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Limited Phase Two Environmental Site Assessment Proposed Residential Development 1050 Klondike Road Kanata, Ontario

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Submitted to:

D.G. Belfie Planning and Development Consulting Ltd.
21 Pinecone Trail
Stittsville, Ontario
K2S 1E1

Limited Phase Two Environmental Site Assessment Proposed Commercial Building 1050 Klondike Road Kanata, Ontario

October 23, 2020
Project: 65153.01

October 23, 2020 File: 65153.01

D.G. Belfie Planning and Development Consulting Ltd.
21 Pinecone Trail
Stittsville, ON
K2S 1E1

Attention: Ms. Deborah Belfie

Re: Limited Limited Phase Two
Proposed Residential Development
1050 Klondike Road
Kanata, ON

Enclosed is our Phase Two Environmental Site Assessment (ESA) report as per our proposal dated September 3, 2020. The Limited Phase Two ESA was completed in general accordance with O.Reg 153/04, as amended, to investigate areas of potential environmental concern (APECs) identified in the 2020 Phase One ESA, and to document the interpreted environmental conditions at the property at the time the investigation was completed.

We trust this information is sufficient for your current needs. If you have any questions or require further information, please contact the undersigned.

Nicole Soucy, M.A.Sc., P.Eng
Environmental Engineer

Su-Kim Roy, M.Eng., P.Eng
Senior Environmental Engineer

CS/NS/SKR

Enclosures
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EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by D.G. Belfie Planning and Development Consulting Ltd. (D.G. Belfie) to complete a Limited Phase Two Environmental Site Assessment (ESA) for a proposed residential development at 1050 Klondike Road.

Through a review of historical information pertaining to the subject site and adjacent properties, GEMTEC identified two areas of potential environmental concern (APECs) at the subject property. The APECs resulted from two on-site Potential Contaminating Activities (PCAs) with a potential to result in contamination to soil and/or groundwater on the subject property. APECs identified at the subject property are summarized below:

- **APEC 1**: Fill of Unknown Origin on the Subject Property
- **APEC 2**: Oil Storage in Fixed AST on Subject Property

A total of three boreholes (BH20-1, BH20-2, and BH20-3), all of which were completed as monitoring wells (MW20-1, MW20-2, and MW20-3) were advanced on the subject property in order to facilitate soil and groundwater investigations.

A total of five soil samples, including one duplicate, and one groundwater sample were submitted for analytical analyses based on the combustible headspace gas readings, visual, olfactory and tactile evidence of impacts. Samples were submitted for analysis of contaminants of potential concern associated with each APEC. A summary of the investigation results identified the following:

- The overburden observed at the site during the subsurface investigation generally consisted of a layer of fill material (sand and gravel with silt), underlain by varying thicknesses native deposits of brown silty clay (weathered crust);
- Four of the soil samples met the MECP table 2 SCS for all parameters analyzed – one of the soil samples (BH20-1 SA107) exceeded the MECP Table 2 SCS for vanadium;
    - A vanadium exceedance to MECP Table 2 SCS was identified, however while considering the geo-regional background clay concentration for vanadium(Sterling, et al., 2017) at outlined in section 5.4.1, the sample was identified and being naturally occurring. The vanadium exceedance was also collected at a sample where a duplicate was taken, consider the averaging approach of O. Reg. 153/04, s. 48 (2); O. Reg. 407/19, s. 19 (2), this vanadium identification would not considered to be an exceedance in this location on the subject property;
- The groundwater sample from MW20-2 submitted for analysis met the MECP Table 2 SCS for all parameters analyzed.

Following completion of the Limited Phase Two ESA to investigate soil and groundwater quality in the vicinity of the identified APECs, laboratory analytical results indicated compliance to MECP Table 2 SCS in soil and groundwater on-site. Based on these results, no additional work is recommended at this time.

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by D.G. Belfie Planning and Development Consulting Ltd. (D.G. Belfie) to complete a Limited Phase Two Environmental Site Assessment (ESA) for a proposed residential development at 1050 Klondike Road (the 'subject property').

The Limited Phase Two ESA was completed following the recommendations provided in the GEMTEC, 2020, Phase One ESA submitted to D.G. Belfie, under separate cover. GEMTEC understands that the Limited Phase Two ESA is being completed as a due diligence measure and in support of the submission of a rezoning and site plan application for the proposed development. As the property use will not be changing to a more sensitive land use, the filing of a Record of Site Condition (RSC), as regulated by Ontario Regulation 153/04 under the Environmental Protection Act, is not mandatory. This Phase Two ESA was conducted in general accordance with Ontario Regulation 153/04, as amended, which is the accepted standard of regulatory agencies in the absence of a mandatory RSC.

The Limited Phase Two ESA field program was carried out in conjunction with the Geotechnical Investigation, the findings of which are presented under separate cover.

1.1 Site Description

The subject property is located at 1050 Klondike Road, Ottawa, Ontario. The location of the subject property is shown on Figure A.1, Appendix A.

The property is semi-rectangular in shape, with approximately 57 m frontage along Klondike Road and 18 m along Sandhill Road. The property is bounded by Klondike Road to the west/northwest, Sandhill Road to the north/northeast, and by 1056 Klondike Road to the south, southeast, and southwest.

1.2 Property Ownership

The subject property is owned by Israr Ahmad Akhtar and Junaid Israr.

1.3 Current and Proposed Future Uses

The subject property has historically been, and is currently developed as, a single family residential home.

D.G. Belfie Planning and Development Consulting Ltd. is proposing a new residential development for the subject property. The proposed construction will involve the demolition of the existing building and the construction of a new low rise four-storey apartment building.

1.4 Applicable Site Condition Standards

Site Condition Standards (SCS) were selected for the site in accordance with the requirements of Ontario Regulation 153/04, Record of Site Condition – Part XV.1 of the Environmental Protection Act (O. Reg. 153/04, Ministry of Environment and Climate Change, October 31, 2011), as amended.

The following information was considered in selecting the site condition standards:

- The land use of the subject site is and will remain residential;
- Municipal services are available in the study area, however multiple domestic/commercial water wells, including one on the subject property were identified within the study area. Therefore a potable groundwater condition is present on-site and in the vicinity;
- Available bedrock mapping, and results of the boreholes advanced as part of the field program, indicate that more than 2.0 metres of overburden is present on-site;
- The subject site subsurface was observed to be comprised of primarily fill material (sand and silt) over silty clay. Due to the large observed variation in stratigraphic units encountered during drilling– the subject site has been classified as a coarse textured soil to be conservative;
- No permanent water bodies are present on the subject property or within 30 metres of the subject property (ESRI, 2011); and,
    - The site is not considered to be an environmentally sensitive and the site is not within or adjacent to an area of natural or scientific interest.

Based on the review of site characteristics, the following provincial standards were considered to be applicable to the soil quality results obtained during the investigation:

- MECP, 2011. Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act. Table 2: Full Depth Generic Site Condition Standards (SCS) in a Potable Ground Water Condition, residential/parkland/institutional (RPI) land use, coarse textured soils.

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

Topographic mapping available through the Ontario Basic Mapping (OBM, 2012) and the Ministry of Natural Resources and Forestry (MNR, 2014), were reviewed to determine topographic features in the vicinity of the subject property and study area. The elevation of the subject property is between approximately 75 and 78 metres above sea level and topography at the subject site and surrounding area is generally flat sloping downward slightly to the north towards Shirley's Brook.

Groundwater flow often reflects topographic features and typically flows toward nearby lakes, rivers and wetland areas. Based on the topography and hydrogeological features, it is anticipated that local shallow groundwater would trend northerly.

