1.0	6296138
Acid Extractable Molybdenum (Mo)	ug/g	**6.9**	<0.50	0.50	6296138
Acid Extractable Nickel (Ni)	ug/g	**100**	15	0.50	6296138
Acid Extractable Selenium (Se)	ug/g	**2.4**	<0.50	0.50	6296138
Acid Extractable Silver (Ag)	ug/g	**20**	<0.20	0.20	6296138
Acid Extractable Thallium (Tl)	ug/g	**1**	0.13	0.050	6296138
Acid Extractable Uranium (U)	ug/g	**23**	0.52	0.050	6296138
Acid Extractable Vanadium (V)	ug/g	**86**	28	5.0	6296138
Acid Extractable Zinc (Zn)	ug/g	**340**	35	5.0	6296138
Acid Extractable Mercury (Hg)	ug/g	**0.27**	<0.050	0.050	6296138

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9N1258
Report Date: 2019/08/28

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Sampler Initials: MA

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

BV Labs ID			KOJ873		
Sampling Date			2019/08/16 10:15		
COC Number			733218-01-01		
	UNITS	Criteria	BH6 SS4	RDL	QC Batch
Inorganics					
Moisture	%	-	20	1.0	6293555
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/g	**0.05**	<0.050	0.050	6292902
Volatile Organics					
Acetone (2-Propanone)	ug/g	**16**	<0.50	0.50	6295877
Benzene	ug/g	**0.21**	<0.020	0.020	6295877
Bromodichloromethane	ug/g	**13**	<0.050	0.050	6295877
Bromoform	ug/g	**0.27**	<0.050	0.050	6295877
Bromomethane	ug/g	**0.05**	<0.050	0.050	6295877
Carbon Tetrachloride	ug/g	**0.05**	<0.050	0.050	6295877
Chlorobenzene	ug/g	**2.4**	<0.050	0.050	6295877
Chloroform	ug/g	**0.05**	<0.050	0.050	6295877
Dibromochloromethane	ug/g	**9.4**	<0.050	0.050	6295877
1,2-Dichlorobenzene	ug/g	**3.4**	<0.050	0.050	6295877
1,3-Dichlorobenzene	ug/g	**4.8**	<0.050	0.050	6295877
1,4-Dichlorobenzene	ug/g	**0.083**	<0.050	0.050	6295877
Dichlorodifluoromethane (FREON 12)	ug/g	**16**	<0.050	0.050	6295877
1,1-Dichloroethane	ug/g	**3.5**	<0.050	0.050	6295877
1,2-Dichloroethane	ug/g	**0.05**	<0.050	0.050	6295877
1,1-Dichloroethylene	ug/g	**0.05**	<0.050	0.050	6295877
cis-1,2-Dichloroethylene	ug/g	**3.4**	<0.050	0.050	6295877
trans-1,2-Dichloroethylene	ug/g	**0.084**	<0.050	0.050	6295877
1,2-Dichloropropane	ug/g	**0.05**	<0.050	0.050	6295877
cis-1,3-Dichloropropene	ug/g	**0.05**	<0.030	0.030	6295877
trans-1,3-Dichloropropene	ug/g	**0.05**	<0.040	0.040	6295877
Ethylbenzene	ug/g	**2**	<0.020	0.020	6295877
Ethylene Dibromide	ug/g	**0.05**	<0.050	0.050	6295877
Hexane	ug/g	**2.8**	<0.050	0.050	6295877
Methylene Chloride(Dichloromethane)	ug/g	**0.1**	<0.050	0.050	6295877
Methyl Ethyl Ketone (2-Butanone)	ug/g	**16**	<0.50	0.50	6295877

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9N1258
Report Date: 2019/08/28

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Sampler Initials: MA

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

BV Labs ID			KOJ873		
Sampling Date			2019/08/16 10:15		
COC Number			733218-01-01		
	UNITS	Criteria	BH6 SS4	RDL	QC Batch
Methyl Isobutyl Ketone	ug/g	**1.7**	<0.50	0.50	6295877
Methyl t-butyl ether (MTBE)	ug/g	**0.75**	<0.050	0.050	6295877
Styrene	ug/g	**0.7**	<0.050	0.050	6295877
1,1,1,2-Tetrachloroethane	ug/g	**0.058**	<0.050	0.050	6295877
1,1,2,2-Tetrachloroethane	ug/g	**0.05**	<0.050	0.050	6295877
Tetrachloroethylene	ug/g	**0.28**	<0.050	0.050	6295877
Toluene	ug/g	**2.3**	<0.020	0.020	6295877
1,1,1-Trichloroethane	ug/g	**0.38**	<0.050	0.050	6295877
1,1,2-Trichloroethane	ug/g	**0.05**	<0.050	0.050	6295877
Trichloroethylene	ug/g	**0.061**	<0.050	0.050	6295877
Trichlorofluoromethane (FREON 11)	ug/g	**4**	<0.050	0.050	6295877
Vinyl Chloride	ug/g	**0.02**	<0.020	0.020	6295877
p+m-Xylene	ug/g	-	<0.020	0.020	6295877
o-Xylene	ug/g	-	<0.020	0.020	6295877
Total Xylenes	ug/g	**3.1**	<0.020	0.020	6295877
F1 (C6-C10)	ug/g	**55**	<10	10	6295877
F1 (C6-C10) - BTEX	ug/g	**55**	<10	10	6295877
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	<10	10	6294307
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	<50	50	6294307
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	<50	50	6294307
Reached Baseline at C50	ug/g	-	Yes		6294307
Surrogate Recovery (%)					
o-Terphenyl	%	-	90		6294307
4-Bromofluorobenzene	%	-	100		6295877
D10-o-Xylene	%	-	101		6295877
D4-1,2-Dichloroethane	%	-	98		6295877
D8-Toluene	%	-	98		6295877

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BUREAU VERITAS

BV Labs Job #: B9N1258
Report Date: 2019/08/28

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Sampler Initials: MA

O.REG 153 VOCS BY HS (SOIL)

BV Labs ID			KOJ874		
Sampling Date			2019/08/16 11:45		
COC Number			733218-01-01		
	UNITS	Criteria	BH6 SS7	RDL	QC Batch
Inorganics					
Moisture	%	-	18	1.0	6293555
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/g	**0.05**	<0.050	0.050	6292902
Volatile Organics					
Acetone (2-Propanone)	ug/g	**16**	<0.50	0.50	6293964
Benzene	ug/g	**0.21**	<0.020	0.020	6293964
Bromodichloromethane	ug/g	**13**	<0.050	0.050	6293964
Bromoform	ug/g	**0.27**	<0.050	0.050	6293964
Bromomethane	ug/g	**0.05**	<0.050	0.050	6293964
Carbon Tetrachloride	ug/g	**0.05**	<0.050	0.050	6293964
Chlorobenzene	ug/g	**2.4**	<0.050	0.050	6293964
Chloroform	ug/g	**0.05**	<0.050	0.050	6293964
Dibromochloromethane	ug/g	**9.4**	<0.050	0.050	6293964
1,2-Dichlorobenzene	ug/g	**3.4**	<0.050	0.050	6293964
1,3-Dichlorobenzene	ug/g	**4.8**	<0.050	0.050	6293964
1,4-Dichlorobenzene	ug/g	**0.083**	<0.050	0.050	6293964
Dichlorodifluoromethane (FREON 12)	ug/g	**16**	<0.050	0.050	6293964
1,1-Dichloroethane	ug/g	**3.5**	<0.050	0.050	6293964
1,2-Dichloroethane	ug/g	**0.05**	<0.050	0.050	6293964
1,1-Dichloroethylene	ug/g	**0.05**	<0.050	0.050	6293964
cis-1,2-Dichloroethylene	ug/g	**3.4**	<0.050	0.050	6293964
trans-1,2-Dichloroethylene	ug/g	**0.084**	<0.050	0.050	6293964
1,2-Dichloropropane	ug/g	**0.05**	<0.050	0.050	6293964
cis-1,3-Dichloropropene	ug/g	**0.05**	<0.030	0.030	6293964
trans-1,3-Dichloropropene	ug/g	**0.05**	<0.040	0.040	6293964
Ethylbenzene	ug/g	**2**	<0.020	0.020	6293964
Ethylene Dibromide	ug/g	**0.05**	<0.050	0.050	6293964
Hexane	ug/g	**2.8**	<0.050	0.050	6293964
Methylene Chloride(Dichloromethane)	ug/g	**0.1**	<0.050	0.050	6293964
Methyl Ethyl Ketone (2-Butanone)	ug/g	**16**	<0.50	0.50	6293964

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9N1258
Report Date: 2019/08/28

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Sampler Initials: MA

O.REG 153 VOCS BY HS (SOIL)

BV Labs ID			KOJ874		
Sampling Date			2019/08/16 11:45		
COC Number			733218-01-01		
	UNITS	Criteria	BH6 SS7	RDL	QC Batch
Methyl Isobutyl Ketone	ug/g	**1.7**	<0.50	0.50	6293964
Methyl t-butyl ether (MTBE)	ug/g	**0.75**	<0.050	0.050	6293964
Styrene	ug/g	**0.7**	<0.050	0.050	6293964
1,1,1,2-Tetrachloroethane	ug/g	**0.058**	<0.050	0.050	6293964
1,1,2,2-Tetrachloroethane	ug/g	**0.05**	<0.050	0.050	6293964
Tetrachloroethylene	ug/g	**0.28**	<0.050	0.050	6293964
Toluene	ug/g	**2.3**	<0.020	0.020	6293964
1,1,1-Trichloroethane	ug/g	**0.38**	<0.050	0.050	6293964
1,1,2-Trichloroethane	ug/g	**0.05**	<0.050	0.050	6293964
Trichloroethylene	ug/g	**0.061**	<0.050	0.050	6293964
Trichlorofluoromethane (FREON 11)	ug/g	**4**	<0.050	0.050	6293964
Vinyl Chloride	ug/g	**0.02**	<0.020	0.020	6293964
p+m-Xylene	ug/g	-	<0.020	0.020	6293964
o-Xylene	ug/g	-	<0.020	0.020	6293964
Total Xylenes	ug/g	**3.1**	<0.020	0.020	6293964
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	-	113		6293964
D10-o-Xylene	%	-	93		6293964
D4-1,2-Dichloroethane	%	-	101		6293964
D8-Toluene	%	-	90		6293964

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9N1258
Report Date: 2019/08/28

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Sampler Initials: MA

TEST SUMMARY

BV Labs ID: KOJ873
Sample ID: BH6 SS4
Matrix: Soil

Collected: 2019/08/16
Shipped:
Received: 2019/08/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6292902	N/A	2019/08/24	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6294307	2019/08/22	2019/08/23	Prabhjot Gulati
Moisture	BAL	6293555	N/A	2019/08/22	Mithunaa Sasitheepan
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6295877	N/A	2019/08/23	Xueming Jiang

BV Labs ID: KOJ874
Sample ID: BH6 SS7
Matrix: Soil

Collected: 2019/08/16
Shipped:
Received: 2019/08/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6292902	N/A	2019/08/23	Automated Statchk
Strong Acid Leachable Metals by ICPMS	ICP/MS	6296138	2019/08/23	2019/08/23	Daniel Teclu
Moisture	BAL	6293555	N/A	2019/08/22	Mithunaa Sasitheepan
Volatile Organic Compounds in Soil	GC/MS	6293964	N/A	2019/08/22	Chandni Khawas

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BV Labs Job #: B9N1258
Report Date: 2019/08/28

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Sampler Initials: MA

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.0°C

Revised Report[2019/08/28]: O. Reg 153 Table 3 criteria added to C of A.

Cooler custody seal present and intact.

Results relate only to the items tested.

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BV Labs Job #: B9N1258
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QUALITY ASSURANCE REPORT

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Sampler Initials: MA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6293964	4-Bromofluorobenzene	2019/08/22	124	60 - 140	123	60 - 140	112	%		
6293964	D10-o-Xylene	2019/08/22	125	60 - 130	91	60 - 130	83	%		
6293964	D4-1,2-Dichloroethane	2019/08/22	88	60 - 140	100	60 - 140	108	%		
6293964	D8-Toluene	2019/08/22	100	60 - 140	108	60 - 140	88	%		
6294307	o-Terphenyl	2019/08/22	90	60 - 130	83	60 - 130	92	%		
6295877	4-Bromofluorobenzene	2019/08/23	105	60 - 140	104	60 - 140	99	%		
6295877	D10-o-Xylene	2019/08/23	96	60 - 130	106	60 - 130	97	%		
6295877	D4-1,2-Dichloroethane	2019/08/23	99	60 - 140	98	60 - 140	99	%		
6295877	D8-Toluene	2019/08/23	99	60 - 140	98	60 - 140	98	%		
6293555	Moisture	2019/08/22							4.6	20
6293964	1,1,1,2-Tetrachloroethane	2019/08/22	92	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
6293964	1,1,1-Trichloroethane	2019/08/22	94	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6293964	1,1,2,2-Tetrachloroethane	2019/08/22	86	60 - 140	107	60 - 130	<0.050	ug/g	NC	50
6293964	1,1,2-Trichloroethane	2019/08/22	80	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
6293964	1,1-Dichloroethane	2019/08/22	87	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
6293964	1,1-Dichloroethylene	2019/08/22	96	60 - 140	89	60 - 130	<0.050	ug/g	NC	50
6293964	1,2-Dichlorobenzene	2019/08/22	89	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6293964	1,2-Dichloroethane	2019/08/22	88	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
6293964	1,2-Dichloropropane	2019/08/22	83	60 - 140	89	60 - 130	<0.050	ug/g	NC	50
6293964	1,3-Dichlorobenzene	2019/08/22	93	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
6293964	1,4-Dichlorobenzene	2019/08/22	96	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
6293964	Acetone (2-Propanone)	2019/08/22	86	60 - 140	103	60 - 140	<0.50	ug/g	NC	50
6293964	Benzene	2019/08/22	91	60 - 140	93	60 - 130	<0.020	ug/g		
6293964	Bromodichloromethane	2019/08/22	101	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
6293964	Bromoform	2019/08/22	91	60 - 140	111	60 - 130	<0.050	ug/g	NC	50
6293964	Bromomethane	2019/08/22	106	60 - 140	110	60 - 140	<0.050	ug/g	NC	50
6293964	Carbon Tetrachloride	2019/08/22	93	60 - 140	118	60 - 130	<0.050	ug/g	NC	50
6293964	Chlorobenzene	2019/08/22	94	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6293964	Chloroform	2019/08/22	86	60 - 140	91	60 - 130	<0.050	ug/g	NC	50
6293964	cis-1,2-Dichloroethylene	2019/08/22	88	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6293964	cis-1,3-Dichloropropene	2019/08/22	95	60 - 140	100	60 - 130	<0.030	ug/g	NC	50

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BUREAU VERITAS

BV Labs Job #: B9N1258
Report Date: 2019/08/28

QUALITY ASSURANCE REPORT(CONT'D)

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Sampler Initials: MA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6293964	Dibromochloromethane	2019/08/22	90	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
6293964	Dichlorodifluoromethane (FREON 12)	2019/08/22	125	60 - 140	116	60 - 140	<0.050	ug/g	NC	50
6293964	Ethylbenzene	2019/08/22	105	60 - 140	89	60 - 130	<0.020	ug/g		
6293964	Ethylene Dibromide	2019/08/22	91	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
6293964	Hexane	2019/08/22	98	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
6293964	Methyl Ethyl Ketone (2-Butanone)	2019/08/22	82	60 - 140	109	60 - 140	<0.50	ug/g	NC	50
6293964	Methyl Isobutyl Ketone	2019/08/22	100	60 - 140	121	60 - 130	<0.50	ug/g	NC	50
6293964	Methyl t-butyl ether (MTBE)	2019/08/22	82	60 - 140	82	60 - 130	<0.050	ug/g	NC	50
6293964	Methylene Chloride(Dichloromethane)	2019/08/22	83	60 - 140	84	60 - 130	<0.050	ug/g	NC	50
6293964	o-Xylene	2019/08/22	104	60 - 140	95	60 - 130	<0.020	ug/g		
6293964	p+m-Xylene	2019/08/22	92	60 - 140	80	60 - 130	<0.020	ug/g		
6293964	Styrene	2019/08/22	84	60 - 140	85	60 - 130	<0.050	ug/g	NC	50
6293964	Tetrachloroethylene	2019/08/22	86	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6293964	Toluene	2019/08/22	90	60 - 140	95	60 - 130	<0.020	ug/g		
6293964	Total Xylenes	2019/08/22					<0.020	ug/g		
6293964	trans-1,2-Dichloroethylene	2019/08/22	93	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6293964	trans-1,3-Dichloropropene	2019/08/22	85	60 - 140	108	60 - 130	<0.040	ug/g	NC	50
6293964	Trichloroethylene	2019/08/22	98	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
6293964	Trichlorofluoromethane (FREON 11)	2019/08/22	111	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
6293964	Vinyl Chloride	2019/08/22	111	60 - 140	106	60 - 130	<0.020	ug/g	NC	50
6294307	F2 (C10-C16 Hydrocarbons)	2019/08/22	92	50 - 130	92	80 - 120	<10	ug/g	NC	30
6294307	F3 (C16-C34 Hydrocarbons)	2019/08/22	86	50 - 130	86	80 - 120	<50	ug/g	NC	30
6294307	F4 (C34-C50 Hydrocarbons)	2019/08/22	85	50 - 130	84	80 - 120	<50	ug/g	NC	30
6295877	1,1,1,2-Tetrachloroethane	2019/08/23	97	60 - 140	106	60 - 130	<0.050	ug/g	NC	50
6295877	1,1,1-Trichloroethane	2019/08/23	87	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
6295877	1,1,2,2-Tetrachloroethane	2019/08/23	97	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
6295877	1,1,2-Trichloroethane	2019/08/23	97	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
6295877	1,1-Dichloroethane	2019/08/23	84	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
6295877	1,1-Dichloroethylene	2019/08/23	89	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
6295877	1,2-Dichlorobenzene	2019/08/23	89	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
6295877	1,2-Dichloroethane	2019/08/23	94	60 - 140	103	60 - 130	<0.050	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6295877	1,2-Dichloropropane	2019/08/23	81	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
6295877	1,3-Dichlorobenzene	2019/08/23	88	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6295877	1,4-Dichlorobenzene	2019/08/23	94	60 - 140	108	60 - 130	<0.050	ug/g	NC	50
6295877	Acetone (2-Propanone)	2019/08/23	99	60 - 140	106	60 - 140	<0.50	ug/g	NC	50
6295877	Benzene	2019/08/23	81	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
6295877	Bromodichloromethane	2019/08/23	86	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
6295877	Bromoform	2019/08/23	98	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
6295877	Bromomethane	2019/08/23	103	60 - 140	117	60 - 140	<0.050	ug/g	NC	50
6295877	Carbon Tetrachloride	2019/08/23	87	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
6295877	Chlorobenzene	2019/08/23	89	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
6295877	Chloroform	2019/08/23	85	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
6295877	cis-1,2-Dichloroethylene	2019/08/23	86	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
6295877	cis-1,3-Dichloropropene	2019/08/23	86	60 - 140	94	60 - 130	<0.030	ug/g	NC	50
6295877	Dibromochloromethane	2019/08/23	96	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
6295877	Dichlorodifluoromethane (FREON 12)	2019/08/23	106	60 - 140	123	60 - 140	<0.050	ug/g	NC	50
6295877	Ethylbenzene	2019/08/23	81	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
6295877	Ethylene Dibromide	2019/08/23	97	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
6295877	F1 (C6-C10) - BTEX	2019/08/23					<10	ug/g	NC	30
6295877	F1 (C6-C10)	2019/08/23	94	60 - 140	92	80 - 120	<10	ug/g	NC	30
6295877	Hexane	2019/08/23	84	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
6295877	Methyl Ethyl Ketone (2-Butanone)	2019/08/23	95	60 - 140	99	60 - 140	<0.50	ug/g	NC	50
6295877	Methyl Isobutyl Ketone	2019/08/23	88	60 - 140	92	60 - 130	<0.50	ug/g	NC	50
6295877	Methyl t-butyl ether (MTBE)	2019/08/23	84	60 - 140	91	60 - 130	<0.050	ug/g	NC	50
6295877	Methylene Chloride(Dichloromethane)	2019/08/23	84	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6295877	o-Xylene	2019/08/23	84	60 - 140	94	60 - 130	<0.020	ug/g	NC	50
6295877	p+m-Xylene	2019/08/23	85	60 - 140	97	60 - 130	<0.020	ug/g	NC	50
6295877	Styrene	2019/08/23	85	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6295877	Tetrachloroethylene	2019/08/23	87	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6295877	Toluene	2019/08/23	80	60 - 140	90	60 - 130	<0.020	ug/g	NC	50
6295877	Total Xylenes	2019/08/23					<0.020	ug/g	NC	50
6295877	trans-1,2-Dichloroethylene	2019/08/23	89	60 - 140	103	60 - 130	<0.050	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6295877	trans-1,3-Dichloropropene	2019/08/23	88	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
6295877	Trichloroethylene	2019/08/23	94	60 - 140	108	60 - 130	<0.050	ug/g	NC	50
6295877	Trichlorofluoromethane (FREON 11)	2019/08/23	102	60 - 140	118	60 - 130	<0.050	ug/g	NC	50
6295877	Vinyl Chloride	2019/08/23	95	60 - 140	111	60 - 130	<0.020	ug/g	NC	50
6296138	Acid Extractable Antimony (Sb)	2019/08/23	98	75 - 125	100	80 - 120	<0.20	ug/g	10	30
6296138	Acid Extractable Arsenic (As)	2019/08/23	103	75 - 125	103	80 - 120	<1.0	ug/g	2.0	30
6296138	Acid Extractable Barium (Ba)	2019/08/23	NC	75 - 125	97	80 - 120	<0.50	ug/g	0.51	30
6296138	Acid Extractable Beryllium (Be)	2019/08/23	106	75 - 125	103	80 - 120	<0.20	ug/g	1.9	30
6296138	Acid Extractable Boron (B)	2019/08/23	101	75 - 125	102	80 - 120	<5.0	ug/g	1.2	30
6296138	Acid Extractable Cadmium (Cd)	2019/08/23	106	75 - 125	100	80 - 120	<0.10	ug/g	NC	30
6296138	Acid Extractable Chromium (Cr)	2019/08/23	NC	75 - 125	98	80 - 120	<1.0	ug/g	1.3	30
6296138	Acid Extractable Cobalt (Co)	2019/08/23	102	75 - 125	100	80 - 120	<0.10	ug/g	0.89	30
6296138	Acid Extractable Copper (Cu)	2019/08/23	99	75 - 125	97	80 - 120	<0.50	ug/g	3.0	30
6296138	Acid Extractable Lead (Pb)	2019/08/23	105	75 - 125	104	80 - 120	<1.0	ug/g	1.8	30
6296138	Acid Extractable Mercury (Hg)	2019/08/23	99	75 - 125	100	80 - 120	<0.050	ug/g		
6296138	Acid Extractable Molybdenum (Mo)	2019/08/23	106	75 - 125	100	80 - 120	<0.50	ug/g	12	30
6296138	Acid Extractable Nickel (Ni)	2019/08/23	NC	75 - 125	97	80 - 120	<0.50	ug/g	0.57	30
6296138	Acid Extractable Selenium (Se)	2019/08/23	108	75 - 125	106	80 - 120	<0.50	ug/g	NC	30
6296138	Acid Extractable Silver (Ag)	2019/08/23	107	75 - 125	103	80 - 120	<0.20	ug/g	NC	30
6296138	Acid Extractable Thallium (Tl)	2019/08/23	104	75 - 125	102	80 - 120	<0.050	ug/g	2.7	30
6296138	Acid Extractable Uranium (U)	2019/08/23	106	75 - 125	103	80 - 120	<0.050	ug/g	3.4	30
6296138	Acid Extractable Vanadium (V)	2019/08/23	NC	75 - 125	99	80 - 120	<5.0	ug/g	2.9	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6296138	Acid Extractable Zinc (Zn)	2019/08/23	NC	75 - 125	97	80 - 120	<5.0	ug/g	34 (1)	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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BV Labs Job #: B9N1258
Report Date: 2019/08/28