According to "*Surficial Geology of Southern Ontario*" (OGS, 2010), the subject property and majority of the study area consists of alluvial deposits of clay, silt, sand, and gravel. The surficial deposits range from 3 to 10 m thick. Based on this information, the soil is likely to have moderate to low permeability. According to "*Paleozoic Geology of Southern Ontario*" (Armstrong et al., 2007), the subject site and study area are situated within the Beekmantown group of the March formation within the Ordovician age, and consists of sandstone, dolomitic sandstone, and dolostone.

2.2 Past Investigations

One historical assessment report was available for review.

2.2.1 Phase One Environmental Site Assessment - GEMTEC, 2020

A Phase One ESA was completed for the subject property in 2020 by GEMTEC. The report was entitled "*Phase One Environmental Site Assessment, Proposed Residential Building, 1050 Klondike Road, Kanata, Ontario*". Dated August 2020.

Through a review of historical information pertaining to the subject site and adjacent properties, GEMTEC identified two areas of potential environmental concern (APECs) at the subject property. The APECs resulted from two on-site Potential Contaminating Activities (PCAs) with a potential to result in contamination to soil and/or groundwater on the subject property. APECs identified at the subject property are summarized below:

- **APEC 1**: Fill of Unknown Origin on the Subject Property
- **APEC 2**: Oil Storage in Fixed AST on Subject Property

Based on the APECs identified on the subject property, a Phase Two ESA was recommended to investigate the impacts of the identified Contaminants of Potential Concerns (COPCs) in soil and groundwater on the subject property.

3.0 SCOPE OF THE INVESTIGATION

3.1 Study Objectives and Scope of Work

The objective of the work proposed was to provide subsurface information relative to the potential environmental impacts related to the identified APECs. Environmental sampling was carried out to characterize the quality of soil and groundwater within the subject property APECs. Any deviations from the proposed scope of work have been noted.

The scope of work as outlined in the GEMTEC's proposal included the following:

- Advancement of three boreholes on the subject property, all completed as groundwater monitoring wells. All boreholes and wells (i.e., BH20-1 to BH20-3 and MW20-1 to MW20-3) were advanced as part of a combined geotechnical environmental investigation;
- Collection and analysis of five soil samples analyzed for some or all of the following contaminants of potential concern (COPCs): petroleum hydrocarbons four fractions F1-F4 (PHC F1-F4) and volatile organic compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), metals, inorganics, and pH;
- Collection of one groundwater sample (one sample from near the storage tank APEC) analyzed for the following COPCs: PHC F1-F4, VOCs, and metals;
- Assessment of soil and groundwater analytical results against applicable provincial quality site condition standards; and,
- Preparation of a Limited Phase Two ESA report summarizing the purpose, methodology and results of the investigation (this report).

3.2 Media Investigated

Boreholes were advanced on site to assess if soil and groundwater conditions at selected test locations satisfied the applicable MECP Table 2 SCS for the investigated COPCs. COPCs identified in the Phase One ESA (GEMTEC, 2020) for soil and groundwater at the site included metals, VOCs, PHCs F1-F4, PAHs, and inorganics. Table 3.1 indicates the rationale for each borehole and monitoring well location and the associated COPCs.

Table 3.1: Summary of Borehole and Monitoring Well Location Rationale.

Borehole ID	Rationale for Location	Media of Concern	COPCs
BH/MW 20-1	This borehole is situated just north-west of the current structure on the subject property. It is near the anticipated location of the historic oil-heating tank. Potential impacts from APEC 2 will be investigated at this location.	Soil and Groundwater	Metals VOCs PHC F1-F4
BH/MW 20-2	This borehole is situated just north-east of the current structure on the subject property. This area has fill material of unknown quality. Potential impacts from APEC 1 will be investigated at this location.	Soil	Metals & Inorganics PAHs
BH/MW 20-3	This borehole is situated south-east of the current structure on the subject property. This area has fill material of unknown quality. Potential impacts from APEC 1 will be investigated at this location.	Soil	Metals& Inorganics PAHs

3.3 **Phase One Conceptual Site Model**

Based on the historical review and site reconnaissance, GEMTEC (2020) concluded that there is potential for soil and/or groundwater contamination at the subject property. The Phase One ESA CSM is presented under separate cover and is summarized as follows:

- A total of eleven water well records were identified as being present within the study area. The records were for seven domestic water supply wells, one abandoned well, and three monitoring wells, one of which was listed as abandoned.
- The well records indicated that the geology primarily consists of clay with some areas of sand, gravel and silt, from surface to depths of between 4.6 and 9.8 metres below ground surface (mbgs) followed by primarily sandstone bedrock. The static groundwater levels were recorded in seven of the wells, at depths between 2.1 and 6.1 metres below grade surface (mbgs).
- Private services including a domestic well and septic system currently servicing the subject site. However, these private services will be removed once construction for the proposed apartment building is ready to proceed and municipal services have been connected at the subject site.
- There is potential for underground utilities and service corridors to affect contaminant transport for the subject property, if contaminants are present. Private services including a well and septic system are located on the subject site along with hydro and buried cables. The adjacent properties and roadways are presumed to be fully serviced with natural gas, hydro, water, and municipal sewer.
- The subject property is currently being rented to a single tenant and is owned by Israr Ahmad Akhtar and Junaid Israr.
- The elevation of the subject property is between approximately 75 and 78 metres above sea level and topography at the subject site and surrounding area is generally flat sloping downward slightly to the north towards Shirley's Brook.
- Shirley's Brook is situated in the vicinity of the study area, present approximately 185 meters to the south/southwest of the subject property, flowing in a 180-200 metre radius semi-circle around the west of the subject area. A mapped wetland surrounds Shirley's Brook, which according to the Ministry of Natural Resources and Forestry has not been evaluated. No other water features, wetlands, or areas of natural significance were identified on the subject property, or within the study area.
- Surficial and bedrock geology maps of the Ottawa area were reviewed. Based on the review, overburden in the vicinity of the subject property generally consists of alluvial deposits of clay, silt, sand, and gravel having a thickness ranging from 3 to 10 m. Bedrock is mapped as sandstone, dolomitic sandstone, and dolostone of the March formation.

- Based on the review of records, interviews and the site reconnaissance completed as part of the Phase One ESA, GEMTEC identified three PCAs for the study area, resulting in two APECs for the study property. These PCAs (with a PCA code identified within Table 2 of Schedule D in O.Reg. 153/04) include:
    - *28. Gasoline and Associated Products Storage in Fixed Tanks*
    - *30. Importation of Fill Material of Unknown Quality*

3.3.1 PCAs, COPCs and APECs

The Phase One ESA (GEMTEC, 2020) identified several PCAs, and APECs within the Phase One study area; defined in the Phase One as the area located within a 250 metre radius of the site. A summary of PCAs, and resulting APECs as outlined on Table 2 in Schedule D of the Regulation and identified in the Phase One ESA is provided in Table 3.2.

Table 3.2: Summary of PCAs identified in the Phase One ESA.

Description of PCA	Address of PCA	Distance From Subject Property	Data Source	PCA Resulted in APEC (Yes or No)	COPCs
28. Gasoline and Associated Products Storage in Fixed Tanks	1050 Klondike Road	On site	Site Reconnaissance	Yes	Metals VOCs PHC F1-F4
30. Importation of Fill Material of Unknown Quality	1050 Klondike Road	On site	Aerial Photographs & Site Reconnaissance	Yes	Metals & Inorganics PAHs
Other. General Contractor	1032 Klondike Road	20 metres northeast	City Directory	No	-

Notes:
PHC F1-F4 – Petroleum Hydrocarbon Fractions F1-F4
VOCs – Volatile Organic Compounds
PAHs – Polycyclic Aromatic Hydrocarbons

3.4 Impediments and Deviations from Sampling and Analysis Plan

There were no impediments or deviations from the sampling and analysis plan.

4.0 INVESTIGATION METHODOLOGY

4.1 General

Prior to any intrusive investigation at the site, underground public and private utility locates were completed by USL-1 to identify the location of all underground buried utilities at the site. Utilities including telephone, gas, hydro, municipal services and private utilities were cleared through these services.

4.2 Borehole Drilling

The borehole drilling investigation was carried out September 11, 2020. At that time a total of three boreholes (BH20-1 to BH20-3), all completed as monitoring wells (MW20-1 to MW20-3) were advanced on- site to assess the soil and groundwater conditions. The boreholes were advanced by CME-45 track-mounted drill rig owned and operated by George Downing Estate Drilling Limited (Downing) operating under GEMTEC oversight. Boreholes were advanced though the overburden using a 200 mm hollow stem auger, while advancing a 50mm diameter split-spoon at 0.6m intervals to depths ranging from 6.70 to 8.53 metres below ground surface (mbgs). No bedrock coring was required for the advancement of the boreholes.

4.3 Monitoring Well Installation

Monitoring wells were installed in all three borehole locations to determine static groundwater elevations and to permit the collection of groundwater samples for analytical analysis. Monitoring wells were installed by Downing, who are MECP-licenced well drillers. Monitoring wells were installed manually, by lowering PVC components through the surface drill casing. Wells were labelled as MW 20-1, MW 20-2, and MW 20-3 following the same numbering convention as the boreholes.

Installation of all monitoring wells was completed using a 50-mm diameter 3.05 metre length, flush-threaded PVC screen and risers with a silica sand pack and bentonite seal. Each monitoring well was finished at surface with a flush-mount protective casing. Silica sand was placed around the screened intervals and bentonite hole plug was used to seal the borehole to ground surface. Monitoring well instrumentation details are included on the borehole and monitoring well logs in Appendix B.

4.4 Field Methodology

4.4.1 Soil Sampling

Soil samples were recovered at regular intervals during drilling following the Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario (MOE, 1996) via a 50mm diameter split-spoon. Samples were split, with a portion transferred immediately into laboratory supplied containers, and placed in a cooler. The remainder of the soils were placed in a re-sealable bag to allow for field screening. Clean gloves were worn and changed between each sample to prevent cross contamination.

Soil samples are identified as BH/MWX-Y where X indicates the year the borehole was constructed and Y is the borehole identifier. For example, BH/MW20-2 indicates the borehole was constructed in 2020 and is identified as borehole number two.

Soil samples were inspected in the field for visual, tactile and olfactory evidence of impact, and following a period of equilibration to ambient temperature, soil sample vapours were screened using a combustible gas detector (RKI Eagle combustible gas detector calibrated to hexane

standards, with methane elimination enabled). The results of the soil vapour readings are provided on the Record of Borehole Sheets in Appendix B.

The soil sampling program included the submission of five soil samples. Soil samples were selected based on soil vapour concentrations, visual, olfactory and tactile evidence of impact, and proximity to APECs considering the pertinent COPCs. A total of three soil samples, including one duplicate sample, were stored and shipped in laboratory supplied coolers. Samples were submitted to ALS Laboratory Group, of Nepean, Ontario, a CALA-certified analytical laboratory, under standard chain-of-custody procedures and in accordance with GEMTEC QA/QC procedures. Soil samples submitted for analyses of selected parameters are summarized in Table 4.1.

Table 4.1: Summary of Soil Analyses.

Borehole	Sample	Depth Interval (mbgs)	Soil Description	Analytical Analyses
BH20-1	SA7	4.57-5.18	Brown silty clay	Metals, VOCs, PHC F1-F4,
	SA107			Metals, VOCs, PHC F1-F4,
	SA9	0-0.61	Grey silty clay	Metals, VOCs, PHC F1-F4,
BH20-2	SA1	0.76-1.37	Brown silty sand	Metals & Inorganics, PAHs
BH20-3	SA2	6.10-6.71	Brown silty sand	Metals& Inorganics, PAHs

Notes:

mbgs – Metres below ground surface
PHC F1-F4 – Petroleum Hydrocarbon Fractions F1-F4
VOCs – Volatile Organic Compounds
PAHs – Polycyclic Aromatic Hydrocarbons
BH20-1 SA107 is a duplicate soil sample of BH20-1 SA7

For soil samples collected for the analysis of PHC F1-F4 and VOCs, a core of soil was placed in a pre-weighed laboratory prepared vial containing a measured amount of methanol.

4.4.2 Field Screening Measurements

Soil samples were screened using an RKI Eagle 2, which operates as a photoionization detector (PID) and combustible gas indicator (CGI), to measure total organic vapours and combustible vapours. Results of field screening and the soil samples submitted to the laboratory for chemical analysis are included on the borehole logs (Appendix B).

The PID was equipped with a 10.6 electron-volt (eV) lamp, which was calibrated with a known concertation of isobutylene. This instrument detects VOCs that emit below an ionization potential of 10.6 eV, which includes a wide range of chemicals such as solvents and fuels. The detection limit of the instrument ranges from 0 to 15,000 ppm, and accuracy is +/- 10% for VOCs in the range of 0 and 2,000 ppm and +/- 20% of the reading above 2,000 ppm. The resolution of this instrument is 0.1 ppm for VOCs in the range of 0 and 1,000 ppm and 1 ppm for readings above 1,000 ppm. The PID provides an indication of organic contamination in soil but does not measure concentrations of individual contaminants.

The CGI detects combustible vapours such as those associated with fuels. This instrument measures a concentration of total combustible gas, calibrated to a known concentration of hexane. The instrument operates in the methane elimination mode. The detection limit of the instrument ranges from 0 to 11,000 ppm (i.e., 100 % LEL of hexane). The CGI has an accuracy of 25 ppm below 1,000 ppm and 5% of the lower explosive limit (LEL) between 1,000 ppm and 100% LEL. As with the PID, it provides an indication of contamination but not chemical specific concentrations.

There are no regulatory criteria for soil vapours; however, elevated vapour concentrations are generally indicative of the presence of volatile parameters. Concentrations vary with parameter type, concentration and age and the readings are only intended to be used as a field screening tool to provide a qualitative measure of volatile chemical concentrations within the subsurface. The readings do not provide a quantitative measure of analytical results.

The RKI Eagle 2 was obtained by GEMTEC from Maxim Environmental & Safety Inc. (Maxim) for this project. Maxim calibrates instruments on a regular basis to maintain consistent results. Site calibration of the field instrument was completed by GEMTEC field techs each day according to the manufacturer's instructions.

4.4.3 Groundwater Monitoring and Sampling

On September 18, 2020, groundwater elevations were recorded in all newly installed monitoring wells to determine static groundwater elevations on site. Static groundwater levels were measured relative to Top of PVC Riser (TOPVC) using an electronic water level tape (Heron Instruments water meter). The water level meter probe was decontaminated between wells with soapy water (water and alconox solution) and deionised water. Static groundwater levels were recorded to the nearest 0.01m. Top of PVC riser elevations were surveyed into a geodetic elevation.

Each monitoring well was developed by removing three well volumes shortly after wells had been installed by the drilling contractor. Well development activities were performed using dedicated Waterra inertial hand pumps. Groundwater samples were subsequently collected, after allowing for a period of aquifer stabilization, using low-flow sampling techniques to allow for the collection of samples which were representative of formation conditions. Groundwater samples were collected from the monitoring wells directly into laboratory supplied bottles using a peristaltic pump with disposable tubing. Due to the dedicated nature of all monitoring well instrumentation (Waterra inertial hand pump, ¼-inch and ¾-inch tubing) no decontamination procedures were required during groundwater sampling. All required lengths of tubing for the groundwater sampling (both ¼-inch and ¾-inch tubing) were disposed of after usage at each designated well. New tubing (both ¼-inch and ¾-inch) was used for groundwater sampling.