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Sampler Initials: MA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Anastassia Hamanov, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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BV Labs Job #: B9N1258
Report Date: 2019/08/28

Soil Engineers Ltd
Client Project #: 1906-E146
Site Location: PHASE TWO ESA / 1 ,15 & 25 HERON'S HILL
Sampler Initials: MA

Exceedence Summary Table – Reg153/04 T3-Soil/Res-C

Result Exceedences

Sample ID	BV Labs ID	Parameter	Criteria	Result	DL	Units
No Exceedences						

The exceedence summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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Your C.O.C. #: 730025-01-01

Attention: Munir Ahmad

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/08/28
Report #: R5858112
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9N4329
Received: 2019/08/22, 15:45

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	1	N/A	2019/08/27	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum	2	N/A	2019/08/27		EPA 8260C m
1,3-Dichloropropene Sum	2	N/A	2019/08/28		EPA 8260C m
Free (WAD) Cyanide	1	2019/08/26	2019/08/27	CAM SOP-00457	OMOE E3015 m
Hexavalent Chromium in Soil by IC (1)	1	2019/08/26	2019/08/27	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydrocarbons F2-F4 in Soil (2)	1	2019/08/26	2019/08/26	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	1	2019/08/26	2019/08/27	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS	2	2019/08/24	2019/08/26	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	1	2019/08/24	2019/08/27	CAM SOP-00447	EPA 6020B m
Moisture	4	N/A	2019/08/23	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture	2	N/A	2019/08/24	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	1	2019/08/26	2019/08/27	CAM SOP-00318	EPA 8270D m
pH CaCl2 EXTRACT	1	2019/08/26	2019/08/26	CAM SOP-00413	EPA 9045 D m
Volatile Organic Compounds and F1 PHCs	1	N/A	2019/08/26	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds and F1 PHCs	1	N/A	2019/08/27	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Soil	2	N/A	2019/08/27	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Your C.O.C. #: 730025-01-01

Attention: Munir Ahmad

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/08/28
Report #: R5858112
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9N4329
Received: 2019/08/22, 15:45

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Soils are reported on a dry weight basis unless otherwise specified.
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: Antonella.Brasil@bvlabs.com
Phone# (905)817-5817
==========
BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

BV Labs Job #: B9N4329
Report Date: 2019/08/28

Soil Engineers Ltd
Sampler Initials: MA

O.REG 153 ICPMS METALS (SOIL)

BV Labs ID		KOZ948	KOZ951		KOZ952		
Sampling Date		2019/08/20 09:25	2019/08/20 07:35		2019/08/20		
COC Number		730025-01-01	730025-01-01		730025-01-01		
	UNITS	BH2 SS4	BH7 SS5	QC Batch	BH5 SS4	RDL	QC Batch
Metals							
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	6298326	<0.20	0.20	6298448
Acid Extractable Arsenic (As)	ug/g	1.9	2.1	6298326	2.3	1.0	6298448
Acid Extractable Barium (Ba)	ug/g	68	61	6298326	76	0.50	6298448
Acid Extractable Beryllium (Be)	ug/g	0.39	0.34	6298326	0.68	0.20	6298448
Acid Extractable Boron (B)	ug/g	6.5	5.6	6298326	5.2	5.0	6298448
Acid Extractable Cadmium (Cd)	ug/g	<0.10	<0.10	6298326	0.10	0.10	6298448
Acid Extractable Chromium (Cr)	ug/g	16	16	6298326	25	1.0	6298448
Acid Extractable Cobalt (Co)	ug/g	7.5	5.8	6298326	9.0	0.10	6298448
Acid Extractable Copper (Cu)	ug/g	14	14	6298326	18	0.50	6298448
Acid Extractable Lead (Pb)	ug/g	7.5	6.0	6298326	10	1.0	6298448
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	<0.50	6298326	<0.50	0.50	6298448
Acid Extractable Nickel (Ni)	ug/g	16	14	6298326	20	0.50	6298448
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	6298326	<0.50	0.50	6298448
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	6298326	<0.20	0.20	6298448
Acid Extractable Thallium (Tl)	ug/g	0.14	0.099	6298326	0.095	0.050	6298448
Acid Extractable Uranium (U)	ug/g	0.51	0.57	6298326	0.47	0.050	6298448
Acid Extractable Vanadium (V)	ug/g	24	25	6298326	37	5.0	6298448
Acid Extractable Zinc (Zn)	ug/g	34	31	6298326	46	5.0	6298448
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	6298326	<0.050	0.050	6298448

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9N4329
Report Date: 2019/08/28

Soil Engineers Ltd
Sampler Initials: MA

O.REG 153 PAHS (SOIL)

BV Labs ID		KOZ949		
Sampling Date		2019/08/20 11:00		
COC Number		730025-01-01		
	UNITS	BH3 SS2	RDL	QC Batch
Inorganics				
Moisture	%	12	1.0	6297178
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	0.0071	6296079
Polyaromatic Hydrocarbons				
Acenaphthene	ug/g	<0.0050	0.0050	6300903
Acenaphthylene	ug/g	<0.0050	0.0050	6300903
Anthracene	ug/g	<0.0050	0.0050	6300903
Benzo(a)anthracene	ug/g	<0.0050	0.0050	6300903
Benzo(a)pyrene	ug/g	<0.0050	0.0050	6300903
Benzo(b/j)fluoranthene	ug/g	0.0060	0.0050	6300903
Benzo(g,h,i)perylene	ug/g	<0.0050	0.0050	6300903
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	6300903
Chrysene	ug/g	<0.0050	0.0050	6300903
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	6300903
Fluoranthene	ug/g	0.011	0.0050	6300903
Fluorene	ug/g	<0.0050	0.0050	6300903
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0050	6300903
1-Methylnaphthalene	ug/g	<0.0050	0.0050	6300903
2-Methylnaphthalene	ug/g	<0.0050	0.0050	6300903
Naphthalene	ug/g	<0.0050	0.0050	6300903
Phenanthrene	ug/g	0.0075	0.0050	6300903
Pyrene	ug/g	0.0097	0.0050	6300903
Surrogate Recovery (%)				
D10-Anthracene	%	99		6300903
D14-Terphenyl (FS)	%	109		6300903
D8-Acenaphthylene	%	84		6300903

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 VOCS BY HS & F1-F4 (SOIL)

BV Labs ID		KOZ950	KOZ951			KOZ951		
Sampling Date		2019/08/20 07:15	2019/08/20 07:35			2019/08/20 07:35		
COC Number		730025-01-01	730025-01-01			730025-01-01		
	UNITS	BH7 SS3	BH7 SS5	RDL	QC Batch	BH7 SS5 Lab-Dup	RDL	QC Batch
Inorganics								
Moisture	%	14	19	1.0	6296989	19	1.0	6296989
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	0.050	6296080			
Volatile Organics								
Acetone (2-Propanone)	ug/g	<0.50	<0.50	0.50	6299298			
Benzene	ug/g	<0.020	<0.020	0.020	6299298			
Bromodichloromethane	ug/g	<0.050	<0.050	0.050	6299298			
Bromoform	ug/g	<0.050	<0.050	0.050	6299298			
Bromomethane	ug/g	<0.050	<0.050	0.050	6299298			
Carbon Tetrachloride	ug/g	<0.050	<0.050	0.050	6299298			
Chlorobenzene	ug/g	<0.050	<0.050	0.050	6299298			
Chloroform	ug/g	<0.050	<0.050	0.050	6299298			
Dibromochloromethane	ug/g	<0.050	<0.050	0.050	6299298			
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	0.050	6299298			
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	0.050	6299298			
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	0.050	6299298			
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	0.050	6299298			
1,1-Dichloroethane	ug/g	<0.050	<0.050	0.050	6299298			
1,2-Dichloroethane	ug/g	<0.050	<0.050	0.050	6299298			
1,1-Dichloroethylene	ug/g	<0.050	<0.050	0.050	6299298			
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	0.050	6299298			
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	0.050	6299298			
1,2-Dichloropropane	ug/g	<0.050	<0.050	0.050	6299298			
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	0.030	6299298			
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	0.040	6299298			
Ethylbenzene	ug/g	<0.020	<0.020	0.020	6299298			
Ethylene Dibromide	ug/g	<0.050	<0.050	0.050	6299298			
Hexane	ug/g	<0.050	<0.050	0.050	6299298			
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	0.050	6299298			
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	0.50	6299298			
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	0.50	6299298			
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	0.050	6299298			
Styrene	ug/g	<0.050	<0.050	0.050	6299298			
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	0.050	6299298			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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BV Labs Job #: B9N4329
Report Date: 2019/08/28

Soil Engineers Ltd
Sampler Initials: MA

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

BV Labs ID		KOZ950	KOZ951			KOZ951		
Sampling Date		2019/08/20 07:15	2019/08/20 07:35			2019/08/20 07:35		
COC Number		730025-01-01	730025-01-01			730025-01-01		
	UNITS	BH7 SS3	BH7 SS5	RDL	QC Batch	BH7 SS5 Lab-Dup	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	0.050	6299298			
Tetrachloroethylene	ug/g	<0.050	<0.050	0.050	6299298			
Toluene	ug/g	<0.020	<0.020	0.020	6299298			
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	0.050	6299298			
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	0.050	6299298			
Trichloroethylene	ug/g	<0.050	<0.050	0.050	6299298			
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	0.050	6299298			
Vinyl Chloride	ug/g	<0.020	<0.020	0.020	6299298			
p+m-Xylene	ug/g	<0.020	<0.020	0.020	6299298			
o-Xylene	ug/g	<0.020	<0.020	0.020	6299298			
Total Xylenes	ug/g	<0.020	<0.020	0.020	6299298			
F1 (C6-C10)	ug/g	<10	<10	10	6299298			
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	6299298			
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	6299631			
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	50	6299631			
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	6299631			
Reached Baseline at C50	ug/g	Yes	Yes		6299631			
Surrogate Recovery (%)								
o-Terphenyl	%	82	82		6299631			
4-Bromofluorobenzene	%	96	96		6299298			
D10-o-Xylene	%	109	123		6299298			
D4-1,2-Dichloroethane	%	92	93		6299298			
D8-Toluene	%	101	100		6299298			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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O.REG 153 VOCS BY HS (SOIL)

BV Labs ID		KOZ948		KOZ953		
Sampling Date		2019/08/20 09:25		2019/08/20		
COC Number		730025-01-01		730025-01-01		
	UNITS	BH2 SS4	QC Batch	D2	RDL	QC Batch
Inorganics						
Moisture	%	12	6298599	14	1.0	6297178
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	6296080	<0.050	0.050	6296080
Volatile Organics						
Acetone (2-Propanone)	ug/g	<0.50	6299340	<0.50	0.50	6299340
Benzene	ug/g	<0.020	6299340	<0.020	0.020	6299340
Bromodichloromethane	ug/g	<0.050	6299340	<0.050	0.050	6299340
Bromoform	ug/g	<0.050	6299340	<0.050	0.050	6299340
Bromomethane	ug/g	<0.050	6299340	<0.050	0.050	6299340
Carbon Tetrachloride	ug/g	<0.050	6299340	<0.050	0.050	6299340
Chlorobenzene	ug/g	<0.050	6299340	<0.050	0.050	6299340
Chloroform	ug/g	<0.050	6299340	<0.050	0.050	6299340
Dibromochloromethane	ug/g	<0.050	6299340	<0.050	0.050	6299340
1,2-Dichlorobenzene	ug/g	<0.050	6299340	<0.050	0.050	6299340
1,3-Dichlorobenzene	ug/g	<0.050	6299340	<0.050	0.050	6299340
1,4-Dichlorobenzene	ug/g	<0.050	6299340	<0.050	0.050	6299340
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	6299340	<0.050	0.050	6299340
1,1-Dichloroethane	ug/g	<0.050	6299340	<0.050	0.050	6299340
1,2-Dichloroethane	ug/g	<0.050	6299340	<0.050	0.050	6299340
1,1-Dichloroethylene	ug/g	<0.050	6299340	<0.050	0.050	6299340
cis-1,2-Dichloroethylene	ug/g	<0.050	6299340	<0.050	0.050	6299340
trans-1,2-Dichloroethylene	ug/g	<0.050	6299340	<0.050	0.050	6299340
1,2-Dichloropropane	ug/g	<0.050	6299340	<0.050	0.050	6299340
cis-1,3-Dichloropropene	ug/g	<0.030	6299340	<0.030	0.030	6299340
trans-1,3-Dichloropropene	ug/g	<0.040	6299340	<0.040	0.040	6299340
Ethylbenzene	ug/g	<0.020	6299340	<0.020	0.020	6299340
Ethylene Dibromide	ug/g	<0.050	6299340	<0.050	0.050	6299340
Hexane	ug/g	<0.050	6299340	<0.050	0.050	6299340
Methylene Chloride(Dichloromethane)	ug/g	<0.050	6299340	<0.050	0.050	6299340
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	6299340	<0.50	0.50	6299340
Methyl Isobutyl Ketone	ug/g	<0.50	6299340	<0.50	0.50	6299340
Methyl t-butyl ether (MTBE)	ug/g	<0.050	6299340	<0.050	0.050	6299340
Styrene	ug/g	<0.050	6299340	<0.050	0.050	6299340
1,1,1,2-Tetrachloroethane	ug/g	<0.050	6299340	<0.050	0.050	6299340
1,1,2,2-Tetrachloroethane	ug/g	<0.050	6299340	<0.050	0.050	6299340

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 VOCS BY HS (SOIL)

BV Labs ID		KOZ948		KOZ953		
Sampling Date		2019/08/20 09:25		2019/08/20		
COC Number		730025-01-01		730025-01-01		
	UNITS	BH2 SS4	QC Batch	D2	RDL	QC Batch
Tetrachloroethylene	ug/g	<0.050	6299340	<0.050	0.050	6299340
Toluene	ug/g	<0.020	6299340	<0.020	0.020	6299340
1,1,1-Trichloroethane	ug/g	<0.050	6299340	<0.050	0.050	6299340
1,1,2-Trichloroethane	ug/g	<0.050	6299340	<0.050	0.050	6299340
Trichloroethylene	ug/g	<0.050	6299340	<0.050	0.050	6299340
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	6299340	<0.050	0.050	6299340
Vinyl Chloride	ug/g	<0.020	6299340	<0.020	0.020	6299340
p+m-Xylene	ug/g	<0.020	6299340	<0.020	0.020	6299340
o-Xylene	ug/g	<0.020	6299340	<0.020	0.020	6299340
Total Xylenes	ug/g	<0.020	6299340	<0.020	0.020	6299340
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	97	6299340	98		6299340
D10-o-Xylene	%	104	6299340	110		6299340
D4-1,2-Dichloroethane	%	95	6299340	97		6299340
D8-Toluene	%	91	6299340	91		6299340

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9N4329
Report Date: 2019/08/28

Soil Engineers Ltd
Sampler Initials: MA

RESULTS OF ANALYSES OF SOIL

BV Labs ID		KOZ948		KOZ952		
Sampling Date		2019/08/20 09:25		2019/08/20		
COC Number		730025-01-01		730025-01-01		
	UNITS	BH2 SS4	QC Batch	BH5 SS4	RDL	QC Batch
Inorganics						
Moisture	%			21	1.0	6298599
Available (CaCl2) pH	pH	7.79	6299391			
WAD Cyanide (Free)	ug/g			<0.01	0.01	6299459

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

BV Labs ID		KOZ952		
Sampling Date		2019/08/20		
COC Number		730025-01-01		
	UNITS	BH5 SS4	RDL	QC Batch
Inorganics				
Chromium (VI)	ug/g	<0.2	0.2	6299294

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9N4329
Report Date: 2019/08/28

Soil Engineers Ltd
Sampler Initials: MA

TEST SUMMARY

BV Labs ID: KOZ948
Sample ID: BH2 SS4
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6296080	N/A	2019/08/28	Automated Statchk
Strong Acid Leachable Metals by ICPMS	ICP/MS	6298326	2019/08/24	2019/08/26	Viviana Canzonieri
Moisture	BAL	6298599	N/A	2019/08/24	Mithunaa Sasitheepan
pH CaCl2 EXTRACT	AT	6299391	2019/08/26	2019/08/26	Surinder Rai
Volatile Organic Compounds in Soil	GC/MS	6299340	N/A	2019/08/27	Rebecca McClean

BV Labs ID: KOZ949
Sample ID: BH3 SS2
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6296079	N/A	2019/08/27	Automated Statchk
Moisture	BAL	6297178	N/A	2019/08/23	Amitoj Singh Uppal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6300903	2019/08/26	2019/08/27	Mitesh Raj

BV Labs ID: KOZ950
Sample ID: BH7 SS3
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6296080	N/A	2019/08/27	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6299631	2019/08/26	2019/08/26	Atoosa Keshavarz
Moisture	BAL	6296989	N/A	2019/08/23	Amitoj Singh Uppal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6299298	N/A	2019/08/26	Karen Hughes

BV Labs ID: KOZ951
Sample ID: BH7 SS5
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6296080	N/A	2019/08/27	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6299631	2019/08/26	2019/08/27	Atoosa Keshavarz
Strong Acid Leachable Metals by ICPMS	ICP/MS	6298326	2019/08/24	2019/08/26	Viviana Canzonieri
Moisture	BAL	6296989	N/A	2019/08/23	Amitoj Singh Uppal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6299298	N/A	2019/08/27	Karen Hughes

BV Labs ID: KOZ951 Dup
Sample ID: BH7 SS5
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	6296989	N/A	2019/08/23	Amitoj Singh Uppal

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BV Labs Job #: B9N4329
Report Date: 2019/08/28

Soil Engineers Ltd
Sampler Initials: MA

TEST SUMMARY

BV Labs ID: KOZ952
Sample ID: BH5 SS4
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	6299459	2019/08/26	2019/08/27	Gnana Thomas
Hexavalent Chromium in Soil by IC	IC/SPEC	6299294	2019/08/26	2019/08/27	Sally Norouz Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	6298448	2019/08/24	2019/08/27	Daniel Teclu
Moisture	BAL	6298599	N/A	2019/08/24	Mithunaa Sasitheepan

BV Labs ID: KOZ953
Sample ID: D2
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6296080	N/A	2019/08/28	Automated Statchk
Moisture	BAL	6297178	N/A	2019/08/23	Amitoj Singh Uppal
Volatile Organic Compounds in Soil	GC/MS	6299340	N/A	2019/08/27	Rebecca McClean

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	9.7°C

Results relate only to the items tested.