Samples were collected directly into laboratory supplied sample containers and released to laboratory under chain-of-custody procedures. One groundwater sample was collected from

MW20-1 and submitted to ALS Laboratory Group for analysis of VOC and PHC F1-F4 parameters.

4.5 Laboratory Analytical Program

Soil and groundwater samples were collected directly into laboratory-supplied sampling containers. All samples were stored and shipped in coolers with ice packs. Water samples were submitted to Paracel Laboratories Ltd. (Paracel) and soil samples were submitted to ALS Laboratories Ltd. (ALS) under standard chain-of-custody procedures and in accordance with GEMTEC QA/QC procedures.

Paracel and ALS are both CALA-certified analytical laboratories accredited by the Standards Council of Canada (SCC) in cooperation with the Canadian Association of Laboratory Accreditation (CALA) for specific environmental tests listed in the scope of accreditation. They are accredited to the ISO/IEC 17025 (2017) standard and employ in-house quality assurance and quality control programs to govern sample analysis including the analysis of method blanks, spiked blanks, and the analysis of duplicates (10%) for each sample batch.

Analytical Laboratory Certificates of Analysis are included in Appendix D.

4.6 Surveying

The borehole locations were selected by GEMTEC personnel, and were constrained by accessibility and underground service locations. The ground surface elevations at the location of the boreholes (ground surface) and monitoring wells (with elevations from PVC riser) were determined using a Trimble R10 global positioning system. The coordinates of the boreholes are referenced to NAD83 (CSRS) Epoch 2010, vertical network CGVD28 and are considered to be accurate within the tolerance of the instrument. The locations of the boreholes and monitoring wells advanced on-site are shown on Figure A.1 in Appendix A.

4.7 Quality Assurance and Quality Control Measures

Quality assurance and quality control of the soil and groundwater samples was maintained by adhering to the following:

- The field investigation was completed under GEMTEC standard operating procedures for intrusive investigations, including soil and groundwater sampling best practices and requirements;
- Samples were assigned unique identification numbers, as they were collected, identifying the project number, date, sample location, and depth. The sample numbers were recorded in field notes for each location;
- Sample containers provided by the analytical laboratory were used and laboratory requirements for sample size, container type, preservatives and filtering were maintained;

- Non-disposable sampling equipment was cleaned using Alconox© and distilled water following each use to avoid potential cross-contamination;
- A chain-of-custody (COC) form was filled out prior to submitting the selected samples to the laboratory. The COC documented sample movement from time of field collection to receipt at the laboratory and provided a record of sample identification, requested analysis and conditions of samples upon arrival at the laboratory (e.g. temperature, container status, etc.);
- Soil samples were selected by the GEMTEC field staff for field duplicate testing. The number of duplicate samples submitted is equivalent to a minimum of 10% of the total number of samples submitted, under accepted standard industry QA/QC practices;
- Field monitoring equipment was calibrated according to industry requirements prior to the site visit and during implementation of the field program as required (i.e., on-site calibration); and,
- Samples were randomly selected by the laboratory for Quality Assurance checks. Generally, one sample for every ten samples submitted is assessed by the laboratory internal QA/QC program. For each parameter, there is an acceptable upper and lower limit for measured concentrations.

5.0 REVIEW AND EVALUATION

5.1 Site Stratigraphy

The surficial geology for the site was obtained from the Geotechnical Investigation conducted by GEMTEC (2020) entitled "*Geotechnical Investigation, Proposed Residential Development, 1050 Klondike Road, Kanata, Ontario*" and dated October 7, 2020.

The soil conditions identified in the boreholes advanced as part of this investigation are provided on the Record of Monitoring Well and Borehole sheets in Appendix C. The borehole logs indicate the subsurface conditions encountered at the specific test locations only. Boundaries between zones on the logs are often not distinct, but rather are transitional and have been interpreted based on observations by trained GEMTEC field personnel. The precision with which subsurface conditions are indicated depends on the method of drilling, the frequency and recovery of samples, the method of sampling, and the uniformity of the subsurface conditions. Subsurface conditions at other than the test locations may vary from the conditions encountered in the boreholes. The following presents an overview of the subsurface conditions encountered in the boreholes advanced as part of this investigation.

5.1.1 Topsoil

A surficial layer of topsoil fill material was encountered at BH20-2 and BH20-3, which was advanced within the existing grassed area at the side and rear of the existing dwelling. The topsoil material consists of dark brown sandy silt with organic material. The topsoil has a thickness of about 100 millimetres.

5.1.2 Fill Material

Fill material was encountered at all borehole locations from ground surface and/or below the topsoil material. A 200 millimetre thick surficial layer of grey, crushed sand and gravel with trace to some silt was encountered from ground surface at BH20-1. The fill material below the topsoil and/or granular fill material can be described as brown, fine to coarse grained sand with trace to some silt. The fill material extends to depths ranging from about 1.2 to 2.9 metres below existing grade (elevation 73.5 to 76.1 metres).

5.1.3 Weathered Silty Clay

Native deposits of brown silty clay (herein referred to as weathered crust) were encountered below the fill material at all borehole locations at depths ranging from about 1.2 to 2.9 metres below existing grade. Where fully penetrated (BH20-1), the weathered crust has a thickness of about 4.9 metres and extends to a depth of about 6.1 metres below existing grade (elevation 71.2 metres). BH20-2 and BH20-3 were terminated within the weathered crust at depths ranging from about 6.7 to 7.6 metres below existing grade (elevation 68.7 to 69.7 metres, geodetic).

5.1.4 Grey Silty Clay

At BH20-1, the weathered crust transitions to native, brown grey silty clay at to a depth of about 6.1 metres below existing grade (elevation 71.2 metres).

5.2 Groundwater Elevations and Flow Direction

Groundwater elevations presented below were calculated based on depth to groundwater measurements collected on September 18, 2020.

Groundwater depths were measured directly from the top of each monitoring well riser using an electronic contact water level tape. Depth measurements were converted to groundwater elevations by subtracting the measured depth from the elevation of the top of each monitoring well riser.

Table 5.1: Groundwater Levels

Monitoring Well	Groundwater Elevation (masl) September 18, 2020	Groundwater Depth (mbgs) September 18, 2020
MW20-1	73.48	3.79
MW20-2	71.16	5.23
MW20-3	72.34	4.00

Notes: mbgs – metres below ground surface
masl – metres above sea level

Based on the groundwater table elevations recorded in September of 2020, the inferred local shallow groundwater flow was observed to be trending northeasterly.

5.3 Soil Field Screening

Soil vapours were screened within the recovered soil samples following a period of equilibration to ambient temperature, using a combustible gas detector (RKI Eagle combustible gas detector calibrated to hexane standards, with methane elimination enabled). Combustible headspace soil vapour readings ranged from 0 ppm and 35 ppm.

Field screening results are provided within the borehole logs in Appendix C.

5.4 Analytical Results

5.4.1 Soil Quality

Analytical results for the soil samples submitted for analyses, and exceedances to the selected regulatory criteria, are presented in Table C1, Appendix C. A summary of the soil exceedances is provided in Table 5.2. Laboratory certificates of analysis are provided in Appendix D.

Table 5.2: Summary of Soil Samples

Borehole	Sample	Depth Interval (m bgs)	Analytical Analyses	MECP Table 2 Exceedances
20-1	SA7	4.57-5.18	Metals, VOCs, PHC F1-F4	None
	SA107[1]			Vanadium
	SA9	6.10-6.71	Metals, VOCs, PHC F1-F4	None
20-2	SA1	0-0.61	Metals & Inorganics, PAHs	None
20-3	SA2	0.76-1.37	Metals & Inorganics, PAHs	None

Notes: mbgs – metres below ground surface
MECP Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition. March 2004, amended July 1, 2011. Coarse Textured Soils for Residential/Parkland/Institutional Property Use.
[1] field duplicate QA/QC sample

Soil samples met the applicable MECP Table 2 SCS for all parameters analyzed, with the exception of vanadium at BH20-1 in the duplicate sample.