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BV Labs Job #: B9N4329
Report Date: 2019/08/28

QUALITY ASSURANCE REPORT

Soil Engineers Ltd
Sampler Initials: MA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6299298	4-Bromofluorobenzene	2019/08/26	102	60 - 140	104	60 - 140	94	%		
6299298	D10-o-Xylene	2019/08/26	118	60 - 130	94	60 - 130	104	%		
6299298	D4-1,2-Dichloroethane	2019/08/26	95	60 - 140	97	60 - 140	98	%		
6299298	D8-Toluene	2019/08/26	107	60 - 140	101	60 - 140	99	%		
6299340	4-Bromofluorobenzene	2019/08/27	106	60 - 140	107	60 - 140	100	%		
6299340	D10-o-Xylene	2019/08/27	123	60 - 130	119	60 - 130	100	%		
6299340	D4-1,2-Dichloroethane	2019/08/27	88	60 - 140	92	60 - 140	99	%		
6299340	D8-Toluene	2019/08/27	106	60 - 140	104	60 - 140	90	%		
6299631	o-Terphenyl	2019/08/26	95	60 - 130	89	60 - 130	88	%		
6300903	D10-Anthracene	2019/08/26	95	50 - 130	106	50 - 130	108	%		
6300903	D14-Terphenyl (FS)	2019/08/26	94	50 - 130	99	50 - 130	100	%		
6300903	D8-Acenaphthylene	2019/08/26	99	50 - 130	106	50 - 130	103	%		
6296989	Moisture	2019/08/23							1.6	20
6297178	Moisture	2019/08/23							4.3	20
6298326	Acid Extractable Antimony (Sb)	2019/08/26	94	75 - 125	101	80 - 120	<0.20	ug/g	NC	30
6298326	Acid Extractable Arsenic (As)	2019/08/26	95	75 - 125	102	80 - 120	<1.0	ug/g	NC	30
6298326	Acid Extractable Barium (Ba)	2019/08/26	84	75 - 125	98	80 - 120	<0.50	ug/g	13	30
6298326	Acid Extractable Beryllium (Be)	2019/08/26	95	75 - 125	97	80 - 120	<0.20	ug/g	NC	30
6298326	Acid Extractable Boron (B)	2019/08/26	97	75 - 125	97	80 - 120	<5.0	ug/g	NC	30
6298326	Acid Extractable Cadmium (Cd)	2019/08/26	95	75 - 125	102	80 - 120	<0.10	ug/g	NC	30
6298326	Acid Extractable Chromium (Cr)	2019/08/26	94	75 - 125	97	80 - 120	<1.0	ug/g	3.1	30
6298326	Acid Extractable Cobalt (Co)	2019/08/26	90	75 - 125	102	80 - 120	<0.10	ug/g	7.2	30
6298326	Acid Extractable Copper (Cu)	2019/08/26	91	75 - 125	101	80 - 120	<0.50	ug/g	1.4	30
6298326	Acid Extractable Lead (Pb)	2019/08/26	94	75 - 125	100	80 - 120	<1.0	ug/g	3.3	30
6298326	Acid Extractable Mercury (Hg)	2019/08/26	89	75 - 125	94	80 - 120	<0.050	ug/g	NC	30
6298326	Acid Extractable Molybdenum (Mo)	2019/08/26	96	75 - 125	100	80 - 120	<0.50	ug/g	NC	30
6298326	Acid Extractable Nickel (Ni)	2019/08/26	93	75 - 125	102	80 - 120	<0.50	ug/g	1.3	30
6298326	Acid Extractable Selenium (Se)	2019/08/26	101	75 - 125	104	80 - 120	<0.50	ug/g	NC	30
6298326	Acid Extractable Silver (Ag)	2019/08/26	96	75 - 125	102	80 - 120	<0.20	ug/g	NC	30
6298326	Acid Extractable Thallium (Tl)	2019/08/26	93	75 - 125	101	80 - 120	<0.050	ug/g	NC	30
6298326	Acid Extractable Uranium (U)	2019/08/26	94	75 - 125	101	80 - 120	<0.050	ug/g	8.1	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6298326	Acid Extractable Vanadium (V)	2019/08/26	96	75 - 125	100	80 - 120	<5.0	ug/g	0.65	30
6298326	Acid Extractable Zinc (Zn)	2019/08/26	92	75 - 125	102	80 - 120	<5.0	ug/g	8.4	30
6298448	Acid Extractable Antimony (Sb)	2019/08/27	100	75 - 125	99	80 - 120	<0.20	ug/g	9.1	30
6298448	Acid Extractable Arsenic (As)	2019/08/27	113	75 - 125	105	80 - 120	<1.0	ug/g	9.6	30
6298448	Acid Extractable Barium (Ba)	2019/08/27	NC	75 - 125	98	80 - 120	<0.50	ug/g	0.21	30
6298448	Acid Extractable Beryllium (Be)	2019/08/27	104	75 - 125	99	80 - 120	<0.20	ug/g	1.6	30
6298448	Acid Extractable Boron (B)	2019/08/27	104	75 - 125	99	80 - 120	<5.0	ug/g	NC	30
6298448	Acid Extractable Cadmium (Cd)	2019/08/27	101	75 - 125	101	80 - 120	<0.10	ug/g	37 (1)	30
6298448	Acid Extractable Chromium (Cr)	2019/08/27	NC	75 - 125	104	80 - 120	<1.0	ug/g	8.4	30
6298448	Acid Extractable Cobalt (Co)	2019/08/27	102	75 - 125	104	80 - 120	<0.10	ug/g	3.4	30
6298448	Acid Extractable Copper (Cu)	2019/08/27	NC	75 - 125	102	80 - 120	<0.50	ug/g	15	30
6298448	Acid Extractable Lead (Pb)	2019/08/27	119	75 - 125	105	80 - 120	<1.0	ug/g	6.5	30
6298448	Acid Extractable Mercury (Hg)	2019/08/27	93	75 - 125	100	80 - 120	<0.050	ug/g	NC	30
6298448	Acid Extractable Molybdenum (Mo)	2019/08/27	106	75 - 125	101	80 - 120	<0.50	ug/g	8.0	30
6298448	Acid Extractable Nickel (Ni)	2019/08/27	98	75 - 125	102	80 - 120	<0.50	ug/g	8.8	30
6298448	Acid Extractable Selenium (Se)	2019/08/27	106	75 - 125	106	80 - 120	<0.50	ug/g	NC	30
6298448	Acid Extractable Silver (Ag)	2019/08/27	112	75 - 125	102	80 - 120	<0.20	ug/g	NC	30
6298448	Acid Extractable Thallium (Tl)	2019/08/27	104	75 - 125	105	80 - 120	<0.050	ug/g	5.0	30
6298448	Acid Extractable Uranium (U)	2019/08/27	106	75 - 125	104	80 - 120	<0.050	ug/g	0.78	30
6298448	Acid Extractable Vanadium (V)	2019/08/27	NC	75 - 125	105	80 - 120	<5.0	ug/g	3.8	30
6298448	Acid Extractable Zinc (Zn)	2019/08/27	NC	75 - 125	103	80 - 120	<5.0	ug/g	0.32	30
6298599	Moisture	2019/08/24							4.7	20
6299294	Chromium (VI)	2019/08/27	85	70 - 130	95	80 - 120	<0.2	ug/g	NC	35
6299298	1,1,1,2-Tetrachloroethane	2019/08/26	103	60 - 140	91	60 - 130	<0.050	ug/g	NC	50
6299298	1,1,1-Trichloroethane	2019/08/26	99	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
6299298	1,1,2,2-Tetrachloroethane	2019/08/26	97	60 - 140	88	60 - 130	<0.050	ug/g	NC	50
6299298	1,1,2-Trichloroethane	2019/08/26	100	60 - 140	89	60 - 130	<0.050	ug/g	NC	50
6299298	1,1-Dichloroethane	2019/08/26	99	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6299298	1,1-Dichloroethylene	2019/08/26	107	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
6299298	1,2-Dichlorobenzene	2019/08/26	97	60 - 140	84	60 - 130	<0.050	ug/g	NC	50
6299298	1,2-Dichloroethane	2019/08/26	98	60 - 140	94	60 - 130	<0.050	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6299298	1,2-Dichloropropane	2019/08/26	95	60 - 140	89	60 - 130	<0.050	ug/g	NC	50
6299298	1,3-Dichlorobenzene	2019/08/26	101	60 - 140	86	60 - 130	<0.050	ug/g	NC	50
6299298	1,4-Dichlorobenzene	2019/08/26	109	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
6299298	Acetone (2-Propanone)	2019/08/26	95	60 - 140	92	60 - 140	<0.50	ug/g	NC	50
6299298	Benzene	2019/08/26	99	60 - 140	93	60 - 130	<0.020	ug/g	NC	50
6299298	Bromodichloromethane	2019/08/26	93	60 - 140	89	60 - 130	<0.050	ug/g	NC	50
6299298	Bromoform	2019/08/26	96	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
6299298	Bromomethane	2019/08/26	105	60 - 140	100	60 - 140	<0.050	ug/g	NC	50
6299298	Carbon Tetrachloride	2019/08/26	98	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6299298	Chlorobenzene	2019/08/26	99	60 - 140	86	60 - 130	<0.050	ug/g	NC	50
6299298	Chloroform	2019/08/26	93	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
6299298	cis-1,2-Dichloroethylene	2019/08/26	93	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
6299298	cis-1,3-Dichloropropene	2019/08/26	92	60 - 140	89	60 - 130	<0.030	ug/g	NC	50
6299298	Dibromochloromethane	2019/08/26	101	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
6299298	Dichlorodifluoromethane (FREON 12)	2019/08/26	98	60 - 140	111	60 - 140	<0.050	ug/g	NC	50
6299298	Ethylbenzene	2019/08/26	103	60 - 140	89	60 - 130	<0.020	ug/g	NC	50
6299298	Ethylene Dibromide	2019/08/26	100	60 - 140	89	60 - 130	<0.050	ug/g	NC	50
6299298	F1 (C6-C10) - BTEX	2019/08/26					<10	ug/g	NC	30
6299298	F1 (C6-C10)	2019/08/26	99	60 - 140	97	80 - 120	<10	ug/g	NC	30
6299298	Hexane	2019/08/26	108	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
6299298	Methyl Ethyl Ketone (2-Butanone)	2019/08/26	98	60 - 140	96	60 - 140	<0.50	ug/g	NC	50
6299298	Methyl Isobutyl Ketone	2019/08/26	96	60 - 140	96	60 - 130	<0.50	ug/g	NC	50
6299298	Methyl t-butyl ether (MTBE)	2019/08/26	90	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
6299298	Methylene Chloride(Dichloromethane)	2019/08/26	91	60 - 140	85	60 - 130	<0.050	ug/g	NC	50
6299298	o-Xylene	2019/08/26	106	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
6299298	p+m-Xylene	2019/08/26	110	60 - 140	94	60 - 130	<0.020	ug/g	NC	50
6299298	Styrene	2019/08/26	104	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
6299298	Tetrachloroethylene	2019/08/26	99	60 - 140	85	60 - 130	<0.050	ug/g	NC	50
6299298	Toluene	2019/08/26	105	60 - 140	90	60 - 130	<0.020	ug/g	NC	50
6299298	Total Xylenes	2019/08/26					<0.020	ug/g	NC	50
6299298	trans-1,2-Dichloroethylene	2019/08/26	100	60 - 140	92	60 - 130	<0.050	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6299298	trans-1,3-Dichloropropene	2019/08/26	103	60 - 140	93	60 - 130	<0.040	ug/g	NC	50
6299298	Trichloroethylene	2019/08/26	102	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
6299298	Trichlorofluoromethane (FREON 11)	2019/08/26	110	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
6299298	Vinyl Chloride	2019/08/26	112	60 - 140	107	60 - 130	<0.020	ug/g	NC	50
6299340	1,1,1,2-Tetrachloroethane	2019/08/27	112	60 - 140	107	60 - 130	<0.050	ug/g	NC	50
6299340	1,1,1-Trichloroethane	2019/08/27	107	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6299340	1,1,2,2-Tetrachloroethane	2019/08/27	96	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
6299340	1,1,2-Trichloroethane	2019/08/27	94	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6299340	1,1-Dichloroethane	2019/08/27	98	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
6299340	1,1-Dichloroethylene	2019/08/27	109	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
6299340	1,2-Dichlorobenzene	2019/08/27	104	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
6299340	1,2-Dichloroethane	2019/08/27	97	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
6299340	1,2-Dichloropropane	2019/08/27	93	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6299340	1,3-Dichlorobenzene	2019/08/27	107	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
6299340	1,4-Dichlorobenzene	2019/08/27	113	60 - 140	107	60 - 130	<0.050	ug/g	NC	50
6299340	Acetone (2-Propanone)	2019/08/27	91	60 - 140	95	60 - 140	<0.50	ug/g	NC	50
6299340	Benzene	2019/08/27	104	60 - 140	101	60 - 130	<0.020	ug/g	NC	50
6299340	Bromodichloromethane	2019/08/27	98	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
6299340	Bromoform	2019/08/27	104	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
6299340	Bromomethane	2019/08/27	120	60 - 140	118	60 - 140	<0.050	ug/g	NC	50
6299340	Carbon Tetrachloride	2019/08/27	106	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
6299340	Chlorobenzene	2019/08/27	105	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6299340	Chloroform	2019/08/27	97	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6299340	cis-1,2-Dichloroethylene	2019/08/27	98	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
6299340	cis-1,3-Dichloropropene	2019/08/27	102	60 - 140	103	60 - 130	<0.030	ug/g	NC	50
6299340	Dibromochloromethane	2019/08/27	106	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
6299340	Dichlorodifluoromethane (FREON 12)	2019/08/27	136	60 - 140	131	60 - 140	<0.050	ug/g	NC	50
6299340	Ethylbenzene	2019/08/27	107	60 - 140	101	60 - 130	<0.020	ug/g	NC	50
6299340	Ethylene Dibromide	2019/08/27	102	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6299340	Hexane	2019/08/27	117	60 - 140	110	60 - 130	<0.050	ug/g	NC	50
6299340	Methyl Ethyl Ketone (2-Butanone)	2019/08/27	90	60 - 140	98	60 - 140	<0.50	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6299340	Methyl Isobutyl Ketone	2019/08/27	92	60 - 140	101	60 - 130	<0.50	ug/g	NC	50
6299340	Methyl t-butyl ether (MTBE)	2019/08/27	93	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6299340	Methylene Chloride(Dichloromethane)	2019/08/27	96	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
6299340	o-Xylene	2019/08/27	112	60 - 140	107	60 - 130	<0.020	ug/g	NC	50
6299340	p+m-Xylene	2019/08/27	119	60 - 140	112	60 - 130	<0.020	ug/g	NC	50
6299340	Styrene	2019/08/27	114	60 - 140	110	60 - 130	<0.050	ug/g	NC	50
6299340	Tetrachloroethylene	2019/08/27	110	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
6299340	Toluene	2019/08/27	105	60 - 140	99	60 - 130	<0.020	ug/g	NC	50
6299340	Total Xylenes	2019/08/27					<0.020	ug/g	NC	50
6299340	trans-1,2-Dichloroethylene	2019/08/27	103	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
6299340	trans-1,3-Dichloropropene	2019/08/27	106	60 - 140	107	60 - 130	<0.040	ug/g	NC	50
6299340	Trichloroethylene	2019/08/27	114	60 - 140	108	60 - 130	<0.050	ug/g	NC	50
6299340	Trichlorofluoromethane (FREON 11)	2019/08/27	120	60 - 140	113	60 - 130	<0.050	ug/g	NC	50
6299340	Vinyl Chloride	2019/08/27	118	60 - 140	113	60 - 130	<0.020	ug/g	NC	50
6299391	Available (CaCl2) pH	2019/08/26			100	97 - 103			0.27	N/A
6299459	WAD Cyanide (Free)	2019/08/27	99	75 - 125	101	80 - 120	<0.01	ug/g	NC	35
6299631	F2 (C10-C16 Hydrocarbons)	2019/08/26	91	50 - 130	85	80 - 120	<10	ug/g	NC	30
6299631	F3 (C16-C34 Hydrocarbons)	2019/08/26	96	50 - 130	90	80 - 120	<50	ug/g	NC	30
6299631	F4 (C34-C50 Hydrocarbons)	2019/08/26	100	50 - 130	93	80 - 120	<50	ug/g	NC	30
6300903	1-Methylnaphthalene	2019/08/26	106	50 - 130	116	50 - 130	<0.0050	ug/g	NC	40
6300903	2-Methylnaphthalene	2019/08/26	95	50 - 130	101	50 - 130	<0.0050	ug/g	NC	40
6300903	Acenaphthene	2019/08/26	97	50 - 130	102	50 - 130	<0.0050	ug/g	NC	40
6300903	Acenaphthylene	2019/08/26	109	50 - 130	115	50 - 130	<0.0050	ug/g	NC	40
6300903	Anthracene	2019/08/26	97	50 - 130	106	50 - 130	<0.0050	ug/g	NC	40
6300903	Benzo(a)anthracene	2019/08/26	109	50 - 130	116	50 - 130	<0.0050	ug/g	NC	40
6300903	Benzo(a)pyrene	2019/08/26	104	50 - 130	113	50 - 130	<0.0050	ug/g	NC	40
6300903	Benzo(b/j)fluoranthene	2019/08/26	98	50 - 130	111	50 - 130	<0.0050	ug/g	NC	40
6300903	Benzo(g,h,i)perylene	2019/08/26	88	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
6300903	Benzo(k)fluoranthene	2019/08/26	103	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40
6300903	Chrysene	2019/08/26	101	50 - 130	113	50 - 130	<0.0050	ug/g	NC	40
6300903	Dibenz(a,h)anthracene	2019/08/26	99	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6300903	Fluoranthene	2019/08/26	112	50 - 130	121	50 - 130	<0.0050	ug/g	NC	40
6300903	Fluorene	2019/08/26	106	50 - 130	112	50 - 130	<0.0050	ug/g	NC	40
6300903	Indeno(1,2,3-cd)pyrene	2019/08/26	97	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40
6300903	Naphthalene	2019/08/26	90	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
6300903	Phenanthrene	2019/08/26	96	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40
6300903	Pyrene	2019/08/26	111	50 - 130	121	50 - 130	<0.0050	ug/g	NC	40

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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BV Labs Job #: B9N4329
Report Date: 2019/08/28

Soil Engineers Ltd
Sampler Initials: MA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Anastassia Hamanov, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Your C.O.C. #: 730025-01-01

Attention: Munir Ahmad

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/08/29
Report #: R5858975
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B9N4329
Received: 2019/08/22, 15:45

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	1	N/A	2019/08/27	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum	2	N/A	2019/08/27		EPA 8260C m
1,3-Dichloropropene Sum	2	N/A	2019/08/28		EPA 8260C m
Free (WAD) Cyanide	1	2019/08/26	2019/08/27	CAM SOP-00457	OMOE E3015 m
Hexavalent Chromium in Soil by IC (1)	1	2019/08/26	2019/08/27	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydrocarbons F2-F4 in Soil (2)	1	2019/08/26	2019/08/26	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	1	2019/08/26	2019/08/27	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS	2	2019/08/24	2019/08/26	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS	1	2019/08/24	2019/08/27	CAM SOP-00447	EPA 6020B m
Moisture	4	N/A	2019/08/23	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture	2	N/A	2019/08/24	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	1	2019/08/26	2019/08/27	CAM SOP-00318	EPA 8270D m
pH CaCl2 EXTRACT	1	2019/08/26	2019/08/26	CAM SOP-00413	EPA 9045 D m
Volatile Organic Compounds and F1 PHCs	1	N/A	2019/08/26	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds and F1 PHCs	1	N/A	2019/08/27	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Soil	2	N/A	2019/08/27	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Your C.O.C. #: 730025-01-01

Attention: Munir Ahmad

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/08/29
Report #: R5858975
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BV LABS JOB #: B9N4329
Received: 2019/08/22, 15:45

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Soils are reported on a dry weight basis unless otherwise specified.
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: Antonella.Brasil@bvlabs.com
Phone# (905)817-5817

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

BV Labs Job #: B9N4329
Report Date: 2019/08/29

Soil Engineers Ltd
Sampler Initials: MA

O.REG 153 ICPMS METALS (SOIL)

BV Labs ID			KOZ948	KOZ951		KOZ952		
Sampling Date			2019/08/20 09:25	2019/08/20 07:35		2019/08/20		
COC Number			730025-01-01	730025-01-01		730025-01-01		
	UNITS	Criteria	BH2 SS4	BH7 SS5	QC Batch	BH5 SS4	RDL	QC Batch
Metals								
Acid Extractable Antimony (Sb)	ug/g	**7.5**	<0.20	<0.20	6298326	<0.20	0.20	6298448
Acid Extractable Arsenic (As)	ug/g	**18**	1.9	2.1	6298326	2.3	1.0	6298448
Acid Extractable Barium (Ba)	ug/g	**390**	68	61	6298326	76	0.50	6298448
Acid Extractable Beryllium (Be)	ug/g	**4**	0.39	0.34	6298326	0.68	0.20	6298448
Acid Extractable Boron (B)	ug/g	**120**	6.5	5.6	6298326	5.2	5.0	6298448
Acid Extractable Cadmium (Cd)	ug/g	**1.2**	<0.10	<0.10	6298326	0.10	0.10	6298448
Acid Extractable Chromium (Cr)	ug/g	**160**	16	16	6298326	25	1.0	6298448
Acid Extractable Cobalt (Co)	ug/g	**22**	7.5	5.8	6298326	9.0	0.10	6298448
Acid Extractable Copper (Cu)	ug/g	**140**	14	14	6298326	18	0.50	6298448
Acid Extractable Lead (Pb)	ug/g	**120**	7.5	6.0	6298326	10	1.0	6298448
Acid Extractable Molybdenum (Mo)	ug/g	**6.9**	<0.50	<0.50	6298326	<0.50	0.50	6298448
Acid Extractable Nickel (Ni)	ug/g	**100**	16	14	6298326	20	0.50	6298448
Acid Extractable Selenium (Se)	ug/g	**2.4**	<0.50	<0.50	6298326	<0.50	0.50	6298448
Acid Extractable Silver (Ag)	ug/g	**20**	<0.20	<0.20	6298326	<0.20	0.20	6298448
Acid Extractable Thallium (Tl)	ug/g	**1**	0.14	0.099	6298326	0.095	0.050	6298448
Acid Extractable Uranium (U)	ug/g	**23**	0.51	0.57	6298326	0.47	0.050	6298448
Acid Extractable Vanadium (V)	ug/g	**86**	24	25	6298326	37	5.0	6298448
Acid Extractable Zinc (Zn)	ug/g	**340**	34	31	6298326	46	5.0	6298448
Acid Extractable Mercury (Hg)	ug/g	**0.27**	<0.050	<0.050	6298326	<0.050	0.050	6298448

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9N4329
Report Date: 2019/08/29

Soil Engineers Ltd
Sampler Initials: MA

O.REG 153 PAHS (SOIL)

BV Labs ID			KOZ949		
Sampling Date			2019/08/20 11:00		
COC Number			730025-01-01		
	UNITS	Criteria	BH3 SS2	RDL	QC Batch
Inorganics					
Moisture	%	-	12	1.0	6297178
Calculated Parameters					
Methylnaphthalene, 2-(1-)	ug/g	**0.99**	<0.0071	0.0071	6296079
Polyaromatic Hydrocarbons					
Acenaphthene	ug/g	**7.9**	<0.0050	0.0050	6300903
Acenaphthylene	ug/g	**0.15**	<0.0050	0.0050	6300903
Anthracene	ug/g	**0.67**	<0.0050	0.0050	6300903
Benzo(a)anthracene	ug/g	**0.5**	<0.0050	0.0050	6300903
Benzo(a)pyrene	ug/g	**0.3**	<0.0050	0.0050	6300903
Benzo(b/j)fluoranthene	ug/g	**0.78**	0.0060	0.0050	6300903
Benzo(g,h,i)perylene	ug/g	**6.6**	<0.0050	0.0050	6300903
Benzo(k)fluoranthene	ug/g	**0.78**	<0.0050	0.0050	6300903
Chrysene	ug/g	**7**	<0.0050	0.0050	6300903
Dibenz(a,h)anthracene	ug/g	**0.1**	<0.0050	0.0050	6300903
Fluoranthene	ug/g	**0.69**	0.011	0.0050	6300903
Fluorene	ug/g	**62**	<0.0050	0.0050	6300903
Indeno(1,2,3-cd)pyrene	ug/g	**0.38**	<0.0050	0.0050	6300903
1-Methylnaphthalene	ug/g	**0.99**	<0.0050	0.0050	6300903
2-Methylnaphthalene	ug/g	**0.99**	<0.0050	0.0050	6300903
Naphthalene	ug/g	**0.6**	<0.0050	0.0050	6300903
Phenanthrene	ug/g	**6.2**	0.0075	0.0050	6300903
Pyrene	ug/g	**78**	0.0097	0.0050	6300903
Surrogate Recovery (%)					
D10-Anthracene	%	-	99		6300903
D14-Terphenyl (FS)	%	-	109		6300903
D8-Acenaphthylene	%	-	84		6300903

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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O.REG 153 VOCS BY HS & F1-F4 (SOIL)

BV Labs ID			KOZ950	KOZ951			KOZ951		
Sampling Date			2019/08/20 07:15	2019/08/20 07:35			2019/08/20 07:35		
COC Number			730025-01-01	730025-01-01			730025-01-01		
	UNITS	Criteria	BH7 SS3	BH7 SS5	RDL	QC Batch	BH7 SS5 Lab-Dup	RDL	QC Batch
Inorganics									
Moisture	%	-	14	19	1.0	6296989	19	1.0	6296989
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/g	**0.05**	<0.050	<0.050	0.050	6296080			
Volatile Organics									
Acetone (2-Propanone)	ug/g	**16**	<0.50	<0.50	0.50	6299298			
Benzene	ug/g	**0.21**	<0.020	<0.020	0.020	6299298			
Bromodichloromethane	ug/g	**13**	<0.050	<0.050	0.050	6299298			
Bromoform	ug/g	**0.27**	<0.050	<0.050	0.050	6299298			
Bromomethane	ug/g	**0.05**	<0.050	<0.050	0.050	6299298			
Carbon Tetrachloride	ug/g	**0.05**	<0.050	<0.050	0.050	6299298			
Chlorobenzene	ug/g	**2.4**	<0.050	<0.050	0.050	6299298			
Chloroform	ug/g	**0.05**	<0.050	<0.050	0.050	6299298			
Dibromochloromethane	ug/g	**9.4**	<0.050	<0.050	0.050	6299298			
1,2-Dichlorobenzene	ug/g	**3.4**	<0.050	<0.050	0.050	6299298			
1,3-Dichlorobenzene	ug/g	**4.8**	<0.050	<0.050	0.050	6299298			
1,4-Dichlorobenzene	ug/g	**0.083**	<0.050	<0.050	0.050	6299298			
Dichlorodifluoromethane (FREON 12)	ug/g	**16**	<0.050	<0.050	0.050	6299298			
1,1-Dichloroethane	ug/g	**3.5**	<0.050	<0.050	0.050	6299298			
1,2-Dichloroethane	ug/g	**0.05**	<0.050	<0.050	0.050	6299298			
1,1-Dichloroethylene	ug/g	**0.05**	<0.050	<0.050	0.050	6299298			
cis-1,2-Dichloroethylene	ug/g	**3.4**	<0.050	<0.050	0.050	6299298			
trans-1,2-Dichloroethylene	ug/g	**0.084**	<0.050	<0.050	0.050	6299298			
1,2-Dichloropropane	ug/g	**0.05**	<0.050	<0.050	0.050	6299298			
cis-1,3-Dichloropropene	ug/g	**0.05**	<0.030	<0.030	0.030	6299298			
trans-1,3-Dichloropropene	ug/g	**0.05**	<0.040	<0.040	0.040	6299298			
Ethylbenzene	ug/g	**2**	<0.020	<0.020	0.020	6299298			
Ethylene Dibromide	ug/g	**0.05**	<0.050	<0.050	0.050	6299298			
Hexane	ug/g	**2.8**	<0.050	<0.050	0.050	6299298			
Methylene Chloride(Dichloromethane)	ug/g	**0.1**	<0.050	<0.050	0.050	6299298			
Methyl Ethyl Ketone (2-Butanone)	ug/g	**16**	<0.50	<0.50	0.50	6299298			
Methyl Isobutyl Ketone	ug/g	**1.7**	<0.50	<0.50	0.50	6299298			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

BV Labs Job #: B9N4329
Report Date: 2019/08/29

Soil Engineers Ltd
Sampler Initials: MA

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

BV Labs ID			KOZ950	KOZ951			KOZ951		
Sampling Date			2019/08/20 07:15	2019/08/20 07:35			2019/08/20 07:35		
COC Number			730025-01-01	730025-01-01			730025-01-01		
	UNITS	Criteria	BH7 SS3	BH7 SS5	RDL	QC Batch	BH7 SS5 Lab-Dup	RDL	QC Batch
Methyl t-butyl ether (MTBE)	ug/g	**0.75**	<0.050	<0.050	0.050	6299298			
Styrene	ug/g	**0.7**	<0.050	<0.050	0.050	6299298			
1,1,1,2-Tetrachloroethane	ug/g	**0.058**	<0.050	<0.050	0.050	6299298			
1,1,2,2-Tetrachloroethane	ug/g	**0.05**	<0.050	<0.050	0.050	6299298			
Tetrachloroethylene	ug/g	**0.28**	<0.050	<0.050	0.050	6299298			
Toluene	ug/g	**2.3**	<0.020	<0.020	0.020	6299298			
1,1,1-Trichloroethane	ug/g	**0.38**	<0.050	<0.050	0.050	6299298			
1,1,2-Trichloroethane	ug/g	**0.05**	<0.050	<0.050	0.050	6299298			
Trichloroethylene	ug/g	**0.061**	<0.050	<0.050	0.050	6299298			
Trichlorofluoromethane (FREON 11)	ug/g	**4**	<0.050	<0.050	0.050	6299298			
Vinyl Chloride	ug/g	**0.02**	<0.020	<0.020	0.020	6299298			
p+m-Xylene	ug/g	-	<0.020	<0.020	0.020	6299298			
o-Xylene	ug/g	-	<0.020	<0.020	0.020	6299298			
Total Xylenes	ug/g	**3.1**	<0.020	<0.020	0.020	6299298			
F1 (C6-C10)	ug/g	**55**	<10	<10	10	6299298			
F1 (C6-C10) - BTEX	ug/g	**55**	<10	<10	10	6299298			
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	<10	<10	10	6299631			
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	<50	<50	50	6299631			
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	<50	<50	50	6299631			
Reached Baseline at C50	ug/g	-	Yes	Yes		6299631			
Surrogate Recovery (%)									
o-Terphenyl	%	-	82	82		6299631			
4-Bromofluorobenzene	%	-	96	96		6299298			
D10-o-Xylene	%	-	109	123		6299298			
D4-1,2-Dichloroethane	%	-	92	93		6299298			
D8-Toluene	%	-	101	100		6299298			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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O.REG 153 VOCS BY HS (SOIL)

BV Labs ID			KOZ948		KOZ953		
Sampling Date			2019/08/20 09:25		2019/08/20		
COC Number			730025-01-01		730025-01-01		
	UNITS	Criteria	BH2 SS4	QC Batch	D2	RDL	QC Batch
Inorganics							
Moisture	%	-	12	6298599	14	1.0	6297178
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/g	**0.05**	<0.050	6296080	<0.050	0.050	6296080
Volatile Organics							
Acetone (2-Propanone)	ug/g	**16**	<0.50	6299340	<0.50	0.50	6299340
Benzene	ug/g	**0.21**	<0.020	6299340	<0.020	0.020	6299340
Bromodichloromethane	ug/g	**13**	<0.050	6299340	<0.050	0.050	6299340
Bromoform	ug/g	**0.27**	<0.050	6299340	<0.050	0.050	6299340
Bromomethane	ug/g	**0.05**	<0.050	6299340	<0.050	0.050	6299340
Carbon Tetrachloride	ug/g	**0.05**	<0.050	6299340	<0.050	0.050	6299340
Chlorobenzene	ug/g	**2.4**	<0.050	6299340	<0.050	0.050	6299340
Chloroform	ug/g	**0.05**	<0.050	6299340	<0.050	0.050	6299340
Dibromochloromethane	ug/g	**9.4**	<0.050	6299340	<0.050	0.050	6299340
1,2-Dichlorobenzene	ug/g	**3.4**	<0.050	6299340	<0.050	0.050	6299340
1,3-Dichlorobenzene	ug/g	**4.8**	<0.050	6299340	<0.050	0.050	6299340
1,4-Dichlorobenzene	ug/g	**0.083**	<0.050	6299340	<0.050	0.050	6299340
Dichlorodifluoromethane (FREON 12)	ug/g	**16**	<0.050	6299340	<0.050	0.050	6299340
1,1-Dichloroethane	ug/g	**3.5**	<0.050	6299340	<0.050	0.050	6299340
1,2-Dichloroethane	ug/g	**0.05**	<0.050	6299340	<0.050	0.050	6299340
1,1-Dichloroethylene	ug/g	**0.05**	<0.050	6299340	<0.050	0.050	6299340
cis-1,2-Dichloroethylene	ug/g	**3.4**	<0.050	6299340	<0.050	0.050	6299340
trans-1,2-Dichloroethylene	ug/g	**0.084**	<0.050	6299340	<0.050	0.050	6299340
1,2-Dichloropropane	ug/g	**0.05**	<0.050	6299340	<0.050	0.050	6299340
cis-1,3-Dichloropropene	ug/g	**0.05**	<0.030	6299340	<0.030	0.030	6299340
trans-1,3-Dichloropropene	ug/g	**0.05**	<0.040	6299340	<0.040	0.040	6299340
Ethylbenzene	ug/g	**2**	<0.020	6299340	<0.020	0.020	6299340
Ethylene Dibromide	ug/g	**0.05**	<0.050	6299340	<0.050	0.050	6299340
Hexane	ug/g	**2.8**	<0.050	6299340	<0.050	0.050	6299340
Methylene Chloride(Dichloromethane)	ug/g	**0.1**	<0.050	6299340	<0.050	0.050	6299340
Methyl Ethyl Ketone (2-Butanone)	ug/g	**16**	<0.50	6299340	<0.50	0.50	6299340
Methyl Isobutyl Ketone	ug/g	**1.7**	<0.50	6299340	<0.50	0.50	6299340
Methyl t-butyl ether (MTBE)	ug/g	**0.75**	<0.050	6299340	<0.050	0.050	6299340
Styrene	ug/g	**0.7**	<0.050	6299340	<0.050	0.050	6299340

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

O.REG 153 VOCS BY HS (SOIL)

BV Labs ID			KOZ948		KOZ953		
Sampling Date			2019/08/20 09:25		2019/08/20		
COC Number			730025-01-01		730025-01-01		
	UNITS	Criteria	BH2 SS4	QC Batch	D2	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/g	**0.058**	<0.050	6299340	<0.050	0.050	6299340
1,1,2,2-Tetrachloroethane	ug/g	**0.05**	<0.050	6299340	<0.050	0.050	6299340
Tetrachloroethylene	ug/g	**0.28**	<0.050	6299340	<0.050	0.050	6299340
Toluene	ug/g	**2.3**	<0.020	6299340	<0.020	0.020	6299340
1,1,1-Trichloroethane	ug/g	**0.38**	<0.050	6299340	<0.050	0.050	6299340
1,1,2-Trichloroethane	ug/g	**0.05**	<0.050	6299340	<0.050	0.050	6299340
Trichloroethylene	ug/g	**0.061**	<0.050	6299340	<0.050	0.050	6299340
Trichlorofluoromethane (FREON 11)	ug/g	**4**	<0.050	6299340	<0.050	0.050	6299340
Vinyl Chloride	ug/g	**0.02**	<0.020	6299340	<0.020	0.020	6299340
p+m-Xylene	ug/g	-	<0.020	6299340	<0.020	0.020	6299340
o-Xylene	ug/g	-	<0.020	6299340	<0.020	0.020	6299340
Total Xylenes	ug/g	**3.1**	<0.020	6299340	<0.020	0.020	6299340
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	-	97	6299340	98		6299340
D10-o-Xylene	%	-	104	6299340	110		6299340
D4-1,2-Dichloroethane	%	-	95	6299340	97		6299340
D8-Toluene	%	-	91	6299340	91		6299340

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9N4329
Report Date: 2019/08/29

Soil Engineers Ltd
Sampler Initials: MA

RESULTS OF ANALYSES OF SOIL

BV Labs ID			KOZ948		KOZ952		
Sampling Date			2019/08/20 09:25		2019/08/20		
COC Number			730025-01-01		730025-01-01		
	UNITS	Criteria	BH2 SS4	QC Batch	BH5 SS4	RDL	QC Batch
Inorganics							
Moisture	%	-			21	1.0	6298599
Available (CaCl2) pH	pH	-	7.79	6299391			
WAD Cyanide (Free)	ug/g	**0.051**			<0.01	0.01	6299459

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

BV Labs ID			KOZ952		
Sampling Date			2019/08/20		
COC Number			730025-01-01		
	UNITS	Criteria	BH5 SS4	RDL	QC Batch
Inorganics					
Chromium (VI)	ug/g	8	<0.2	0.2	6299294

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

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BV Labs Job #: B9N4329
Report Date: 2019/08/29

Soil Engineers Ltd
Sampler Initials: MA

TEST SUMMARY

BV Labs ID: KOZ948
Sample ID: BH2 SS4
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6296080	N/A	2019/08/28	Automated Statchk
Strong Acid Leachable Metals by ICPMS	ICP/MS	6298326	2019/08/24	2019/08/26	Viviana Canzonieri
Moisture	BAL	6298599	N/A	2019/08/24	Mithunaa Sasitheepan
pH CaCl2 EXTRACT	AT	6299391	2019/08/26	2019/08/26	Surinder Rai
Volatile Organic Compounds in Soil	GC/MS	6299340	N/A	2019/08/27	Rebecca McClean

BV Labs ID: KOZ949
Sample ID: BH3 SS2
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6296079	N/A	2019/08/27	Automated Statchk
Moisture	BAL	6297178	N/A	2019/08/23	Amitoj Singh Uppal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6300903	2019/08/26	2019/08/27	Mitesh Raj

BV Labs ID: KOZ950
Sample ID: BH7 SS3
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6296080	N/A	2019/08/27	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6299631	2019/08/26	2019/08/26	Atoosa Keshavarz
Moisture	BAL	6296989	N/A	2019/08/23	Amitoj Singh Uppal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6299298	N/A	2019/08/26	Karen Hughes

BV Labs ID: KOZ951
Sample ID: BH7 SS5
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6296080	N/A	2019/08/27	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6299631	2019/08/26	2019/08/27	Atoosa Keshavarz
Strong Acid Leachable Metals by ICPMS	ICP/MS	6298326	2019/08/24	2019/08/26	Viviana Canzonieri
Moisture	BAL	6296989	N/A	2019/08/23	Amitoj Singh Uppal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6299298	N/A	2019/08/27	Karen Hughes

BV Labs ID: KOZ951 Dup
Sample ID: BH7 SS5
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	6296989	N/A	2019/08/23	Amitoj Singh Uppal

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BV Labs Job #: B9N4329
Report Date: 2019/08/29

Soil Engineers Ltd
Sampler Initials: MA

TEST SUMMARY

BV Labs ID: KOZ952
Sample ID: BH5 SS4
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	6299459	2019/08/26	2019/08/27	Gnana Thomas
Hexavalent Chromium in Soil by IC	IC/SPEC	6299294	2019/08/26	2019/08/27	Sally Norouz Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	6298448	2019/08/24	2019/08/27	Daniel Teclu
Moisture	BAL	6298599	N/A	2019/08/24	Mithunaa Sasitheepan

BV Labs ID: KOZ953
Sample ID: D2
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/08/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6296080	N/A	2019/08/28	Automated Statchk
Moisture	BAL	6297178	N/A	2019/08/23	Amitoj Singh Uppal
Volatile Organic Compounds in Soil	GC/MS	6299340	N/A	2019/08/27	Rebecca McClean

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	9.7°C

Revised Report[2019/08/29]: Table 3 criteria added to C of A.

Results relate only to the items tested.