In addition to the MECP Table 2 SCS, concentrations of vanadium in native clay deposits within the project area, i.e., Champlain Sea deposits, were also compared to the 2017 document 'Elevated Background Metals Concentrations in Champlain Sea Clay – Ottawa Region' (Sterling, et al., 2017). The MECP soil values, published in the 1993 Ontario Ministry of Environment and Energy publication 'Ontario Typical Range of Chemical Parameters in Soil, Vegetation, Moss Bags and Snow' (MECP Table 1 values) were based on a statistical analysis (98th percentile) of

110 soil samples collected from various old urban and rural parks, primarily in southwestern Ontario, and are therefore not necessarily representative of natural background concentrations of metals within the unique clay deposits of the Champlain Sea found in eastern Ontario (Sterling, et al., 2017).

Reliance on the Ottawa regional background clay concentration for vanadium as presented in the 2017 Sterling et al., study is justified as the MECP has recommended that future updates to the Site Condition Standards (MOE, 2011) should consider using geo-regional approaches. As such, GEMTEC has consulted the above referenced document in our assessment when concentrations of naturally occurring metals were determined to exceed the generic MECP Table 2 SCS. The vanadium concentration identified in soil sample BH20-1 SA107 is less than the proposed geo-regional background values for the Ottawa area, as such, it is GEMTECs opinion that vanadium in native soil should not be considered a contaminant within the project boundaries.

Moreover, as per O. Reg. 153/04, s. 48 (2); O. Reg. 407/19, s. 19 (2) if two or more samples of soil are taken from sampling points at the same sampling location that are at the same depth under the property, the property meets a standard mentioned in subsection (1) if the average of the sampling results meets the standard and in no other circumstances. Based on this approach, the average of the parent and duplicate sample taken from BH20-1 (i.e., BH20-1 SA7, and BH20-1 SA107) was 85.95 µg/g which meets the MECP Table 2 SCS of 86 µg/g, and therefore would not considered to be an exceedance in this location on the subject property.

5.4.2 Groundwater Quality

Well screens were installed in overburden for MW20-1, MW20-2, and MW20-3 to measure the depth to groundwater and to facilitate groundwater sampling.

Analytical results for the groundwater samples submitted for analyses and the selected MECP Table 2 SCS are presented in Table B2, Appendix B. Laboratory Certificates of Analysis are provided in Appendix D. Groundwater samples met the applicable MECP Table 2 SCS for all parameters analyzed.

5.4.3 Quality Assurance and Quality Control Results

A quality assurance/quality control (QA/QC) program was implemented during the investigation. The QA/QC program consisted of the use of industry standard field protocols and the collection of one blind field duplicate. Blind duplicates are submitted for laboratory analysis to evaluate laboratory precision and the field sampling and handling procedures, in addition to sample homogeneity. The relative percent difference (RPD) is defined as the absolute value of the variation between a sample and its duplicate, when compared to the average concentration of the original and the duplicate. It is used to assess the validity of the field and laboratory analytical procedures. The RPD calculation is only applicable when concentrations in the sample and its field duplicate are greater than five times the laboratory reportable detection limit (RDL).

One parent - duplicate sample set was collected as part of this investigation, BH20-1 SA107 as a duplicate of BH20-1 SA7. RPDs were calculated for all parameters where the original and duplicate sample concentrations exceeded five times the reportable detection limits (RDL). The RPD value ranges for parent – duplicate sets were as follows:

- BH20-1 SA107 & BH20-1 SA107: 8% to 16%;
    - The calculated RPDs were within the acceptable range for soils (MOE, 2011).

The analytical laboratory completed all analyses in accordance with internal laboratory QA/QC which includes standardized analytical methods and procedures, in accordance with O.Reg 153/04, as amended. GEMTECs review of ALS and Paracel's QA/QC certificates indicates that the analytical results fell within acceptable QA/QC limits for constituent recovery as defined by the protocols for the analytical methods for all parameters analyzed, with the exception of exceedances due to multi-parameter scans and results being lower then detection limits.

Based on the measures discussed above, sample collection and handling protocols are considered acceptable and associated analytical results are considered reliable. The sample collection methods and duplicates do not suggest inconsistencies in the field collection or in the laboratory analysis methods.

6.0 CONCLUSIONS AND RECOMMENDATIONS

GEMTEC was retained by D.G. Belfie, to complete a Phase Two ESA for the property located at 1050 Klondike Road, in Kanata, Ontario. Based on the analytical results of the Limited Phase Two ESA, GEMTEC offers the following summary:

- The overburden observed at the site during the subsurface investigation generally consisted of a layer of fill material (sand and gravel with silt), underlain by varying thicknesses native deposits of brown silty clay (weathered crust);
- Four of the soil samples met the MECP table 2 SCS for all parameters analyzed – one of the soil samples (BH20-1 SA107) exceeded the MECP Table 2 SCS for vanadium;
    - A vanadium exceedance to MECP Table 2 SCS was identified, however while considering the geo-regional background clay concentration for vanadium(Sterling, et al., 2017) at outlined in section 5.4.1, the sample was identified and being naturally occurring. The vanadium exceedance was also collected at a sample where a duplicate was taken, consider the averaging approach of O. Reg. 153/04, s. 48 (2); O. Reg. 407/19, s. 19 (2), this vanadium identification would not considered to be an exceedance in this location on the subject property;
- The groundwater sample from MW20-2 submitted for analysis met the MECP Table 2 SCS for all parameters analyzed.

Following completion of the Limited Phase Two ESA to investigate soil and groundwater quality in the vicinity of the identified APECs, laboratory analytical results indicated compliance to MECP Table 2 SCS in soil and groundwater on-site. Based on these results, no additional work is recommended at this time. However, if any of the material with vanadium exceedances is proposed to be removed from site, the exceedance should be re-evaluated to determine compliance with the applicable standards for soil re-use at a receiver site in accordance with O.Reg. 406/19.

If the monitoring wells are not required for future monitoring and sampling, they should be decommissioned in accordance with O.Reg. 903 as amended.

7.0 LIMITATION OF LIABILITY

This report was prepared for and the work referred to within it has been undertaken by GEMTEC Consulting Engineers and Scientists Limited for D.G. Belfie Planning and Development Consulting Ltd. It is intended for the exclusive use of D.G. Belfie Planning and Development Consulting Ltd. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC and D.G. Belfie Planning and Development Consulting Ltd. Nothing in this report is intended to provide a legal opinion.

The investigation undertaken by GEMTEC with respect to this report and any conclusions or recommendations made in this report reflect the best judgements of GEMTEC based on the site conditions observed during the investigations undertaken at the date(s) identified in the report and on the information available at the time the report was prepared. This report has been prepared for the application noted and it is based, in part, on visual observations made at the site, subsurface investigations at discrete locations and depths and laboratory analyses of specific chemical parameters and material during a specific time interval, all as described in the report. Unless otherwise stated, the findings contained in this report cannot be extrapolated or extended to previous or future site conditions, portions of the site that were unavailable for direct investigation, subsurface locations on the site that were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Chemical parameters other than those addressed by the investigation described in this report may exist in soil and groundwater elsewhere on the site, the chemical parameters addressed in the report may exist in soil and groundwater at other locations at the site that were not investigated and concentrations of the chemical parameters addressed which are different than those reported may exist at other locations on the site than those from where the samples were taken.

Should new information become available during future work, including excavations, borings or other studies, GEMTEC should be requested to review the information and, if necessary, re-assess the conclusions presented herein.