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BUREAU VERITAS

BV Labs Job #: B9N4329
Report Date: 2019/08/29

QUALITY ASSURANCE REPORT

Soil Engineers Ltd
Sampler Initials: MA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6299298	4-Bromofluorobenzene	2019/08/26	102	60 - 140	104	60 - 140	94	%		
6299298	D10-o-Xylene	2019/08/26	118	60 - 130	94	60 - 130	104	%		
6299298	D4-1,2-Dichloroethane	2019/08/26	95	60 - 140	97	60 - 140	98	%		
6299298	D8-Toluene	2019/08/26	107	60 - 140	101	60 - 140	99	%		
6299340	4-Bromofluorobenzene	2019/08/27	106	60 - 140	107	60 - 140	100	%		
6299340	D10-o-Xylene	2019/08/27	123	60 - 130	119	60 - 130	100	%		
6299340	D4-1,2-Dichloroethane	2019/08/27	88	60 - 140	92	60 - 140	99	%		
6299340	D8-Toluene	2019/08/27	106	60 - 140	104	60 - 140	90	%		
6299631	o-Terphenyl	2019/08/26	95	60 - 130	89	60 - 130	88	%		
6300903	D10-Anthracene	2019/08/26	95	50 - 130	106	50 - 130	108	%		
6300903	D14-Terphenyl (FS)	2019/08/26	94	50 - 130	99	50 - 130	100	%		
6300903	D8-Acenaphthylene	2019/08/26	99	50 - 130	106	50 - 130	103	%		
6296989	Moisture	2019/08/23							1.6	20
6297178	Moisture	2019/08/23							4.3	20
6298326	Acid Extractable Antimony (Sb)	2019/08/26	94	75 - 125	101	80 - 120	<0.20	ug/g	NC	30
6298326	Acid Extractable Arsenic (As)	2019/08/26	95	75 - 125	102	80 - 120	<1.0	ug/g	NC	30
6298326	Acid Extractable Barium (Ba)	2019/08/26	84	75 - 125	98	80 - 120	<0.50	ug/g	13	30
6298326	Acid Extractable Beryllium (Be)	2019/08/26	95	75 - 125	97	80 - 120	<0.20	ug/g	NC	30
6298326	Acid Extractable Boron (B)	2019/08/26	97	75 - 125	97	80 - 120	<5.0	ug/g	NC	30
6298326	Acid Extractable Cadmium (Cd)	2019/08/26	95	75 - 125	102	80 - 120	<0.10	ug/g	NC	30
6298326	Acid Extractable Chromium (Cr)	2019/08/26	94	75 - 125	97	80 - 120	<1.0	ug/g	3.1	30
6298326	Acid Extractable Cobalt (Co)	2019/08/26	90	75 - 125	102	80 - 120	<0.10	ug/g	7.2	30
6298326	Acid Extractable Copper (Cu)	2019/08/26	91	75 - 125	101	80 - 120	<0.50	ug/g	1.4	30
6298326	Acid Extractable Lead (Pb)	2019/08/26	94	75 - 125	100	80 - 120	<1.0	ug/g	3.3	30
6298326	Acid Extractable Mercury (Hg)	2019/08/26	89	75 - 125	94	80 - 120	<0.050	ug/g	NC	30
6298326	Acid Extractable Molybdenum (Mo)	2019/08/26	96	75 - 125	100	80 - 120	<0.50	ug/g	NC	30
6298326	Acid Extractable Nickel (Ni)	2019/08/26	93	75 - 125	102	80 - 120	<0.50	ug/g	1.3	30
6298326	Acid Extractable Selenium (Se)	2019/08/26	101	75 - 125	104	80 - 120	<0.50	ug/g	NC	30
6298326	Acid Extractable Silver (Ag)	2019/08/26	96	75 - 125	102	80 - 120	<0.20	ug/g	NC	30
6298326	Acid Extractable Thallium (Tl)	2019/08/26	93	75 - 125	101	80 - 120	<0.050	ug/g	NC	30
6298326	Acid Extractable Uranium (U)	2019/08/26	94	75 - 125	101	80 - 120	<0.050	ug/g	8.1	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6298326	Acid Extractable Vanadium (V)	2019/08/26	96	75 - 125	100	80 - 120	<5.0	ug/g	0.65	30
6298326	Acid Extractable Zinc (Zn)	2019/08/26	92	75 - 125	102	80 - 120	<5.0	ug/g	8.4	30
6298448	Acid Extractable Antimony (Sb)	2019/08/27	100	75 - 125	99	80 - 120	<0.20	ug/g	9.1	30
6298448	Acid Extractable Arsenic (As)	2019/08/27	113	75 - 125	105	80 - 120	<1.0	ug/g	9.6	30
6298448	Acid Extractable Barium (Ba)	2019/08/27	NC	75 - 125	98	80 - 120	<0.50	ug/g	0.21	30
6298448	Acid Extractable Beryllium (Be)	2019/08/27	104	75 - 125	99	80 - 120	<0.20	ug/g	1.6	30
6298448	Acid Extractable Boron (B)	2019/08/27	104	75 - 125	99	80 - 120	<5.0	ug/g	NC	30
6298448	Acid Extractable Cadmium (Cd)	2019/08/27	101	75 - 125	101	80 - 120	<0.10	ug/g	37 (1)	30
6298448	Acid Extractable Chromium (Cr)	2019/08/27	NC	75 - 125	104	80 - 120	<1.0	ug/g	8.4	30
6298448	Acid Extractable Cobalt (Co)	2019/08/27	102	75 - 125	104	80 - 120	<0.10	ug/g	3.4	30
6298448	Acid Extractable Copper (Cu)	2019/08/27	NC	75 - 125	102	80 - 120	<0.50	ug/g	15	30
6298448	Acid Extractable Lead (Pb)	2019/08/27	119	75 - 125	105	80 - 120	<1.0	ug/g	6.5	30
6298448	Acid Extractable Mercury (Hg)	2019/08/27	93	75 - 125	100	80 - 120	<0.050	ug/g	NC	30
6298448	Acid Extractable Molybdenum (Mo)	2019/08/27	106	75 - 125	101	80 - 120	<0.50	ug/g	8.0	30
6298448	Acid Extractable Nickel (Ni)	2019/08/27	98	75 - 125	102	80 - 120	<0.50	ug/g	8.8	30
6298448	Acid Extractable Selenium (Se)	2019/08/27	106	75 - 125	106	80 - 120	<0.50	ug/g	NC	30
6298448	Acid Extractable Silver (Ag)	2019/08/27	112	75 - 125	102	80 - 120	<0.20	ug/g	NC	30
6298448	Acid Extractable Thallium (Tl)	2019/08/27	104	75 - 125	105	80 - 120	<0.050	ug/g	5.0	30
6298448	Acid Extractable Uranium (U)	2019/08/27	106	75 - 125	104	80 - 120	<0.050	ug/g	0.78	30
6298448	Acid Extractable Vanadium (V)	2019/08/27	NC	75 - 125	105	80 - 120	<5.0	ug/g	3.8	30
6298448	Acid Extractable Zinc (Zn)	2019/08/27	NC	75 - 125	103	80 - 120	<5.0	ug/g	0.32	30
6298599	Moisture	2019/08/24							4.7	20
6299294	Chromium (VI)	2019/08/27	85	70 - 130	95	80 - 120	<0.2	ug/g	NC	35
6299298	1,1,1,2-Tetrachloroethane	2019/08/26	103	60 - 140	91	60 - 130	<0.050	ug/g	NC	50
6299298	1,1,1-Trichloroethane	2019/08/26	99	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
6299298	1,1,2,2-Tetrachloroethane	2019/08/26	97	60 - 140	88	60 - 130	<0.050	ug/g	NC	50
6299298	1,1,2-Trichloroethane	2019/08/26	100	60 - 140	89	60 - 130	<0.050	ug/g	NC	50
6299298	1,1-Dichloroethane	2019/08/26	99	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6299298	1,1-Dichloroethylene	2019/08/26	107	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
6299298	1,2-Dichlorobenzene	2019/08/26	97	60 - 140	84	60 - 130	<0.050	ug/g	NC	50
6299298	1,2-Dichloroethane	2019/08/26	98	60 - 140	94	60 - 130	<0.050	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6299298	1,2-Dichloropropane	2019/08/26	95	60 - 140	89	60 - 130	<0.050	ug/g	NC	50
6299298	1,3-Dichlorobenzene	2019/08/26	101	60 - 140	86	60 - 130	<0.050	ug/g	NC	50
6299298	1,4-Dichlorobenzene	2019/08/26	109	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
6299298	Acetone (2-Propanone)	2019/08/26	95	60 - 140	92	60 - 140	<0.50	ug/g	NC	50
6299298	Benzene	2019/08/26	99	60 - 140	93	60 - 130	<0.020	ug/g	NC	50
6299298	Bromodichloromethane	2019/08/26	93	60 - 140	89	60 - 130	<0.050	ug/g	NC	50
6299298	Bromoform	2019/08/26	96	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
6299298	Bromomethane	2019/08/26	105	60 - 140	100	60 - 140	<0.050	ug/g	NC	50
6299298	Carbon Tetrachloride	2019/08/26	98	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6299298	Chlorobenzene	2019/08/26	99	60 - 140	86	60 - 130	<0.050	ug/g	NC	50
6299298	Chloroform	2019/08/26	93	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
6299298	cis-1,2-Dichloroethylene	2019/08/26	93	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
6299298	cis-1,3-Dichloropropene	2019/08/26	92	60 - 140	89	60 - 130	<0.030	ug/g	NC	50
6299298	Dibromochloromethane	2019/08/26	101	60 - 140	90	60 - 130	<0.050	ug/g	NC	50
6299298	Dichlorodifluoromethane (FREON 12)	2019/08/26	98	60 - 140	111	60 - 140	<0.050	ug/g	NC	50
6299298	Ethylbenzene	2019/08/26	103	60 - 140	89	60 - 130	<0.020	ug/g	NC	50
6299298	Ethylene Dibromide	2019/08/26	100	60 - 140	89	60 - 130	<0.050	ug/g	NC	50
6299298	F1 (C6-C10) - BTEX	2019/08/26					<10	ug/g	NC	30
6299298	F1 (C6-C10)	2019/08/26	99	60 - 140	97	80 - 120	<10	ug/g	NC	30
6299298	Hexane	2019/08/26	108	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
6299298	Methyl Ethyl Ketone (2-Butanone)	2019/08/26	98	60 - 140	96	60 - 140	<0.50	ug/g	NC	50
6299298	Methyl Isobutyl Ketone	2019/08/26	96	60 - 140	96	60 - 130	<0.50	ug/g	NC	50
6299298	Methyl t-butyl ether (MTBE)	2019/08/26	90	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
6299298	Methylene Chloride(Dichloromethane)	2019/08/26	91	60 - 140	85	60 - 130	<0.050	ug/g	NC	50
6299298	o-Xylene	2019/08/26	106	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
6299298	p+m-Xylene	2019/08/26	110	60 - 140	94	60 - 130	<0.020	ug/g	NC	50
6299298	Styrene	2019/08/26	104	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
6299298	Tetrachloroethylene	2019/08/26	99	60 - 140	85	60 - 130	<0.050	ug/g	NC	50
6299298	Toluene	2019/08/26	105	60 - 140	90	60 - 130	<0.020	ug/g	NC	50
6299298	Total Xylenes	2019/08/26					<0.020	ug/g	NC	50
6299298	trans-1,2-Dichloroethylene	2019/08/26	100	60 - 140	92	60 - 130	<0.050	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6299298	trans-1,3-Dichloropropene	2019/08/26	103	60 - 140	93	60 - 130	<0.040	ug/g	NC	50
6299298	Trichloroethylene	2019/08/26	102	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
6299298	Trichlorofluoromethane (FREON 11)	2019/08/26	110	60 - 140	104	60 - 130	<0.050	ug/g	NC	50
6299298	Vinyl Chloride	2019/08/26	112	60 - 140	107	60 - 130	<0.020	ug/g	NC	50
6299340	1,1,1,2-Tetrachloroethane	2019/08/27	112	60 - 140	107	60 - 130	<0.050	ug/g	NC	50
6299340	1,1,1-Trichloroethane	2019/08/27	107	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6299340	1,1,2,2-Tetrachloroethane	2019/08/27	96	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
6299340	1,1,2-Trichloroethane	2019/08/27	94	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6299340	1,1-Dichloroethane	2019/08/27	98	60 - 140	95	60 - 130	<0.050	ug/g	NC	50
6299340	1,1-Dichloroethylene	2019/08/27	109	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
6299340	1,2-Dichlorobenzene	2019/08/27	104	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
6299340	1,2-Dichloroethane	2019/08/27	97	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
6299340	1,2-Dichloropropane	2019/08/27	93	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6299340	1,3-Dichlorobenzene	2019/08/27	107	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
6299340	1,4-Dichlorobenzene	2019/08/27	113	60 - 140	107	60 - 130	<0.050	ug/g	NC	50
6299340	Acetone (2-Propanone)	2019/08/27	91	60 - 140	95	60 - 140	<0.50	ug/g	NC	50
6299340	Benzene	2019/08/27	104	60 - 140	101	60 - 130	<0.020	ug/g	NC	50
6299340	Bromodichloromethane	2019/08/27	98	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
6299340	Bromoform	2019/08/27	104	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
6299340	Bromomethane	2019/08/27	120	60 - 140	118	60 - 140	<0.050	ug/g	NC	50
6299340	Carbon Tetrachloride	2019/08/27	106	60 - 140	100	60 - 130	<0.050	ug/g	NC	50
6299340	Chlorobenzene	2019/08/27	105	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6299340	Chloroform	2019/08/27	97	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6299340	cis-1,2-Dichloroethylene	2019/08/27	98	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
6299340	cis-1,3-Dichloropropene	2019/08/27	102	60 - 140	103	60 - 130	<0.030	ug/g	NC	50
6299340	Dibromochloromethane	2019/08/27	106	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
6299340	Dichlorodifluoromethane (FREON 12)	2019/08/27	136	60 - 140	131	60 - 140	<0.050	ug/g	NC	50
6299340	Ethylbenzene	2019/08/27	107	60 - 140	101	60 - 130	<0.020	ug/g	NC	50
6299340	Ethylene Dibromide	2019/08/27	102	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6299340	Hexane	2019/08/27	117	60 - 140	110	60 - 130	<0.050	ug/g	NC	50
6299340	Methyl Ethyl Ketone (2-Butanone)	2019/08/27	90	60 - 140	98	60 - 140	<0.50	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6299340	Methyl Isobutyl Ketone	2019/08/27	92	60 - 140	101	60 - 130	<0.50	ug/g	NC	50
6299340	Methyl t-butyl ether (MTBE)	2019/08/27	93	60 - 140	92	60 - 130	<0.050	ug/g	NC	50
6299340	Methylene Chloride(Dichloromethane)	2019/08/27	96	60 - 140	93	60 - 130	<0.050	ug/g	NC	50
6299340	o-Xylene	2019/08/27	112	60 - 140	107	60 - 130	<0.020	ug/g	NC	50
6299340	p+m-Xylene	2019/08/27	119	60 - 140	112	60 - 130	<0.020	ug/g	NC	50
6299340	Styrene	2019/08/27	114	60 - 140	110	60 - 130	<0.050	ug/g	NC	50
6299340	Tetrachloroethylene	2019/08/27	110	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
6299340	Toluene	2019/08/27	105	60 - 140	99	60 - 130	<0.020	ug/g	NC	50
6299340	Total Xylenes	2019/08/27					<0.020	ug/g	NC	50
6299340	trans-1,2-Dichloroethylene	2019/08/27	103	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
6299340	trans-1,3-Dichloropropene	2019/08/27	106	60 - 140	107	60 - 130	<0.040	ug/g	NC	50
6299340	Trichloroethylene	2019/08/27	114	60 - 140	108	60 - 130	<0.050	ug/g	NC	50
6299340	Trichlorofluoromethane (FREON 11)	2019/08/27	120	60 - 140	113	60 - 130	<0.050	ug/g	NC	50
6299340	Vinyl Chloride	2019/08/27	118	60 - 140	113	60 - 130	<0.020	ug/g	NC	50
6299391	Available (CaCl2) pH	2019/08/26			100	97 - 103			0.27	N/A
6299459	WAD Cyanide (Free)	2019/08/27	99	75 - 125	101	80 - 120	<0.01	ug/g	NC	35
6299631	F2 (C10-C16 Hydrocarbons)	2019/08/26	91	50 - 130	85	80 - 120	<10	ug/g	NC	30
6299631	F3 (C16-C34 Hydrocarbons)	2019/08/26	96	50 - 130	90	80 - 120	<50	ug/g	NC	30
6299631	F4 (C34-C50 Hydrocarbons)	2019/08/26	100	50 - 130	93	80 - 120	<50	ug/g	NC	30
6300903	1-Methylnaphthalene	2019/08/26	106	50 - 130	116	50 - 130	<0.0050	ug/g	NC	40
6300903	2-Methylnaphthalene	2019/08/26	95	50 - 130	101	50 - 130	<0.0050	ug/g	NC	40
6300903	Acenaphthene	2019/08/26	97	50 - 130	102	50 - 130	<0.0050	ug/g	NC	40
6300903	Acenaphthylene	2019/08/26	109	50 - 130	115	50 - 130	<0.0050	ug/g	NC	40
6300903	Anthracene	2019/08/26	97	50 - 130	106	50 - 130	<0.0050	ug/g	NC	40
6300903	Benzo(a)anthracene	2019/08/26	109	50 - 130	116	50 - 130	<0.0050	ug/g	NC	40
6300903	Benzo(a)pyrene	2019/08/26	104	50 - 130	113	50 - 130	<0.0050	ug/g	NC	40
6300903	Benzo(b/j)fluoranthene	2019/08/26	98	50 - 130	111	50 - 130	<0.0050	ug/g	NC	40
6300903	Benzo(g,h,i)perylene	2019/08/26	88	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
6300903	Benzo(k)fluoranthene	2019/08/26	103	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40
6300903	Chrysene	2019/08/26	101	50 - 130	113	50 - 130	<0.0050	ug/g	NC	40
6300903	Dibenz(a,h)anthracene	2019/08/26	99	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6300903	Fluoranthene	2019/08/26	112	50 - 130	121	50 - 130	<0.0050	ug/g	NC	40
6300903	Fluorene	2019/08/26	106	50 - 130	112	50 - 130	<0.0050	ug/g	NC	40
6300903	Indeno(1,2,3-cd)pyrene	2019/08/26	97	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40
6300903	Naphthalene	2019/08/26	90	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
6300903	Phenanthrene	2019/08/26	96	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40
6300903	Pyrene	2019/08/26	111	50 - 130	121	50 - 130	<0.0050	ug/g	NC	40

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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BV Labs Job #: B9N4329
Report Date: 2019/08/29

Soil Engineers Ltd
Sampler Initials: MA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Anastassia Hamanov, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Exceedence Summary Table – Reg153/04 T3-Soil/Res-C

Result Exceedences

Sample ID	BV Labs ID	Parameter	Criteria	Result	DL	Units
No Exceedences						

The exceedence summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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Your Project #: 1906-E146
Your C.O.C. #: na

Attention: Hamid Rezaei

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/10/22
Report #: R5931152
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9S9398
Received: 2019/10/15, 15:21

Sample Matrix: Soil
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	2	N/A	2019/10/17	CAM SOP-00301	EPA 8270D m
Strong Acid Leachable Metals by ICPMS	5	2019/10/17	2019/10/21	CAM SOP-00447	EPA 6020B m
Moisture	2	N/A	2019/10/16	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	2	2019/10/16	2019/10/17	CAM SOP-00318	EPA 8270D m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your Project #: 1906-E146
Your C.O.C. #: na

Attention: Hamid Rezaei

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/10/22
Report #: R5931152
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9S9398
Received: 2019/10/15, 15:21

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: Antonella.Brasil@bvlabs.com
Phone# (905)817-5817
==========
This report has been generated and distributed using a secure automated process.
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BV Labs Job #: B9S9398
Report Date: 2019/10/22

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

O.REG 153 ICPMS METALS (SOIL)

BV Labs ID		LAU407	LAU408	LAU410	LAU412	LAU413		
Sampling Date		2019/08/14	2019/08/20	2019/08/15	2019/08/15	2019/08/15		
COC Number		na	na	na	na	na		
	UNITS	BH1/2	BH2/1	BH8/1	BH9/2	DUP-S	RDL	QC Batch
Metals								
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6391944
Acid Extractable Arsenic (As)	ug/g	3.5	2.5	2.1	3.4	3.0	1.0	6391944
Acid Extractable Barium (Ba)	ug/g	71	150	120	83	180	0.50	6391944
Acid Extractable Beryllium (Be)	ug/g	0.52	0.84	1.0	0.55	0.92	0.20	6391944
Acid Extractable Boron (B)	ug/g	7.8	11	8.7	8.8	11	5.0	6391944
Acid Extractable Cadmium (Cd)	ug/g	0.11	<0.10	0.27	0.11	0.11	0.10	6391944
Acid Extractable Chromium (Cr)	ug/g	20	32	33	20	34	1.0	6391944
Acid Extractable Cobalt (Co)	ug/g	7.9	12	12	8.8	12	0.10	6391944
Acid Extractable Copper (Cu)	ug/g	19	21	23	20	22	0.50	6391944
Acid Extractable Lead (Pb)	ug/g	14	10	14	12	10	1.0	6391944
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	<0.50	<0.50	0.67	<0.50	0.50	6391944
Acid Extractable Nickel (Ni)	ug/g	18	28	27	20	29	0.50	6391944
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	0.81	<0.50	<0.50	0.50	6391944
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6391944
Acid Extractable Thallium (Tl)	ug/g	0.15	0.20	0.20	0.15	0.23	0.050	6391944
Acid Extractable Uranium (U)	ug/g	0.45	0.58	0.65	0.45	0.59	0.050	6391944
Acid Extractable Vanadium (V)	ug/g	26	40	37	28	40	5.0	6391944
Acid Extractable Zinc (Zn)	ug/g	54	64	94	63	70	5.0	6391944
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	0.051	<0.050	<0.050	0.050	6391944

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 PAHS (SOIL)

BV Labs ID		LAU409	LAU411		
Sampling Date		2019/08/20	2019/08/15		
COC Number		na	na		
	UNITS	BH2/2	BH9/1	RDL	QC Batch
Inorganics					
Moisture	%	20	19	1.0	6389618
Calculated Parameters					
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	0.0071	6388655
Polyaromatic Hydrocarbons					
Acenaphthene	ug/g	<0.0050	<0.0050	0.0050	6390432
Acenaphthylene	ug/g	<0.0050	<0.0050	0.0050	6390432
Anthracene	ug/g	<0.0050	<0.0050	0.0050	6390432
Benzo(a)anthracene	ug/g	<0.0050	<0.0050	0.0050	6390432
Benzo(a)pyrene	ug/g	<0.0050	<0.0050	0.0050	6390432
Benzo(b/j)fluoranthene	ug/g	<0.0050	<0.0050	0.0050	6390432
Benzo(g,h,i)perylene	ug/g	<0.0050	<0.0050	0.0050	6390432
Benzo(k)fluoranthene	ug/g	<0.0050	<0.0050	0.0050	6390432
Chrysene	ug/g	<0.0050	<0.0050	0.0050	6390432
Dibenz(a,h)anthracene	ug/g	<0.0050	<0.0050	0.0050	6390432
Fluoranthene	ug/g	<0.0050	<0.0050	0.0050	6390432
Fluorene	ug/g	<0.0050	<0.0050	0.0050	6390432
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	<0.0050	0.0050	6390432
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	6390432
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	6390432
Naphthalene	ug/g	<0.0050	<0.0050	0.0050	6390432
Phenanthrene	ug/g	<0.0050	<0.0050	0.0050	6390432
Pyrene	ug/g	<0.0050	<0.0050	0.0050	6390432
Surrogate Recovery (%)					
D10-Anthracene	%	86	106		6390432
D14-Terphenyl (FS)	%	91	97		6390432
D8-Acenaphthylene	%	76	72		6390432

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9S9398
Report Date: 2019/10/22

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

TEST SUMMARY

BV Labs ID: LAU407
Sample ID: BH1/2
Matrix: Soil

Collected: 2019/08/14
Shipped:
Received: 2019/10/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6391944	2019/10/17	2019/10/21	Daniel Teclu

BV Labs ID: LAU408
Sample ID: BH2/1
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/10/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6391944	2019/10/17	2019/10/21	Daniel Teclu

BV Labs ID: LAU409
Sample ID: BH2/2
Matrix: Soil

Collected: 2019/08/20
Shipped:
Received: 2019/10/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6388655	N/A	2019/10/17	Automated Statchk
Moisture	BAL	6389618	N/A	2019/10/16	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6390432	2019/10/16	2019/10/17	Mitesh Raj

BV Labs ID: LAU410
Sample ID: BH8/1
Matrix: Soil

Collected: 2019/08/15
Shipped:
Received: 2019/10/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6391944	2019/10/17	2019/10/21	Daniel Teclu

BV Labs ID: LAU411
Sample ID: BH9/1
Matrix: Soil

Collected: 2019/08/15
Shipped:
Received: 2019/10/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6388655	N/A	2019/10/17	Automated Statchk
Moisture	BAL	6389618	N/A	2019/10/16	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6390432	2019/10/16	2019/10/17	Mitesh Raj

BV Labs ID: LAU412
Sample ID: BH9/2
Matrix: Soil

Collected: 2019/08/15
Shipped:
Received: 2019/10/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6391944	2019/10/17	2019/10/21	Daniel Teclu

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BV Labs Job #: B9S9398
Report Date: 2019/10/22

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

TEST SUMMARY

BV Labs ID: LAU413
Sample ID: DUP-S
Matrix: Soil

Collected: 2019/08/15
Shipped:
Received: 2019/10/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	6391944	2019/10/17	2019/10/21	Daniel Teclu

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.7°C

Results relate only to the items tested.