8.0 REFERENCES

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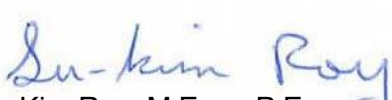
Ontario Ministry of the Environment, Conservation and Parks (MECP). Ontario Regulation 153/04, Made under the Environmental Protection Act, Part XV.1 – Records of Site Condition. October 31, 2011 updated January 1, 2014.

The City of Ottawa (GeoOttawa). 2000, last updated 2017. Accessed: October 2020. Available: http://maps.ottawa.ca/geoottawa/.

9.0 CLOSURE

We trust this letter is sufficient for your requirements. If you have any questions concerning this information or if we can be of further service to you on this project, please call us.

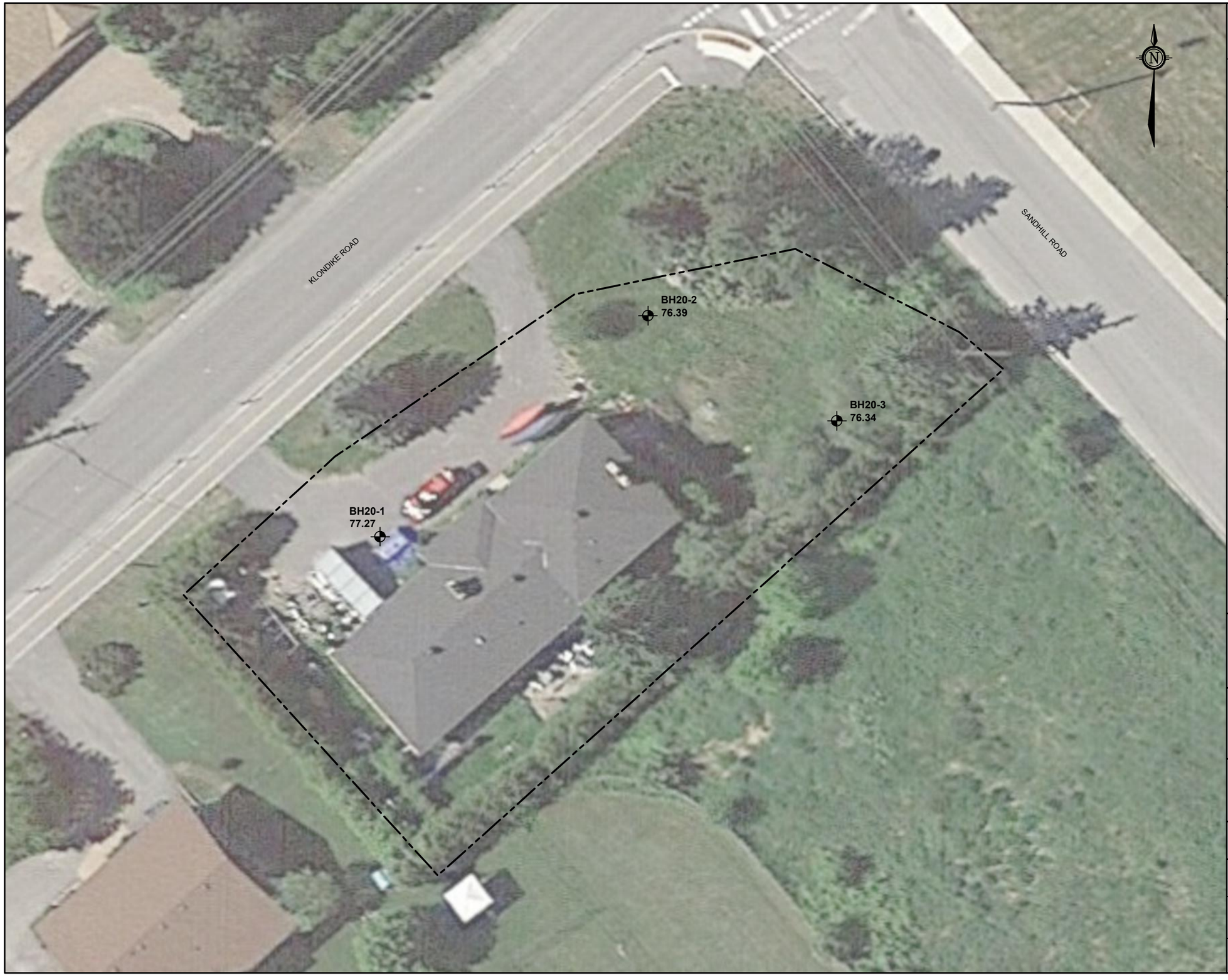
Nicole Soucy, M.A.Sc., P.Eng
Environmental Engineer



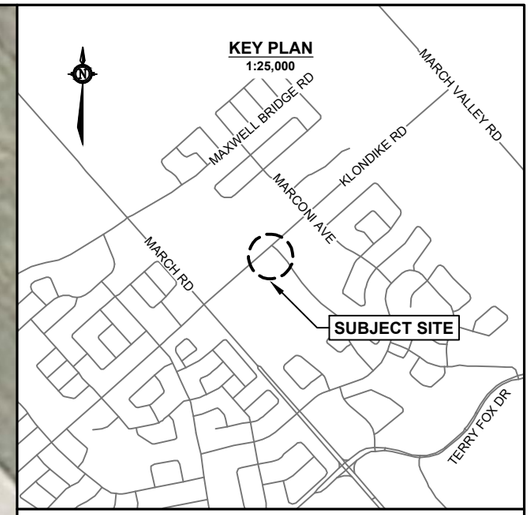
Su-Kim Roy, M.Eng., P.Eng
Senior Environmental Engineer

APPENDIX A

Figures



KEY PLAN
1:25,000



LEGEND

MONITORING WELL LOCATION IN PLAN
(current investigation by GEMTEC)

BH/MW # — BH/MW ID
XX.XX — GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM

PROPERTY LINE

Scale 1:300

0 10 20m

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www.gemtec.ca
ottawa@gemtec.ca

Drawing
BOREHOLE AND MONITORING WELL LOCATION PLAN

Client
D.G.BELFIE PLANNING AND DEVELOPMENT CONSULTING LTD.