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BV Labs Job #: B9S9398
Report Date: 2019/10/22

QUALITY ASSURANCE REPORT

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6390432	D10-Anthracene	2019/10/17	93	50 - 130	103	50 - 130	98	%		
6390432	D14-Terphenyl (FS)	2019/10/17	98	50 - 130	98	50 - 130	111	%		
6390432	D8-Acenaphthylene	2019/10/17	86	50 - 130	93	50 - 130	93	%		
6389618	Moisture	2019/10/16							0	20
6390432	1-Methylnaphthalene	2019/10/17	88	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
6390432	2-Methylnaphthalene	2019/10/17	82	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
6390432	Acenaphthene	2019/10/17	92	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
6390432	Acenaphthylene	2019/10/17	91	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
6390432	Anthracene	2019/10/17	88	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40
6390432	Benzo(a)anthracene	2019/10/17	103	50 - 130	108	50 - 130	<0.0050	ug/g	NC	40
6390432	Benzo(a)pyrene	2019/10/17	90	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
6390432	Benzo(b/j)fluoranthene	2019/10/17	82	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
6390432	Benzo(g,h,i)perylene	2019/10/17	109	50 - 130	120	50 - 130	<0.0050	ug/g	NC	40
6390432	Benzo(k)fluoranthene	2019/10/17	78	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
6390432	Chrysene	2019/10/17	89	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
6390432	Dibenz(a,h)anthracene	2019/10/17	109	50 - 130	117	50 - 130	<0.0050	ug/g	NC	40
6390432	Fluoranthene	2019/10/17	98	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
6390432	Fluorene	2019/10/17	81	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
6390432	Indeno(1,2,3-cd)pyrene	2019/10/17	112	50 - 130	122	50 - 130	<0.0050	ug/g	NC	40
6390432	Naphthalene	2019/10/17	81	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
6390432	Phenanthrene	2019/10/17	92	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
6390432	Pyrene	2019/10/17	96	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
6391944	Acid Extractable Antimony (Sb)	2019/10/21	99	75 - 125	103	80 - 120	<0.20	ug/g	4.1	30
6391944	Acid Extractable Arsenic (As)	2019/10/21	114	75 - 125	104	80 - 120	<1.0	ug/g	16	30
6391944	Acid Extractable Barium (Ba)	2019/10/21	NC	75 - 125	96	80 - 120	<0.50	ug/g	4.2	30
6391944	Acid Extractable Beryllium (Be)	2019/10/21	110	75 - 125	101	80 - 120	<0.20	ug/g	1.9	30
6391944	Acid Extractable Boron (B)	2019/10/21	109	75 - 125	102	80 - 120	<5.0	ug/g	2.6	30
6391944	Acid Extractable Cadmium (Cd)	2019/10/21	110	75 - 125	101	80 - 120	<0.10	ug/g	36 (1)	30
6391944	Acid Extractable Chromium (Cr)	2019/10/21	NC	75 - 125	105	80 - 120	<1.0	ug/g	4.9	30
6391944	Acid Extractable Cobalt (Co)	2019/10/21	111	75 - 125	104	80 - 120	<0.10	ug/g	3.5	30
6391944	Acid Extractable Copper (Cu)	2019/10/21	NC	75 - 125	101	80 - 120	<0.50	ug/g	3.0	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6391944	Acid Extractable Lead (Pb)	2019/10/21	NC	75 - 125	104	80 - 120	<1.0	ug/g	2.1	30
6391944	Acid Extractable Mercury (Hg)	2019/10/21	101	75 - 125	95	80 - 120	<0.050	ug/g	NC	30
6391944	Acid Extractable Molybdenum (Mo)	2019/10/21	112	75 - 125	105	80 - 120	<0.50	ug/g	8.9	30
6391944	Acid Extractable Nickel (Ni)	2019/10/21	108	75 - 125	102	80 - 120	<0.50	ug/g	12	30
6391944	Acid Extractable Selenium (Se)	2019/10/21	117	75 - 125	108	80 - 120	<0.50	ug/g	NC	30
6391944	Acid Extractable Silver (Ag)	2019/10/21	113	75 - 125	104	80 - 120	<0.20	ug/g	NC	30
6391944	Acid Extractable Thallium (Tl)	2019/10/21	105	75 - 125	103	80 - 120	<0.050	ug/g	25	30
6391944	Acid Extractable Uranium (U)	2019/10/21	111	75 - 125	102	80 - 120	<0.050	ug/g	20	30
6391944	Acid Extractable Vanadium (V)	2019/10/21	NC	75 - 125	102	80 - 120	<5.0	ug/g	3.4	30
6391944	Acid Extractable Zinc (Zn)	2019/10/21	NC	75 - 125	103	80 - 120	<5.0	ug/g	2.2	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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BV Labs Job #: B9S9398
Report Date: 2019/10/22

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Anastassia Hamanov, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Your Project #: 1906-E146
Your C.O.C. #: na

Attention: Hamid Rezaei

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/10/25
Report #: R5936693
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9T8161
Received: 2019/10/23, 15:30

Sample Matrix: Soil
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Conductivity	8	2019/10/25	2019/10/25	CAM SOP-00414	OMOE E3530 v1 m
Sodium Adsorption Ratio (SAR)	8	N/A	2019/10/25	CAM SOP-00102	EPA 6010C

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your Project #: 1906-E146
Your C.O.C. #: na

Attention: Hamid Rezaei
Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/10/25
Report #: R5936693
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9T8161
Received: 2019/10/23, 15:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: Antonella.Brasil@bvlabs.com
Phone# (905)817-5817
==========
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BV Labs Job #: B9T8161
Report Date: 2019/10/25

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

RESULTS OF ANALYSES OF SOIL

BV Labs ID		LCQ352	LCQ353	LCQ354		LCQ355		LCQ356		
Sampling Date		2019/10/21	2019/10/21	2019/10/21		2019/10/21		2019/10/21		
COC Number		na	na	na		na		na		
	UNITS	SA1	SA2	SA3	QC Batch	SA4	QC Batch	SA5	RDL	QC Batch
Calculated Parameters										
Sodium Adsorption Ratio	N/A	0.73	0.50	0.18	6402316	1.3	6402316	1.2		6402316
Inorganics										
Conductivity	mS/cm	0.19	0.19	0.32	6406181	0.22	6406404	0.31	0.002	6406181

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs ID		LCQ357	LCQ358	LCQ359		
Sampling Date		2019/10/21	2019/10/21	2019/10/21		
COC Number		na	na	na		
	UNITS	SA6	SA7	DUP-SA	RDL	QC Batch
Calculated Parameters						
Sodium Adsorption Ratio	N/A	1.3	0.63	0.71		6402316
Inorganics						
Conductivity	mS/cm	0.42	0.25	0.19	0.002	6406181

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9T8161
Report Date: 2019/10/25

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

TEST SUMMARY

BV Labs ID: LCQ352
Sample ID: SA1
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	6406181	2019/10/25	2019/10/25	Kazzandra Adeva
Sodium Adsorption Ratio (SAR)	CALC/MET	6402316	N/A	2019/10/25	Automated Statchk

BV Labs ID: LCQ353
Sample ID: SA2
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	6406181	2019/10/25	2019/10/25	Kazzandra Adeva
Sodium Adsorption Ratio (SAR)	CALC/MET	6402316	N/A	2019/10/25	Automated Statchk

BV Labs ID: LCQ354
Sample ID: SA3
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	6406181	2019/10/25	2019/10/25	Kazzandra Adeva
Sodium Adsorption Ratio (SAR)	CALC/MET	6402316	N/A	2019/10/25	Automated Statchk

BV Labs ID: LCQ355
Sample ID: SA4
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	6406404	2019/10/25	2019/10/25	Kazzandra Adeva
Sodium Adsorption Ratio (SAR)	CALC/MET	6402316	N/A	2019/10/25	Automated Statchk

BV Labs ID: LCQ356
Sample ID: SA5
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	6406181	2019/10/25	2019/10/25	Kazzandra Adeva
Sodium Adsorption Ratio (SAR)	CALC/MET	6402316	N/A	2019/10/25	Automated Statchk

BV Labs ID: LCQ357
Sample ID: SA6
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	6406181	2019/10/25	2019/10/25	Kazzandra Adeva
Sodium Adsorption Ratio (SAR)	CALC/MET	6402316	N/A	2019/10/25	Automated Statchk

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BV Labs Job #: B9T8161
Report Date: 2019/10/25

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

TEST SUMMARY

BV Labs ID: LCQ358
Sample ID: SA7
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	6406181	2019/10/25	2019/10/25	Kazzandra Adeva
Sodium Adsorption Ratio (SAR)	CALC/MET	6402316	N/A	2019/10/25	Automated Statchk

BV Labs ID: LCQ359
Sample ID: DUP-SA
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/10/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	6406181	2019/10/25	2019/10/25	Kazzandra Adeva
Sodium Adsorption Ratio (SAR)	CALC/MET	6402316	N/A	2019/10/25	Automated Statchk

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.0°C

Sample LCQ354 [SA3] : SAR Analysis: Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

Results relate only to the items tested.

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BV Labs Job #: B9T8161
Report Date: 2019/10/25

QUALITY ASSURANCE REPORT

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

			SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6406181	Conductivity	2019/10/25	102	90 - 110	<0.002	mS/cm	0.89	10
6406404	Conductivity	2019/10/25	103	90 - 110	<0.002	mS/cm	1.3	10

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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BV Labs Job #: B9T8161
Report Date: 2019/10/25

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Anastassia Hamanov, Scientific Specialist

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Your Project #: 1906-E146
Your C.O.C. #: n/a

Attention: Hamid Rezaei

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/11/06
Report #: R5954343
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9U9637
Received: 2019/11/04, 15:47

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum	1	N/A	2019/11/06	CAM SOP-00301	EPA 8270D m
Hot Water Extractable Boron	2	2019/11/05	2019/11/06	CAM SOP-00408	R153 Ana. Prot. 2011
Free (WAD) Cyanide	5	2019/11/05	2019/11/06	CAM SOP-00457	OMOE E3015 m
Hexavalent Chromium in Soil by IC (1)	5	2019/11/05	2019/11/06	CAM SOP-00436	EPA 3060/7199 m
Strong Acid Leachable Metals by ICPMS	2	2019/11/05	2019/11/05	CAM SOP-00447	EPA 6020B m
Moisture	6	N/A	2019/11/05	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	1	2019/11/05	2019/11/05	CAM SOP-00318	EPA 8270D m
pH CaCl2 EXTRACT	5	2019/11/05	2019/11/05	CAM SOP-00413	EPA 9045 D m

Remarks:

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All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Soils are reported on a dry weight basis unless otherwise specified.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your Project #: 1906-E146
Your C.O.C. #: n/a

Attention: Hamid Rezaei

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/11/06
Report #: R5954343
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9U9637
Received: 2019/11/04, 15:47

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: Antonella.Brasil@bvlabs.com
Phone# (905)817-5817

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BUREAU VERITAS

BV Labs Job #: B9U9637
Report Date: 2019/11/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

O.REG 153 METALS PACKAGE (SOIL)

BV Labs ID		LFE269	LFE271		
Sampling Date		2019/10/21	2019/10/21		
COC Number		n/a	n/a		
	UNITS	SA1	SA3	RDL	QC Batch
Inorganics					
Moisture	%	17	17	1.0	6424925
Chromium (VI)	ug/g	<0.2	<0.2	0.2	6426445
Metals					
Hot Water Ext. Boron (B)	ug/g	0.37	0.33	0.050	6425080
Acid Extractable Antimony (Sb)	ug/g	<0.20	<0.20	0.20	6425016
Acid Extractable Arsenic (As)	ug/g	2.5	2.3	1.0	6425016
Acid Extractable Barium (Ba)	ug/g	44	47	0.50	6425016
Acid Extractable Beryllium (Be)	ug/g	0.46	0.46	0.20	6425016
Acid Extractable Boron (B)	ug/g	<5.0	<5.0	5.0	6425016
Acid Extractable Cadmium (Cd)	ug/g	0.13	0.15	0.10	6425016
Acid Extractable Chromium (Cr)	ug/g	16	16	1.0	6425016
Acid Extractable Cobalt (Co)	ug/g	6.2	6.1	0.10	6425016
Acid Extractable Copper (Cu)	ug/g	9.9	9.0	0.50	6425016
Acid Extractable Lead (Pb)	ug/g	9.4	9.8	1.0	6425016
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	<0.50	0.50	6425016
Acid Extractable Nickel (Ni)	ug/g	12	12	0.50	6425016
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	0.50	6425016
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	0.20	6425016
Acid Extractable Thallium (Tl)	ug/g	0.10	0.11	0.050	6425016
Acid Extractable Uranium (U)	ug/g	0.41	0.41	0.050	6425016
Acid Extractable Vanadium (V)	ug/g	28	28	5.0	6425016
Acid Extractable Zinc (Zn)	ug/g	38	35	5.0	6425016
Acid Extractable Mercury (Hg)	ug/g	<0.050	<0.050	0.050	6425016

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9U9637
Report Date: 2019/11/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

O.REG 153 PAHS (SOIL)

BV Labs ID		LFE270			LFE270		
Sampling Date		2019/10/21			2019/10/21		
COC Number		n/a			n/a		
	UNITS	SA2	RDL	QC Batch	SA2 Lab-Dup	RDL	QC Batch
Inorganics							
Moisture	%	18	1.0	6424808	18	1.0	6424808
Calculated Parameters							
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	0.0071	6423437			
Polyaromatic Hydrocarbons							
Acenaphthene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Acenaphthylene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Anthracene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Benzo(a)anthracene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Benzo(a)pyrene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Benzo(b/j)fluoranthene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Benzo(g,h,i)perylene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Chrysene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Fluoranthene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Fluorene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
1-Methylnaphthalene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
2-Methylnaphthalene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Naphthalene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Phenanthrene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Pyrene	ug/g	<0.0050	0.0050	6424980	<0.0050	0.0050	6424980
Surrogate Recovery (%)							
D10-Anthracene	%	92		6424980	92		6424980
D14-Terphenyl (FS)	%	98		6424980	98		6424980
D8-Acenaphthylene	%	83		6424980	81		6424980

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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BV Labs Job #: B9U9637
Report Date: 2019/11/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

RESULTS OF ANALYSES OF SOIL

BV Labs ID		LFE269	LFE271			LFE272	LFE273		LFE274		
Sampling Date		2019/10/21	2019/10/21			2019/10/21	2019/10/21		2019/10/21		
COC Number		n/a	n/a			n/a	n/a		n/a		
	UNITS	SA1	SA3	RDL	QC Batch	SA5	SA6	RDL	DUP-SA2	RDL	QC Batch
Inorganics											
Moisture	%					19	17	1.0	19	1.0	6424925
Available (CaCl2) pH	pH	6.96	6.93		6424955	5.51	7.05		5.45		6424955
WAD Cyanide (Free)	ug/g	<0.01	<0.01	0.01	6424921	0.02	0.01	0.01	0.02	0.02	6424921

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

BV Labs ID		LFE272	LFE273	LFE274		
Sampling Date		2019/10/21	2019/10/21	2019/10/21		
COC Number		n/a	n/a	n/a		
	UNITS	SA5	SA6	DUP-SA2	RDL	QC Batch
Inorganics						
Chromium (VI)	ug/g	<0.2	<0.2	<0.2	0.2	6426445

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9U9637
Report Date: 2019/11/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

TEST SUMMARY

BV Labs ID: LFE269
Sample ID: SA1
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/11/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	6425080	2019/11/05	2019/11/06	Jolly John
Free (WAD) Cyanide	TECH	6424921	2019/11/05	2019/11/06	Louise Harding
Hexavalent Chromium in Soil by IC	IC/SPEC	6426445	2019/11/05	2019/11/06	Ann-Marie Stern
Strong Acid Leachable Metals by ICPMS	ICP/MS	6425016	2019/11/05	2019/11/05	Daniel Teclu
Moisture	BAL	6424925	N/A	2019/11/05	Gurpreet Kaur
pH CaCl2 EXTRACT	AT	6424955	2019/11/05	2019/11/05	Surinder Rai

BV Labs ID: LFE270
Sample ID: SA2
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/11/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6423437	N/A	2019/11/06	Automated Statchk
Moisture	BAL	6424808	N/A	2019/11/05	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6424980	2019/11/05	2019/11/05	Mitesh Raj

BV Labs ID: LFE270 Dup
Sample ID: SA2
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/11/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	6424808	N/A	2019/11/05	Prgya Panchal
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6424980	2019/11/05	2019/11/05	Mitesh Raj

BV Labs ID: LFE271
Sample ID: SA3
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/11/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	6425080	2019/11/05	2019/11/06	Jolly John
Free (WAD) Cyanide	TECH	6424921	2019/11/05	2019/11/06	Louise Harding
Hexavalent Chromium in Soil by IC	IC/SPEC	6426445	2019/11/05	2019/11/06	Ann-Marie Stern
Strong Acid Leachable Metals by ICPMS	ICP/MS	6425016	2019/11/05	2019/11/05	Daniel Teclu
Moisture	BAL	6424925	N/A	2019/11/05	Gurpreet Kaur
pH CaCl2 EXTRACT	AT	6424955	2019/11/05	2019/11/05	Surinder Rai

BV Labs ID: LFE272
Sample ID: SA5
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/11/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	6424921	2019/11/05	2019/11/06	Louise Harding
Hexavalent Chromium in Soil by IC	IC/SPEC	6426445	2019/11/05	2019/11/06	Ann-Marie Stern
Moisture	BAL	6424925	N/A	2019/11/05	Gurpreet Kaur
pH CaCl2 EXTRACT	AT	6424955	2019/11/05	2019/11/05	Surinder Rai

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BV Labs Job #: B9U9637
Report Date: 2019/11/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

TEST SUMMARY

BV Labs ID: LFE273
Sample ID: SA6
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/11/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	6424921	2019/11/05	2019/11/06	Louise Harding
Hexavalent Chromium in Soil by IC	IC/SPEC	6426445	2019/11/05	2019/11/06	Ann-Marie Stern
Moisture	BAL	6424925	N/A	2019/11/05	Gurpreet Kaur
pH CaCl2 EXTRACT	AT	6424955	2019/11/05	2019/11/05	Surinder Rai

BV Labs ID: LFE274
Sample ID: DUP-SA2
Matrix: Soil

Collected: 2019/10/21
Shipped:
Received: 2019/11/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	6424921	2019/11/05	2019/11/06	Louise Harding
Hexavalent Chromium in Soil by IC	IC/SPEC	6426445	2019/11/05	2019/11/06	Ann-Marie Stern
Moisture	BAL	6424925	N/A	2019/11/05	Gurpreet Kaur
pH CaCl2 EXTRACT	AT	6424955	2019/11/05	2019/11/05	Surinder Rai

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BV Labs Job #: B9U9637
Report Date: 2019/11/06

Soil Engineers Ltd
Client Project #: 1906-E146
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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.0°C

Results relate only to the items tested.

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BV Labs Job #: B9U9637
Report Date: 2019/11/06

QUALITY ASSURANCE REPORT

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6424980	D10-Anthracene	2019/11/05	92	50 - 130	98	50 - 130	101	%		
6424980	D14-Terphenyl (FS)	2019/11/05	95	50 - 130	104	50 - 130	105	%		
6424980	D8-Acenaphthylene	2019/11/05	86	50 - 130	93	50 - 130	93	%		
6424808	Moisture	2019/11/05							0	20
6424921	WAD Cyanide (Free)	2019/11/06	97	75 - 125	99	80 - 120	<0.01	ug/g	NC	35
6424925	Moisture	2019/11/05							15	20
6424955	Available (CaCl2) pH	2019/11/05			100	97 - 103			0.75	N/A
6424980	1-Methylnaphthalene	2019/11/05	95	50 - 130	104	50 - 130	<0.0050	ug/g	NC	40
6424980	2-Methylnaphthalene	2019/11/05	86	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
6424980	Acenaphthene	2019/11/05	88	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
6424980	Acenaphthylene	2019/11/05	86	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
6424980	Anthracene	2019/11/05	84	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
6424980	Benzo(a)anthracene	2019/11/05	96	50 - 130	101	50 - 130	<0.0050	ug/g	NC	40
6424980	Benzo(a)pyrene	2019/11/05	92	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
6424980	Benzo(b/j)fluoranthene	2019/11/05	87	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
6424980	Benzo(g,h,i)perylene	2019/11/05	93	50 - 130	101	50 - 130	<0.0050	ug/g	NC	40
6424980	Benzo(k)fluoranthene	2019/11/05	88	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
6424980	Chrysene	2019/11/05	89	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
6424980	Dibenz(a,h)anthracene	2019/11/05	107	50 - 130	113	50 - 130	<0.0050	ug/g	NC	40
6424980	Fluoranthene	2019/11/05	92	50 - 130	101	50 - 130	<0.0050	ug/g	NC	40
6424980	Fluorene	2019/11/05	85	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
6424980	Indeno(1,2,3-cd)pyrene	2019/11/05	97	50 - 130	104	50 - 130	<0.0050	ug/g	NC	40
6424980	Naphthalene	2019/11/05	82	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40
6424980	Phenanthrene	2019/11/05	86	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
6424980	Pyrene	2019/11/05	90	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
6425016	Acid Extractable Antimony (Sb)	2019/11/05	96	75 - 125	100	80 - 120	<0.20	ug/g	NC	30
6425016	Acid Extractable Arsenic (As)	2019/11/05	101	75 - 125	106	80 - 120	<1.0	ug/g	NC	30
6425016	Acid Extractable Barium (Ba)	2019/11/05	91	75 - 125	95	80 - 120	<0.50	ug/g	6.4	30
6425016	Acid Extractable Beryllium (Be)	2019/11/05	95	75 - 125	96	80 - 120	<0.20	ug/g	11	30
6425016	Acid Extractable Boron (B)	2019/11/05	94	75 - 125	94	80 - 120	<5.0	ug/g	NC	30
6425016	Acid Extractable Cadmium (Cd)	2019/11/05	97	75 - 125	102	80 - 120	<0.10	ug/g	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6425016	Acid Extractable Chromium (Cr)	2019/11/05	94	75 - 125	100	80 - 120	<1.0	ug/g	7.9	30
6425016	Acid Extractable Cobalt (Co)	2019/11/05	99	75 - 125	101	80 - 120	<0.10	ug/g	16	30
6425016	Acid Extractable Copper (Cu)	2019/11/05	98	75 - 125	102	80 - 120	<0.50	ug/g	3.4	30
6425016	Acid Extractable Lead (Pb)	2019/11/05	96	75 - 125	98	80 - 120	<1.0	ug/g	14	30
6425016	Acid Extractable Mercury (Hg)	2019/11/05	83	75 - 125	91	80 - 120	<0.050	ug/g	NC	30
6425016	Acid Extractable Molybdenum (Mo)	2019/11/05	95	75 - 125	102	80 - 120	<0.50	ug/g	NC	30
6425016	Acid Extractable Nickel (Ni)	2019/11/05	97	75 - 125	98	80 - 120	<0.50	ug/g	4.9	30
6425016	Acid Extractable Selenium (Se)	2019/11/05	100	75 - 125	100	80 - 120	<0.50	ug/g	NC	30
6425016	Acid Extractable Silver (Ag)	2019/11/05	97	75 - 125	99	80 - 120	<0.20	ug/g	NC	30
6425016	Acid Extractable Thallium (Tl)	2019/11/05	95	75 - 125	96	80 - 120	<0.050	ug/g	NC	30
6425016	Acid Extractable Uranium (U)	2019/11/05	95	75 - 125	97	80 - 120	<0.050	ug/g	24	30
6425016	Acid Extractable Vanadium (V)	2019/11/05	99	75 - 125	101	80 - 120	<5.0	ug/g	15	30
6425016	Acid Extractable Zinc (Zn)	2019/11/05	96	75 - 125	107	80 - 120	<5.0	ug/g	0.75	30
6425080	Hot Water Ext. Boron (B)	2019/11/06	110	75 - 125	100	75 - 125	<0.050	ug/g	8.9	40
6426445	Chromium (VI)	2019/11/06	90	70 - 130	95	80 - 120	<0.2	ug/g	NC	35

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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BV Labs Job #: B9U9637
Report Date: 2019/11/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: HR

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Anastassia Hamanov, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Soil Engineers Ltd.
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APPENDIX 'F'

CERTIFICATE OF ANALYSIS
(GROUNDWATER SAMPLE)

REFERENCE NO. 1906-E146

Your Project #: 1906-E146
Your C.O.C. #: 734772-01-01

Attention: Munir Ahmad
Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/09/06
Report #: R5869460
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9O3407
Received: 2019/08/30, 15:40

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	6	N/A	2019/09/04		EPA 8260C m
1,3-Dichloropropene Sum	2	N/A	2019/09/05		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1)	2	2019/09/05	2019/09/06	CAM SOP-00316	CCME PHC-CWS m
Dissolved Metals by ICPMS	7	N/A	2019/09/05	CAM SOP-00447	EPA 6020B m
Volatile Organic Compounds and F1 PHCs	2	N/A	2019/09/04	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Water	6	N/A	2019/09/03	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your Project #: 1906-E146
Your C.O.C. #: 734772-01-01

Attention: Munir Ahmad
Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2019/09/06
Report #: R5869460
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9O3407
Received: 2019/08/30, 15:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: Antonella.Brasil@bvlabs.com
Phone# (905)817-5817

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

BV Labs Job #: B9O3407
Report Date: 2019/09/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: OG

O.REG 153 DISSOLVED ICPMS METALS (WATER)

BV Labs ID			KQY575	KQY576	KQY577	KQY578	KQY579		
Sampling Date			2019/08/29 12:15	2019/08/29 12:45	2019/08/29 13:15	2019/08/29 13:45	2019/08/29 14:15		
COC Number			734772-01-01	734772-01-01	734772-01-01	734772-01-01	734772-01-01		
	UNITS	Criteria	MW1	MW2	MW6	MW7	MW8	RDL	QC Batch
Metals									
Dissolved Antimony (Sb)	ug/L	**1.5**	<0.50	0.58	<0.50	<0.50	<0.50	0.50	6313722
Dissolved Arsenic (As)	ug/L	**13**	3.2	2.4	<1.0	<1.0	<1.0	1.0	6313722
Dissolved Barium (Ba)	ug/L	**610**	72	59	63	85	61	2.0	6313722
Dissolved Beryllium (Be)	ug/L	**0.5**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6313722
Dissolved Boron (B)	ug/L	**1700**	43	190	140	130	39	10	6313722
Dissolved Cadmium (Cd)	ug/L	**0.5**	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6313722
Dissolved Chromium (Cr)	ug/L	**11**	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	6313722
Dissolved Cobalt (Co)	ug/L	**3.8**	0.54	2.2	0.67	0.99	<0.50	0.50	6313722
Dissolved Copper (Cu)	ug/L	**5**	3.3	3.4	1.5	1.9	1.2	1.0	6313722
Dissolved Lead (Pb)	ug/L	**1.9**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6313722
Dissolved Molybdenum (Mo)	ug/L	**23**	**35**	11	2.7	1.2	1.6	0.50	6313722
Dissolved Nickel (Ni)	ug/L	**14**	2.9	**15**	5.2	3.6	2.4	1.0	6313722
Dissolved Selenium (Se)	ug/L	**5**	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6313722
Dissolved Silver (Ag)	ug/L	**0.3**	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	6313722
Dissolved Thallium (Tl)	ug/L	**0.5**	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	6313722
Dissolved Uranium (U)	ug/L	**8.9**	0.95	0.41	2.3	5.8	3.6	0.10	6313722
Dissolved Vanadium (V)	ug/L	**3.9**	**9.0**	**7.9**	0.65	<0.50	0.73	0.50	6313722
Dissolved Zinc (Zn)	ug/L	**160**	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	6313722

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 1: Full Depth Background Site Condition Standards
Ground Water - All Types of Property Uses

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BUREAU VERITAS

BV Labs Job #: B9O3407
Report Date: 2019/09/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: OG

O.REG 153 DISSOLVED ICPMS METALS (WATER)

BV Labs ID			KQY580	KQY581		
Sampling Date			2019/08/29 14:45	2019/08/29		
COC Number			734772-01-01	734772-01-01		
	UNITS	Criteria	MW9	DUPGW1	RDL	QC Batch
Metals						
Dissolved Antimony (Sb)	ug/L	**1.5**	1.1	0.76	0.50	6313722
Dissolved Arsenic (As)	ug/L	**13**	2.3	3.3	1.0	6313722
Dissolved Barium (Ba)	ug/L	**610**	21	75	2.0	6313722
Dissolved Beryllium (Be)	ug/L	**0.5**	<0.50	<0.50	0.50	6313722
Dissolved Boron (B)	ug/L	**1700**	58	42	10	6313722
Dissolved Cadmium (Cd)	ug/L	**0.5**	<0.10	<0.10	0.10	6313722
Dissolved Chromium (Cr)	ug/L	**11**	<5.0	<5.0	5.0	6313722
Dissolved Cobalt (Co)	ug/L	**3.8**	1.3	0.54	0.50	6313722
Dissolved Copper (Cu)	ug/L	**5**	**6.2**	3.2	1.0	6313722
Dissolved Lead (Pb)	ug/L	**1.9**	<0.50	<0.50	0.50	6313722
Dissolved Molybdenum (Mo)	ug/L	**23**	**26**	**37**	0.50	6313722
Dissolved Nickel (Ni)	ug/L	**14**	2.2	3.0	1.0	6313722
Dissolved Selenium (Se)	ug/L	**5**	<2.0	<2.0	2.0	6313722
Dissolved Silver (Ag)	ug/L	**0.3**	<0.10	<0.10	0.10	6313722
Dissolved Thallium (Tl)	ug/L	**0.5**	<0.050	<0.050	0.050	6313722
Dissolved Uranium (U)	ug/L	**8.9**	0.11	0.92	0.10	6313722
Dissolved Vanadium (V)	ug/L	**3.9**	**12**	**9.4**	0.50	6313722
Dissolved Zinc (Zn)	ug/L	**160**	<5.0	<5.0	5.0	6313722

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
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O.REG 153 VOCS BY HS & F1-F4 (WATER)

BV Labs ID			KQY578	KQY579		
Sampling Date			2019/08/29 13:45	2019/08/29 14:15		
COC Number			734772-01-01	734772-01-01		
	UNITS	Criteria	MW7	MW8	RDL	QC Batch
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/L	**0.5**	<0.50	<0.50	0.50	6310725
Volatile Organics						
Acetone (2-Propanone)	ug/L	**2700**	<10	<10	10	6311203
Benzene	ug/L	**0.5**	<0.20	<0.20	0.20	6311203
Bromodichloromethane	ug/L	**2**	<0.50	**3.8**	0.50	6311203
Bromoform	ug/L	**5.0**	<1.0	<1.0	1.0	6311203
Bromomethane	ug/L	**0.89**	<0.50	<0.50	0.50	6311203
Carbon Tetrachloride	ug/L	**0.2**	<0.20	<0.20	0.20	6311203
Chlorobenzene	ug/L	**0.5**	<0.20	<0.20	0.20	6311203
Chloroform	ug/L	**2**	<0.20	**4.3**	0.20	6311203
Dibromochloromethane	ug/L	**2**	<0.50	**2.5**	0.50	6311203
1,2-Dichlorobenzene	ug/L	**0.5**	<0.50	<0.50	0.50	6311203
1,3-Dichlorobenzene	ug/L	**0.5**	<0.50	<0.50	0.50	6311203
1,4-Dichlorobenzene	ug/L	**0.5**	<0.50	<0.50	0.50	6311203
Dichlorodifluoromethane (FREON 12)	ug/L	**590**	<1.0	<1.0	1.0	6311203
1,1-Dichloroethane	ug/L	**0.5**	<0.20	<0.20	0.20	6311203
1,2-Dichloroethane	ug/L	**0.5**	<0.50	<0.50	0.50	6311203
1,1-Dichloroethylene	ug/L	**0.5**	<0.20	<0.20	0.20	6311203
cis-1,2-Dichloroethylene	ug/L	**1.6**	<0.50	<0.50	0.50	6311203
trans-1,2-Dichloroethylene	ug/L	**1.6**	<0.50	<0.50	0.50	6311203
1,2-Dichloropropane	ug/L	**0.5**	<0.20	<0.20	0.20	6311203
cis-1,3-Dichloropropene	ug/L	**0.5**	<0.30	<0.30	0.30	6311203
trans-1,3-Dichloropropene	ug/L	**0.5**	<0.40	<0.40	0.40	6311203
Ethylbenzene	ug/L	**0.5**	<0.20	0.27	0.20	6311203
Ethylene Dibromide	ug/L	**0.2**	<0.20	<0.20	0.20	6311203
Hexane	ug/L	**5**	<1.0	<1.0	1.0	6311203
Methylene Chloride(Dichloromethane)	ug/L	**5**	<2.0	<2.0	2.0	6311203
Methyl Ethyl Ketone (2-Butanone)	ug/L	**400**	<10	<10	10	6311203
Methyl Isobutyl Ketone	ug/L	**640**	<5.0	<5.0	5.0	6311203
Methyl t-butyl ether (MTBE)	ug/L	**15**	<0.50	<0.50	0.50	6311203
Styrene	ug/L	**0.5**	<0.50	<0.50	0.50	6311203
1,1,1,2-Tetrachloroethane	ug/L	**1.1**	<0.50	<0.50	0.50	6311203

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 1: Full Depth Background Site Condition Standards
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O.REG 153 VOCS BY HS & F1-F4 (WATER)

BV Labs ID			KQY578	KQY579		
Sampling Date			2019/08/29 13:45	2019/08/29 14:15		
COC Number			734772-01-01	734772-01-01		
	UNITS	Criteria	MW7	MW8	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/L	**0.5**	<0.50	<0.50	0.50	6311203
Tetrachloroethylene	ug/L	**0.5**	<0.20	<0.20	0.20	6311203
Toluene	ug/L	**0.8**	<0.20	0.63	0.20	6311203
1,1,1-Trichloroethane	ug/L	**0.5**	<0.20	<0.20	0.20	6311203
1,1,2-Trichloroethane	ug/L	**0.5**	<0.50	<0.50	0.50	6311203
Trichloroethylene	ug/L	**0.5**	<0.20	<0.20	0.20	6311203
Trichlorofluoromethane (FREON 11)	ug/L	**150**	<0.50	<0.50	0.50	6311203
Vinyl Chloride	ug/L	**0.5**	<0.20	<0.20	0.20	6311203
p+m-Xylene	ug/L	-	<0.20	0.64	0.20	6311203
o-Xylene	ug/L	-	<0.20	0.48	0.20	6311203
Total Xylenes	ug/L	**72**	<0.20	1.1	0.20	6311203
F1 (C6-C10)	ug/L	**420**	<25	<25	25	6311203
F1 (C6-C10) - BTEX	ug/L	**420**	<25	<25	25	6311203
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L	**150**	<100	<100	100	6315897
F3 (C16-C34 Hydrocarbons)	ug/L	**500**	<200	<200	200	6315897
F4 (C34-C50 Hydrocarbons)	ug/L	**500**	<200	<200	200	6315897
Reached Baseline at C50	ug/L	-	Yes	Yes		6315897
Surrogate Recovery (%)						
o-Terphenyl	%	-	114	119		6315897
4-Bromofluorobenzene	%	-	90	92		6311203
D4-1,2-Dichloroethane	%	-	103	104		6311203
D8-Toluene	%	-	94	93		6311203

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
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BV Labs Job #: B9O3407
Report Date: 2019/09/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: OG

O.REG 153 VOCS BY HS (WATER)

BV Labs ID			KQY575	KQY576	KQY577	KQY580	KQY582		
Sampling Date			2019/08/29 12:15	2019/08/29 12:45	2019/08/29 13:15	2019/08/29 14:45	2019/08/29		
COC Number			734772-01-01	734772-01-01	734772-01-01	734772-01-01	734772-01-01		
	UNITS	Criteria	MW1	MW2	MW6	MW9	DUPGW2	RDL	QC Batch
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/L	**0.5**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6310725
Volatile Organics									
Acetone (2-Propanone)	ug/L	**2700**	<10	<10	<10	430	410	10	6311201
Benzene	ug/L	**0.5**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6311201
Bromodichloromethane	ug/L	**2**	0.63	<0.50	<0.50	<0.50	<0.50	0.50	6311201
Bromoform	ug/L	**5.0**	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6311201
Bromomethane	ug/L	**0.89**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
Carbon Tetrachloride	ug/L	**0.2**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6311201
Chlorobenzene	ug/L	**0.5**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6311201
Chloroform	ug/L	**2**	0.91	<0.20	<0.20	<0.20	<0.20	0.20	6311201
Dibromochloromethane	ug/L	**2**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
1,2-Dichlorobenzene	ug/L	**0.5**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
1,3-Dichlorobenzene	ug/L	**0.5**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
1,4-Dichlorobenzene	ug/L	**0.5**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
Dichlorodifluoromethane (FREON 12)	ug/L	**590**	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6311201
1,1-Dichloroethane	ug/L	**0.5**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6311201
1,2-Dichloroethane	ug/L	**0.5**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
1,1-Dichloroethylene	ug/L	**0.5**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6311201
cis-1,2-Dichloroethylene	ug/L	**1.6**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
trans-1,2-Dichloroethylene	ug/L	**1.6**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
1,2-Dichloropropane	ug/L	**0.5**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6311201
cis-1,3-Dichloropropene	ug/L	**0.5**	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	6311201
trans-1,3-Dichloropropene	ug/L	**0.5**	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	6311201
Ethylbenzene	ug/L	**0.5**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6311201
Ethylene Dibromide	ug/L	**0.2**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6311201
Hexane	ug/L	**5**	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6311201
Methylene Chloride(Dichloromethane)	ug/L	**5**	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6311201
Methyl Ethyl Ketone (2-Butanone)	ug/L	**400**	<10	<10	<10	41	41	10	6311201
Methyl Isobutyl Ketone	ug/L	**640**	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	6311201
Methyl t-butyl ether (MTBE)	ug/L	**15**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
Styrene	ug/L	**0.5**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
1,1,1,2-Tetrachloroethane	ug/L	**1.1**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
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BV Labs Job #: B9O3407
Report Date: 2019/09/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: OG

O.REG 153 VOCS BY HS (WATER)

BV Labs ID			KQY575	KQY576	KQY577	KQY580	KQY582		
Sampling Date			2019/08/29 12:15	2019/08/29 12:45	2019/08/29 13:15	2019/08/29 14:45	2019/08/29		
COC Number			734772-01-01	734772-01-01	734772-01-01	734772-01-01	734772-01-01		
	UNITS	Criteria	MW1	MW2	MW6	MW9	DUPGW2	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/L	**0.5**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
Tetrachloroethylene	ug/L	**0.5**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6311201
Toluene	ug/L	**0.8**	<0.20	<0.20	<0.20	0.21	<0.20	0.20	6311201
1,1,1-Trichloroethane	ug/L	**0.5**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6311201
1,1,2-Trichloroethane	ug/L	**0.5**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
Trichloroethylene	ug/L	**0.5**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6311201
Trichlorofluoromethane (FREON 11)	ug/L	**150**	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6311201
Vinyl Chloride	ug/L	**0.5**	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6311201
p+m-Xylene	ug/L	-	<0.20	<0.20	<0.20	0.22	0.22	0.20	6311201
o-Xylene	ug/L	-	0.89	<0.20	<0.20	<0.20	<0.20	0.20	6311201
Total Xylenes	ug/L	**72**	0.89	<0.20	<0.20	0.22	0.22	0.20	6311201
Surrogate Recovery (%)									
4-Bromofluorobenzene	%	-	96	119	95	119	95		6311201
D4-1,2-Dichloroethane	%	-	112	109	113	112	115		6311201
D8-Toluene	%	-	93	94	93	93	92		6311201

RDL = Reportable Detection Limit
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Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
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Ground Water - All Types of Property Uses

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

BV Labs Job #: B9O3407
Report Date: 2019/09/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: OG

O.REG 153 VOCS BY HS (WATER)

BV Labs ID			KQY583		
Sampling Date			2019/08/29		
COC Number			734772-01-01		
	UNITS	Criteria	TRIP BLANK	RDL	QC Batch
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/L	0.5	<0.50	0.50	6310725
Volatile Organics					
Acetone (2-Propanone)	ug/L	2700	<10	10	6311201
Benzene	ug/L	0.5	<0.20	0.20	6311201
Bromodichloromethane	ug/L	2	<0.50	0.50	6311201
Bromoform	ug/L	5.0	<1.0	1.0	6311201
Bromomethane	ug/L	0.89	<0.50	0.50	6311201
Carbon Tetrachloride	ug/L	0.2	<0.20	0.20	6311201
Chlorobenzene	ug/L	0.5	<0.20	0.20	6311201
Chloroform	ug/L	2	<0.20	0.20	6311201
Dibromochloromethane	ug/L	2	<0.50	0.50	6311201
1,2-Dichlorobenzene	ug/L	0.5	<0.50	0.50	6311201
1,3-Dichlorobenzene	ug/L	0.5	<0.50	0.50	6311201
1,4-Dichlorobenzene	ug/L	0.5	<0.50	0.50	6311201
Dichlorodifluoromethane (FREON 12)	ug/L	590	<1.0	1.0	6311201
1,1-Dichloroethane	ug/L	0.5	<0.20	0.20	6311201
1,2-Dichloroethane	ug/L	0.5	<0.50	0.50	6311201
1,1-Dichloroethylene	ug/L	0.5	<0.20	0.20	6311201
cis-1,2-Dichloroethylene	ug/L	1.6	<0.50	0.50	6311201
trans-1,2-Dichloroethylene	ug/L	1.6	<0.50	0.50	6311201
1,2-Dichloropropane	ug/L	0.5	<0.20	0.20	6311201
cis-1,3-Dichloropropene	ug/L	0.5	<0.30	0.30	6311201
trans-1,3-Dichloropropene	ug/L	0.5	<0.40	0.40	6311201
Ethylbenzene	ug/L	0.5	<0.20	0.20	6311201
Ethylene Dibromide	ug/L	0.2	<0.20	0.20	6311201
Hexane	ug/L	5	<1.0	1.0	6311201
Methylene Chloride(Dichloromethane)	ug/L	5	<2.0	2.0	6311201
Methyl Ethyl Ketone (2-Butanone)	ug/L	400	<10	10	6311201
Methyl Isobutyl Ketone	ug/L	640	<5.0	5.0	6311201
Methyl t-butyl ether (MTBE)	ug/L	15	<0.50	0.50	6311201
Styrene	ug/L	0.5	<0.50	0.50	6311201
1,1,1,2-Tetrachloroethane	ug/L	1.1	<0.50	0.50	6311201

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 1: Full Depth Background Site Condition Standards
Ground Water - All Types of Property Uses

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O.REG 153 VOCS BY HS (WATER)