Project
65153.01

PHASE TWO ESA
1050 KLONDIKE ROAD
OTTAWA, ONTARIO

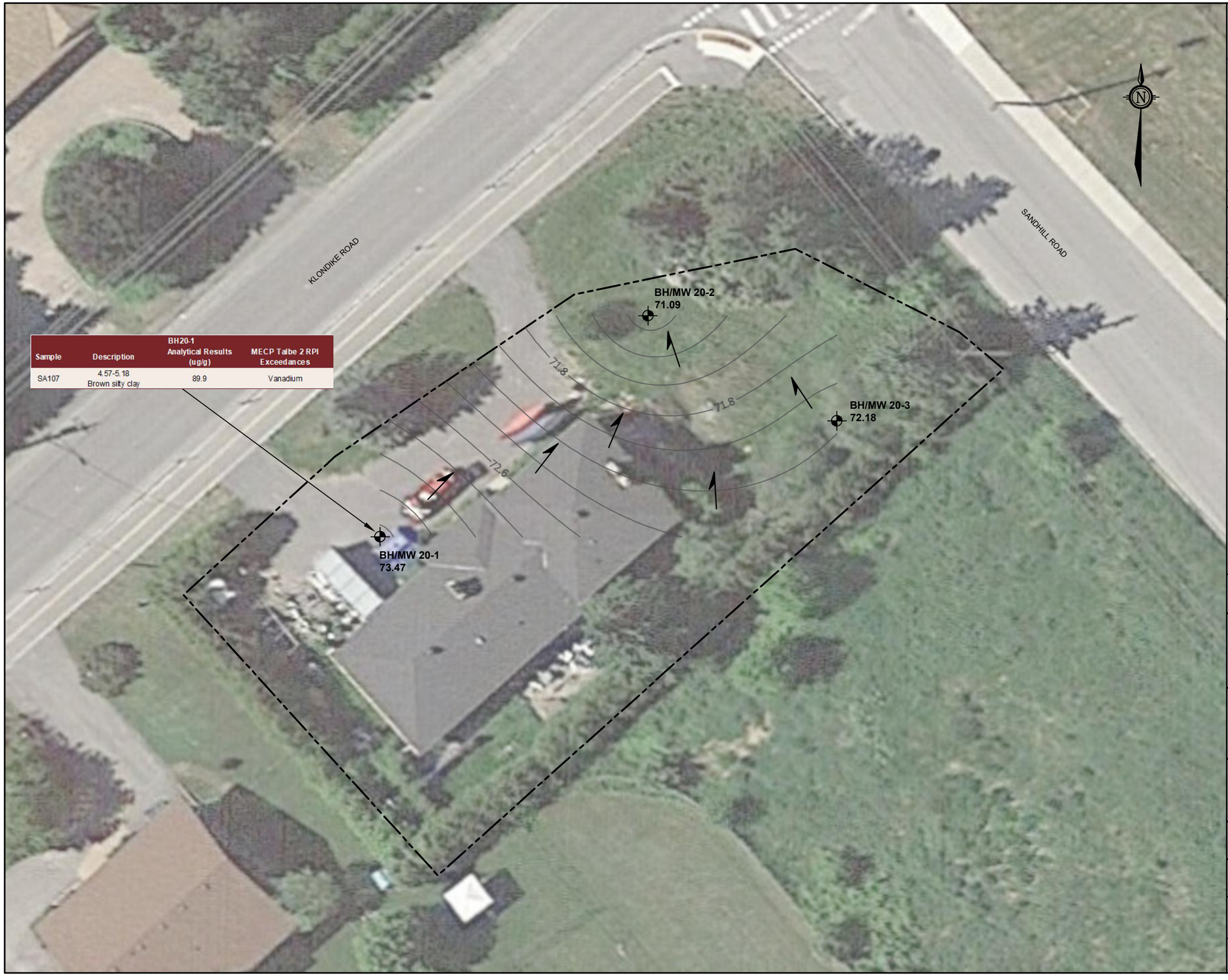
Drwn by
S.L.

Chkd by
N.S.

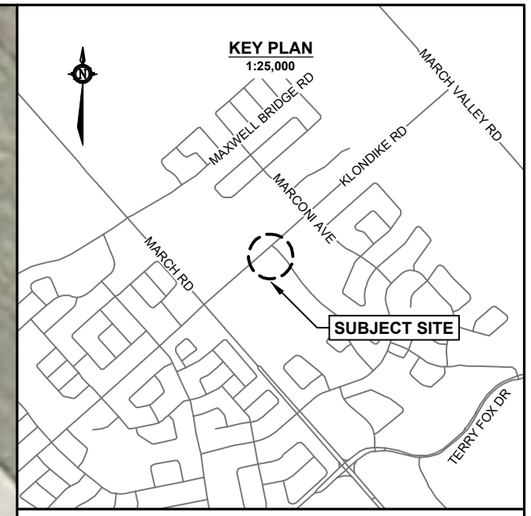
Date
OCTOBER, 2020

Rev.
0

FIGURE A.1



Sample	Description	BH20-1 Analytical Results (ug/g)	MECP Talbe 2 RPI Exceedances
SA107	4.57-5.18 Brown silty clay	89.9	Vanadium



LEGEND

- MONITORING WELL LOCATION IN PLAN (current investigation by GEMTEC)
- BH/MW # — BH/MW ID
- XX.XX — GROUNDWATER ELEVATION, IN METRES GEODETIC DATUM
- PROPERTY LINE
- 80.0 — GROUNDWATER ELEVATION (mASL)
- INFERRED GROUNDWATER FLOW DIRECTION

Notes:
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition. March 2004, amended July 1, 2011. Coarse Textured Soils for Residential/Parkland/Institutional Property Use.

Scale 1:300

0 10 20m

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Drawing
SOIL EXCEEDANCES AND
INFERRED SHALLOW GROUNDWATER FLOW

Client
D.G.BELFIE PLANNING AND
DEVELOPMENT CONSULTING LTD.

Project
65153.01

PHASE TWO ESA
1050 KLONDIKE ROAD
OTTAWA, ONTARIO

Drwn by
S.L.

Chkd by
N.S.

Date
OCTOBER, 2020

Rev.
0

FIGURE A.2

APPENDIX B

Borehole and Monitoring Well Logs

RECORD OF BOREHOLE 20-1

CLIENT: D.G. Belfie Planning and Development Consulting Ltd.
PROJECT: Limited Phase Two ESA - Proposed Residentail Development - 1050 Klondike Road
JOB#: 6515301
LOCATION: See Borehole Location Plan, Figure A.1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Sep 11 2020

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	TYPE	RECOVERY (mm)	BLOWS/0.3m	LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		77.27									
0	Power Auger Hollow Stem Auger (210mm OD)	Grey crushed sand and gravel, trace to some silt (FILL MATERIAL)		77.07	1	SS	254	7		Hex - 25, IBL - 0			Flushmount protector
		Brown fine to coarse grained sand, trace to some silt (FILL MATERIAL)		0.20									Filter sand
1					2	SS	279	5					
		Stiff to very stiff, brown silty clay (WEATHERED CRUST)		76.05 1.22									
2					3	SS	457	5					Soil cuttings
					4	SS	355	7					
3					5	SS	609	5					
4					6	SS	609	4					Bentonite seal
													Filter sand
					7	SS	609	4	Metals, VOCs, PHC F1-F4 + Dup	Hex - 20, IBL - 0			TOP OF SCREEN ELEV.: 72.50 m
5					8	SS	609	2		Hex - 20, IBL - 0			
6				71.17									
		Stiff, brown grey SILTY CLAY		6.10	9	SS	609	1	Metals, VOCs, PHC F1-F4	Hex - 25, IBL - 1			51 mm Diameter, 3 metres long well screen
7													
					10	SS	609	WH for 300 mm		Hex - 20, IBL - 1			BOTTOM OF SCREEN ELEV.: 69.50 m
8													Sand bedding
		End of Borehole Auger Refusal		68.74 8.53									

GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEVATION (m)
Sep. 18/20	3.80 ▽	73.47

GEMTEC
Consulting Engineers and Scientists

LOGGED: M.L.
CHECKED: G.D.

ENV - BOREHOLE LOG GINT LOG -ENVIRO.GPJ GEMTEC 2018.GDT 14/10/20

RECORD OF BOREHOLE 20-2

CLIENT: D.G. Belfie Planning and Development Consulting Ltd.
PROJECT: Limited Phase Two ESA - Proposed Residentail Development - 1050 Klondike Road
JOB#: 6515301
LOCATION: See Borehole Location Plan, Figure A.1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Sep 11 2020

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	TYPE	RECOVERY (mm)	BLOWS/0.3m	LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		76.39									
0	Power Auger / Hollow Stem Auger (210mm OD)	Dark brown sandy silt with organic material (TOPSOIL)		76.29 / 0.10	1	SS	203	6	M&I, PAHs				Flushmount protector; Filter sand
		Loose, brown fine to coarse grained sand, trace to some silt (FILL MATERIAL)			2	SS	305	5					
1													Soil cuttings
					3	SS	355	4		Hex - 0, IBL - 1			
2													
					4	SS	406	6		Hex - 0, IBL - 0			Bentonite seal
				73.51									
3		Stiff to very stiff, brown silty clay (WEATHERED CRUST)		2.88									Filter sand; TOP OF SCREEN ELEV.: 73.29 m
					5	SS	508	12		Hex - 0, IBL - 0			
4					6	SS	609	9		Hex - 0, IBL - 0			51 mm Diameter, 3 metres long well screen
					7	SS	609	7		Hex - 0, IBL - 0			
5													
					8	SS	609	6		Hex - 0, IBL - 0			
6													
					9	SS	609	4		Hex - 0, IBL - 0			BOTTOM OF SCREEN ELEV.: 70.29 m; Sand bedding
		End of Borehole		69.69 / 6.70									

GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEVATION (m)
Sep. 18/20	5.31 ▽	71.08

GEMTEC
Consulting Engineers and Scientists

LOGGED: M.L.
CHECKED: G.D.