BV Labs ID			KQY583		
Sampling Date			2019/08/29		
COC Number			734772-01-01		
	UNITS	Criteria	TRIP BLANK	RDL	QC Batch
1,1,2,2-Tetrachloroethane	ug/L	**0.5**	<0.50	0.50	6311201
Tetrachloroethylene	ug/L	**0.5**	<0.20	0.20	6311201
Toluene	ug/L	**0.8**	<0.20	0.20	6311201
1,1,1-Trichloroethane	ug/L	**0.5**	<0.20	0.20	6311201
1,1,2-Trichloroethane	ug/L	**0.5**	**<0.50**	0.50	6311201
Trichloroethylene	ug/L	**0.5**	<0.20	0.20	6311201
Trichlorofluoromethane (FREON 11)	ug/L	**150**	<0.50	0.50	6311201
Vinyl Chloride	ug/L	**0.5**	<0.20	0.20	6311201
p+m-Xylene	ug/L	-	**<0.20**	0.20	6311201
o-Xylene	ug/L	-	<0.20	0.20	6311201
Total Xylenes	ug/L	**72**	<0.20	0.20	6311201
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	-	95		6311201
D4-1,2-Dichloroethane	%	-	112		6311201
D8-Toluene	%	-	93		6311201

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 1: Full Depth Background Site Condition Standards
Ground Water - All Types of Property Uses

BV Labs Job #: B9O3407
Report Date: 2019/09/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: OG

TEST SUMMARY

BV Labs ID: KQY575
Sample ID: MW1
Matrix: Water

Collected: 2019/08/29
Shipped:
Received: 2019/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6310725	N/A	2019/09/04	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	6313722	N/A	2019/09/05	Matthew Ritenburg
Volatile Organic Compounds in Water	GC/MS	6311201	N/A	2019/09/03	Rebecca McClean

BV Labs ID: KQY576
Sample ID: MW2
Matrix: Water

Collected: 2019/08/29
Shipped:
Received: 2019/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6310725	N/A	2019/09/04	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	6313722	N/A	2019/09/05	Matthew Ritenburg
Volatile Organic Compounds in Water	GC/MS	6311201	N/A	2019/09/03	Rebecca McClean

BV Labs ID: KQY577
Sample ID: MW6
Matrix: Water

Collected: 2019/08/29
Shipped:
Received: 2019/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6310725	N/A	2019/09/04	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	6313722	N/A	2019/09/05	Matthew Ritenburg
Volatile Organic Compounds in Water	GC/MS	6311201	N/A	2019/09/03	Rebecca McClean

BV Labs ID: KQY578
Sample ID: MW7
Matrix: Water

Collected: 2019/08/29
Shipped:
Received: 2019/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6310725	N/A	2019/09/05	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6315897	2019/09/05	2019/09/06	(Kent) Maolin Li
Dissolved Metals by ICPMS	ICP/MS	6313722	N/A	2019/09/05	Matthew Ritenburg
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6311203	N/A	2019/09/04	Manpreet Sarao

BV Labs ID: KQY579
Sample ID: MW8
Matrix: Water

Collected: 2019/08/29
Shipped:
Received: 2019/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6310725	N/A	2019/09/05	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6315897	2019/09/05	2019/09/06	(Kent) Maolin Li
Dissolved Metals by ICPMS	ICP/MS	6313722	N/A	2019/09/05	Matthew Ritenburg
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6311203	N/A	2019/09/04	Manpreet Sarao

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BV Labs Job #: B9O3407
Report Date: 2019/09/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: OG

TEST SUMMARY

BV Labs ID: KQY580
Sample ID: MW9
Matrix: Water

Collected: 2019/08/29
Shipped:
Received: 2019/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6310725	N/A	2019/09/04	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	6313722	N/A	2019/09/05	Matthew Ritenburg
Volatile Organic Compounds in Water	GC/MS	6311201	N/A	2019/09/03	Rebecca McClean

BV Labs ID: KQY581
Sample ID: DUPGW1
Matrix: Water

Collected: 2019/08/29
Shipped:
Received: 2019/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals by ICPMS	ICP/MS	6313722	N/A	2019/09/05	Matthew Ritenburg

BV Labs ID: KQY582
Sample ID: DUPGW2
Matrix: Water

Collected: 2019/08/29
Shipped:
Received: 2019/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6310725	N/A	2019/09/04	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6311201	N/A	2019/09/03	Rebecca McClean

BV Labs ID: KQY583
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2019/08/29
Shipped:
Received: 2019/08/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6310725	N/A	2019/09/04	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6311201	N/A	2019/09/03	Rebecca McClean

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.7°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6311201	4-Bromofluorobenzene	2019/09/03	127	70 - 130	102	70 - 130	99	%		
6311201	D4-1,2-Dichloroethane	2019/09/03	104	70 - 130	102	70 - 130	105	%		
6311201	D8-Toluene	2019/09/03	101	70 - 130	102	70 - 130	95	%		
6311203	4-Bromofluorobenzene	2019/09/04	104	70 - 130	104	70 - 130	97	%		
6311203	D4-1,2-Dichloroethane	2019/09/04	94	70 - 130	91	70 - 130	91	%		
6311203	D8-Toluene	2019/09/04	106	70 - 130	105	70 - 130	96	%		
6315897	o-Terphenyl	2019/09/06	124	60 - 130	120	60 - 130	114	%		
6311201	1,1,1,2-Tetrachloroethane	2019/09/03	102	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
6311201	1,1,1-Trichloroethane	2019/09/03	93	70 - 130	93	70 - 130	<0.20	ug/L	0.77	30
6311201	1,1,2,2-Tetrachloroethane	2019/09/03	105	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
6311201	1,1,2-Trichloroethane	2019/09/03	101	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
6311201	1,1-Dichloroethane	2019/09/03	92	70 - 130	92	70 - 130	<0.20	ug/L	1.1	30
6311201	1,1-Dichloroethylene	2019/09/03	97	70 - 130	97	70 - 130	<0.20	ug/L	1.7	30
6311201	1,2-Dichlorobenzene	2019/09/03	88	70 - 130	89	70 - 130	<0.50	ug/L	NC	30
6311201	1,2-Dichloroethane	2019/09/03	99	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
6311201	1,2-Dichloropropane	2019/09/03	90	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
6311201	1,3-Dichlorobenzene	2019/09/03	87	70 - 130	89	70 - 130	<0.50	ug/L	0.35	30
6311201	1,4-Dichlorobenzene	2019/09/03	93	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
6311201	Acetone (2-Propanone)	2019/09/03	104	60 - 140	89	60 - 140	<10	ug/L	NC	30
6311201	Benzene	2019/09/03	94	70 - 130	93	70 - 130	<0.20	ug/L	3.5	30
6311201	Bromodichloromethane	2019/09/03	96	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
6311201	Bromoform	2019/09/03	109	70 - 130	106	70 - 130	<1.0	ug/L	NC	30
6311201	Bromomethane	2019/09/03	111	60 - 140	103	60 - 140	<0.50	ug/L	NC	30
6311201	Carbon Tetrachloride	2019/09/03	91	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
6311201	Chlorobenzene	2019/09/03	90	70 - 130	91	70 - 130	<0.20	ug/L	0.25	30
6311201	Chloroform	2019/09/03	89	70 - 130	88	70 - 130	<0.20	ug/L	NC	30
6311201	cis-1,2-Dichloroethylene	2019/09/03	87	70 - 130	86	70 - 130	<0.50	ug/L	1.3	30
6311201	cis-1,3-Dichloropropene	2019/09/03	103	70 - 130	96	70 - 130	<0.30	ug/L	NC	30
6311201	Dibromochloromethane	2019/09/03	105	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
6311201	Dichlorodifluoromethane (FREON 12)	2019/09/03	112	60 - 140	113	60 - 140	<1.0	ug/L	NC	30
6311201	Ethylbenzene	2019/09/03	87	70 - 130	89	70 - 130	<0.20	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6311201	Ethylene Dibromide	2019/09/03	101	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
6311201	Hexane	2019/09/03	97	70 - 130	97	70 - 130	<1.0	ug/L	NC	30
6311201	Methyl Ethyl Ketone (2-Butanone)	2019/09/03	111	60 - 140	100	60 - 140	<10	ug/L	NC	30
6311201	Methyl Isobutyl Ketone	2019/09/03	113	70 - 130	111	70 - 130	<5.0	ug/L	NC	30
6311201	Methyl t-butyl ether (MTBE)	2019/09/03	87	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
6311201	Methylene Chloride(Dichloromethane)	2019/09/03	88	70 - 130	85	70 - 130	<2.0	ug/L	NC	30
6311201	o-Xylene	2019/09/03	88	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
6311201	p+m-Xylene	2019/09/03	95	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
6311201	Styrene	2019/09/03	93	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
6311201	Tetrachloroethylene	2019/09/03	86	70 - 130	86	70 - 130	<0.20	ug/L	NC	30
6311201	Toluene	2019/09/03	90	70 - 130	91	70 - 130	<0.20	ug/L	NC	30
6311201	Total Xylenes	2019/09/03					<0.20	ug/L	NC	30
6311201	trans-1,2-Dichloroethylene	2019/09/03	92	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
6311201	trans-1,3-Dichloropropene	2019/09/03	119	70 - 130	106	70 - 130	<0.40	ug/L	NC	30
6311201	Trichloroethylene	2019/09/03	92	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
6311201	Trichlorofluoromethane (FREON 11)	2019/09/03	101	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
6311201	Vinyl Chloride	2019/09/03	108	70 - 130	106	70 - 130	<0.20	ug/L	0	30
6311203	1,1,1,2-Tetrachloroethane	2019/09/04	98	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
6311203	1,1,1-Trichloroethane	2019/09/04	94	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
6311203	1,1,2,2-Tetrachloroethane	2019/09/04	94	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
6311203	1,1,2-Trichloroethane	2019/09/04	95	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
6311203	1,1-Dichloroethane	2019/09/04	92	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
6311203	1,1-Dichloroethylene	2019/09/04	104	70 - 130	106	70 - 130	<0.20	ug/L	NC	30
6311203	1,2-Dichlorobenzene	2019/09/04	95	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
6311203	1,2-Dichloroethane	2019/09/04	96	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
6311203	1,2-Dichloropropane	2019/09/04	88	70 - 130	87	70 - 130	<0.20	ug/L	NC	30
6311203	1,3-Dichlorobenzene	2019/09/04	98	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
6311203	1,4-Dichlorobenzene	2019/09/04	106	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
6311203	Acetone (2-Propanone)	2019/09/04	95	60 - 140	91	60 - 140	<10	ug/L	NC	30
6311203	Benzene	2019/09/04	95	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
6311203	Bromodichloromethane	2019/09/04	91	70 - 130	91	70 - 130	<0.50	ug/L	NC	30

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6311203	Bromoform	2019/09/04	92	70 - 130	91	70 - 130	<1.0	ug/L	NC	30
6311203	Bromomethane	2019/09/04	102	60 - 140	104	60 - 140	<0.50	ug/L	NC	30
6311203	Carbon Tetrachloride	2019/09/04	91	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
6311203	Chlorobenzene	2019/09/04	95	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
6311203	Chloroform	2019/09/04	88	70 - 130	88	70 - 130	<0.20	ug/L	NC	30
6311203	cis-1,2-Dichloroethylene	2019/09/04	89	70 - 130	90	70 - 130	<0.50	ug/L	NC	30
6311203	cis-1,3-Dichloropropene	2019/09/04	93	70 - 130	92	70 - 130	<0.30	ug/L	NC	30
6311203	Dibromochloromethane	2019/09/04	95	70 - 130	115	70 - 130	<0.50	ug/L	NC	30
6311203	Dichlorodifluoromethane (FREON 12)	2019/09/04	112	60 - 140	124	60 - 140	<1.0	ug/L	NC	30
6311203	Ethylbenzene	2019/09/04	98	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
6311203	Ethylene Dibromide	2019/09/04	95	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
6311203	F1 (C6-C10) - BTEX	2019/09/04					<25	ug/L	NC	30
6311203	F1 (C6-C10)	2019/09/04	98	60 - 140	95	60 - 140	<25	ug/L	NC	30
6311203	Hexane	2019/09/04	108	70 - 130	110	70 - 130	<1.0	ug/L	NC	30
6311203	Methyl Ethyl Ketone (2-Butanone)	2019/09/04	99	60 - 140	97	60 - 140	<10	ug/L	NC	30
6311203	Methyl Isobutyl Ketone	2019/09/04	97	70 - 130	97	70 - 130	<5.0	ug/L	NC	30
6311203	Methyl t-butyl ether (MTBE)	2019/09/04	88	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
6311203	Methylene Chloride(Dichloromethane)	2019/09/04	85	70 - 130	85	70 - 130	<2.0	ug/L	NC	30
6311203	o-Xylene	2019/09/04	101	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
6311203	p+m-Xylene	2019/09/04	82	70 - 130	83	70 - 130	<0.20	ug/L	NC	30
6311203	Styrene	2019/09/04	77	70 - 130	79	70 - 130	<0.50	ug/L	NC	30
6311203	Tetrachloroethylene	2019/09/04	91	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
6311203	Toluene	2019/09/04	97	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
6311203	Total Xylenes	2019/09/04					<0.20	ug/L	NC	30
6311203	trans-1,2-Dichloroethylene	2019/09/04	96	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
6311203	trans-1,3-Dichloropropene	2019/09/04	103	70 - 130	100	70 - 130	<0.40	ug/L	NC	30
6311203	Trichloroethylene	2019/09/04	99	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
6311203	Trichlorofluoromethane (FREON 11)	2019/09/04	106	70 - 130	110	70 - 130	<0.50	ug/L	NC	30
6311203	Vinyl Chloride	2019/09/04	111	70 - 130	116	70 - 130	<0.20	ug/L	NC	30
6313722	Dissolved Antimony (Sb)	2019/09/05	104	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
6313722	Dissolved Arsenic (As)	2019/09/05	104	80 - 120	100	80 - 120	<1.0	ug/L	NC	20

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6313722	Dissolved Barium (Ba)	2019/09/05	100	80 - 120	99	80 - 120	<2.0	ug/L	0.44	20
6313722	Dissolved Beryllium (Be)	2019/09/05	105	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
6313722	Dissolved Boron (B)	2019/09/05	103	80 - 120	105	80 - 120	<10	ug/L	1.1	20
6313722	Dissolved Cadmium (Cd)	2019/09/05	103	80 - 120	98	80 - 120	<0.10	ug/L	NC	20
6313722	Dissolved Chromium (Cr)	2019/09/05	101	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
6313722	Dissolved Cobalt (Co)	2019/09/05	99	80 - 120	98	80 - 120	<0.50	ug/L	NC	20
6313722	Dissolved Copper (Cu)	2019/09/05	102	80 - 120	98	80 - 120	<1.0	ug/L	4.2	20
6313722	Dissolved Lead (Pb)	2019/09/05	99	80 - 120	97	80 - 120	<0.50	ug/L	NC	20
6313722	Dissolved Molybdenum (Mo)	2019/09/05	107	80 - 120	100	80 - 120	<0.50	ug/L	0.55	20
6313722	Dissolved Nickel (Ni)	2019/09/05	97	80 - 120	96	80 - 120	<1.0	ug/L	0.24	20
6313722	Dissolved Selenium (Se)	2019/09/05	104	80 - 120	99	80 - 120	<2.0	ug/L	NC	20
6313722	Dissolved Silver (Ag)	2019/09/05	78 (1)	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
6313722	Dissolved Thallium (Tl)	2019/09/05	98	80 - 120	95	80 - 120	<0.050	ug/L	13	20
6313722	Dissolved Uranium (U)	2019/09/05	101	80 - 120	96	80 - 120	<0.10	ug/L	2.9	20
6313722	Dissolved Vanadium (V)	2019/09/05	103	80 - 120	102	80 - 120	<0.50	ug/L	2.1	20
6313722	Dissolved Zinc (Zn)	2019/09/05	101	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
6315897	F2 (C10-C16 Hydrocarbons)	2019/09/06	NC	50 - 130	113	60 - 130	<100	ug/L	NC	30
6315897	F3 (C16-C34 Hydrocarbons)	2019/09/06	NC	50 - 130	120	60 - 130	<200	ug/L	NC	30
6315897	F4 (C34-C50 Hydrocarbons)	2019/09/06	87	50 - 130	124	60 - 130	<200	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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BV Labs Job #: B9O3407
Report Date: 2019/09/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: OG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Anastassia Hamanov, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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BV Labs Job #: B9O3407
Report Date: 2019/09/06

Soil Engineers Ltd
Client Project #: 1906-E146
Sampler Initials: OG

Exceedence Summary Table – Reg153/04 T1-GW

Result Exceedences

Sample ID	BV Labs ID	Parameter	Criteria	Result	DL	Units
MW1	KQY575-01	Dissolved Molybdenum (Mo)	23	35	0.50	ug/L
MW1	KQY575-01	Dissolved Vanadium (V)	3.9	9.0	0.50	ug/L
MW2	KQY576-01	Dissolved Nickel (Ni)	14	15	1.0	ug/L
MW2	KQY576-01	Dissolved Vanadium (V)	3.9	7.9	0.50	ug/L
MW8	KQY579-02	Bromodichloromethane	2	3.8	0.50	ug/L
MW8	KQY579-02	Chloroform	2	4.3	0.20	ug/L
MW8	KQY579-02	Dibromochloromethane	2	2.5	0.50	ug/L
MW9	KQY580-01	Dissolved Copper (Cu)	5	6.2	1.0	ug/L
MW9	KQY580-01	Dissolved Molybdenum (Mo)	23	26	0.50	ug/L
MW9	KQY580-01	Dissolved Vanadium (V)	3.9	12	0.50	ug/L
DUPGW1	KQY581-01	Dissolved Molybdenum (Mo)	23	37	0.50	ug/L
DUPGW1	KQY581-01	Dissolved Vanadium (V)	3.9	9.4	0.50	ug/L

The exceedence summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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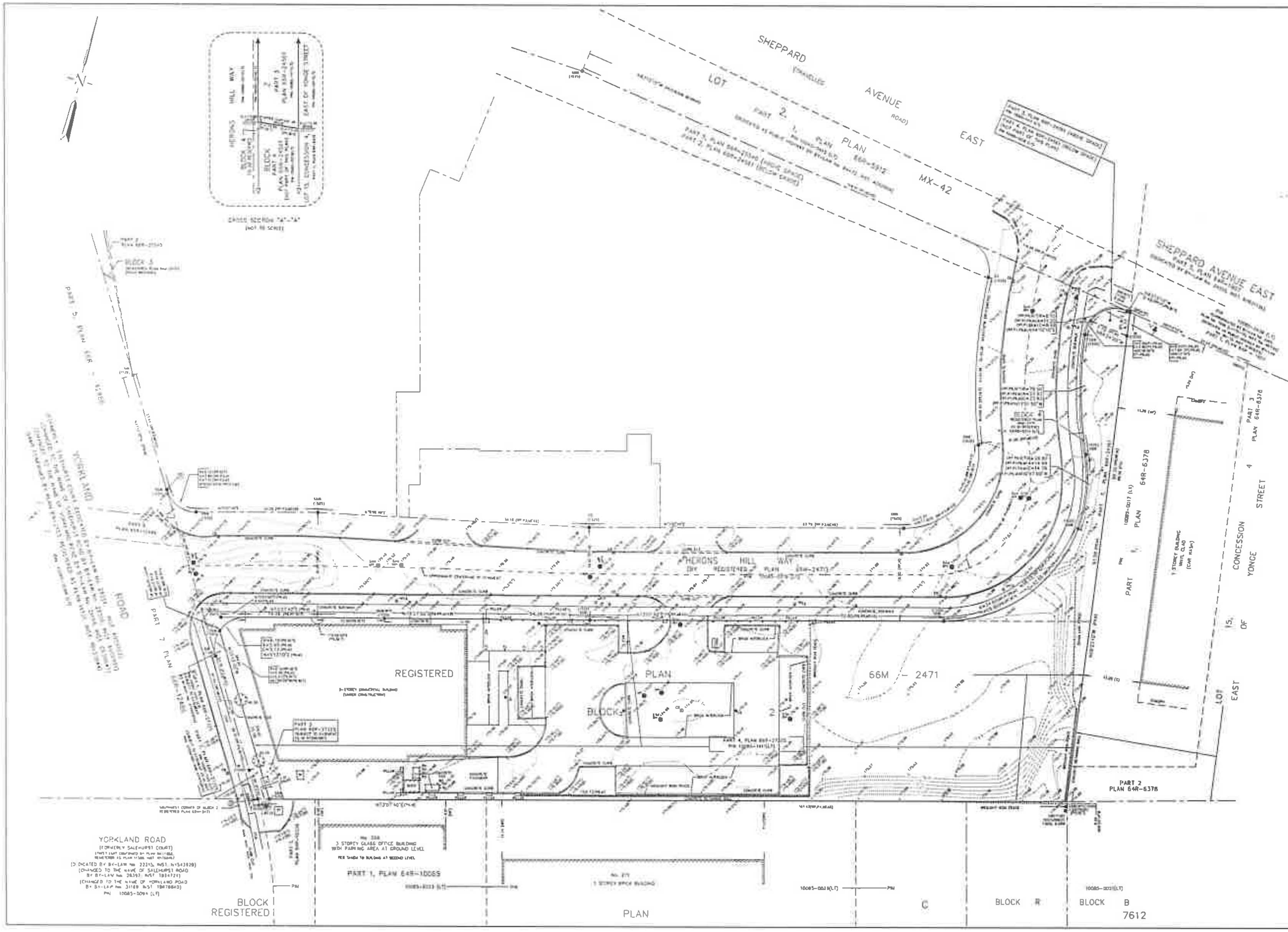
FAX: (705) 721-7864	FAX: (905) 542-2769	FAX: (905) 725-1315	FAX: (905) 881-8335	FAX: (705) 684-8522	FAX: (905) 725-1315	FAX: (905) 542-2769

APPENDIX 'G'

SURVEY PLAN

REFERENCE NO. 1906-E146



TOPOGRAPHIC AND BOUNDARY SURVEY OF

PART OF BLOCK 2
REGISTERED PLAN 66M – 2471

CITY OF TORONTO

(FORMERLY CITY OF NORTH YORK)

SCALE 1 : 300

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

AREA: 5491.0 sq. m

SURVEYOR'S CERTIFICATE

JANUARY 3, 2018

R. AVIS SURVEYING INC.