ENV - BOREHOLE LOG GINT LOG -ENVIRO.GPJ GEMTEC 2018.GDT 14/10/20

RECORD OF BOREHOLE 20-3

CLIENT: D.G. Belfie Planning and Development Consulting Ltd.
PROJECT: Limited Phase Two ESA - Proposed Residentail Development - 1050 Klondike Road
JOB#: 6515301
LOCATION: See Borehole Location Plan, Figure A.1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Sep 11 2020

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	TYPE	RECOVERY (mm)	BLOWS/0.3m	LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		76.34									
0	Power Auger Hollow Stem Auger (210mm OD)	Dark brown sandy silt with organic material (TOPSOIL)		76.24 / 0.10	1	SS	203	3					Flushmount protector; Filter sand
		Loose, brown fine to coarse grained sand, trace to some silt (FILL MATERIAL)											
1					2	SS	254	9	M&I, PAHs				
2					3	SS	355	5					Soil cuttings
		Stiff to very stiff, brown silty clay (WEATHERED CRUST)		73.90 / 2.44	4	SS	457	6		Hex - 25, IBL - 1			
3					5	SS	609	9		Hex - 5, IBL - 0			
4					6	SS	609	8		Hex - 0, IBL - 0			Bentonite seal; Filter sand; TOP OF SCREEN ELEV.: 71.72 m
5					7	SS	609	8		Hex - 0, IBL - 0			
					8	SS	609	6		Hex - 5, IBL - 1			
6					9	SS	609	4		Hex - 35, IBL - 0			51 mm Diameter, 3 metres long well screen
7		End of Borehole		68.72 / 7.62									BOTTOM OF SCREEN ELEV.: 68.72 m

GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEVATION (m)
Sep. 18/20	4.16 ▽	72.18

GEMTEC
Consulting Engineers and Scientists

LOGGED: M.L.
CHECKED: G.D.

ENV - BOREHOLE LOG GINT LOG -ENVIRO.GPJ GEMTEC 2018.GDT 14/10/20

APPENDIX C

Analytical Summary Tables

Table C1
Soil Analytical Results
Phase Two Environmental Site Assessment
Proposed Residential Development
1050 Klondike Street - Ottawa, Ontario

Parameter	Units	LDL	MECP Table 2 RPI*	BH20-1 SA7 L2502579-1 4.57-5.18 11-Sep-20	BH20-1 SA107** L2502579-2 4.57-5.18 11-Sep-20	BH20-1 SA9 L2502579-7 6.10-6.71 11-Sep-20	BH20-2 SA1 L2502579-3 0-0.61 14-Sep-20	BH20-3 SA2 L2502579-5 0.76-1.37 11-Sep-20
Physical Tests								
Conductivity	mS/cm	0.004	0.7	NA	NA	NA	0.13	0.0684
% Moisture	%	0.25	NS	29.2	31.6	27.9	11	13.7
Cyanides								
Cyanide, Weak Acid Diss	ug/g	0.05	0.051	NA	NA	NA	<0.050	<0.050
Saturated Paste Extractables								
SAR	SAR	0.1	5	NA	NA	NA	0.13	0.19
Calcium (Ca)	mg/L	0.5	NS	NA	NA	NA	14.4	3.92
Magnesium (Mg)	mg/L	0.5	NS	NA	NA	NA	0.84	<0.50
Sodium (Na)	mg/L	0.5	NS	NA	NA	NA	1.81	1.34
Metals								
Antimony (Sb)	ug/g	1	7.5	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	1	18	2	2.3	1.8	1.4	1.2
Barium (Ba)	ug/g	1	390	274	323	288	53.8	26
Beryllium (Be)	ug/g	0.5	4	0.66	0.75	0.72	<0.50	<0.50
Boron (B), Hot Water Ext.	ug/g	0.1	1.5	NA	NA	NA	0.21	<0.10
Boron (B)	ug/g	5	120	5.1	6	6.6	<5.0	<5.0
Cadmium (Cd)	ug/g	0.5	1.2	<0.50	<0.50	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	1	160	66.5	74	66.1	21	9.7
Cobalt (Co)	ug/g	1	22	15.6	17.6	16.1	5.3	4.5
Copper (Cu)	ug/g	1	140	30.3	32.3	29.5	11.8	8.4
Lead (Pb)	ug/g	1	120	5.5	6.1	5.4	5	2.4
Mercury (Hg)	ug/g	0.005	0.27	NA	NA	NA	0.0125	0.0058
Molybdenum (Mo)	ug/g	1	6.9	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	1	100	35.7	40.3	36	11.5	6.3
Selenium (Se)	ug/g	1	2.4	<1.0	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	0.2	20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	0.5	1	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U)	ug/g	1	23	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	1	86	82	**89.9**	84.6	28	22.3
Zinc (Zn)	ug/g	5	340	89.1	101	92.6	30.9	17.9
Chromium, Hexavalent	ug/g	0.2	8	NA	NA	NA	<0.20	0.23
Volatile Organic Compounds								
Acetone	ug/g	0.5	16	<0.50	<0.50	<0.50	NA	NA
Benzene	ug/g	0.0068	0.21	<0.0068	<0.0068	<0.0068	NA	NA
Bromodichloromethane	ug/g	0.05	1.5	<0.050	<0.050	<0.050	NA	NA
Bromoform	ug/g	0.05	0.27	<0.050	<0.050	<0.050	NA	NA
Bromomethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	NA	NA
Carbon tetrachloride	ug/g	0.05	0.05	<0.050	<0.050	<0.050	NA	NA
Chlorobenzene	ug/g	0.05	2.4	<0.050	<0.050	<0.050	NA	NA
Dibromochloromethane	ug/g	0.05	16	<0.050	<0.050	<0.050	NA	NA
Chloroform	ug/g	0.05	0.05	<0.050	<0.050	<0.050	NA	NA
1,2-Dibromoethane	ug/g	0.05		<0.050	<0.050	<0.050	NA	NA
1,2-Dichlorobenzene	ug/g	0.05	1.2	<0.050	<0.050	<0.050	NA	NA
1,3-Dichlorobenzene	ug/g	0.05	4.8	<0.050	<0.050	<0.050	NA	NA
1,4-Dichlorobenzene	ug/g	0.05	0.083	<0.050	<0.050	<0.050	NA	NA
Dichlorodifluoromethane	ug/g	0.05	16	<0.050	<0.050	<0.050	NA	NA
1,1-Dichloroethane	ug/g	0.05	0.47	<0.050	<0.050	<0.050	NA	NA
1,2-Dichloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	NA	NA
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.050	<0.050	<0.050	NA	NA
cis-1,2-Dichloroethylene	ug/g	0.05	1.9	<0.050	<0.050	<0.050	NA	NA
trans-1,2-Dichloroethylene	ug/g	0.05	0.084	<0.050	<0.050	<0.050	NA	NA
Methylene Chloride	ug/g	0.05	0.1	<0.050	<0.050	<0.050	NA	NA
1,2-Dichloropropane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	NA	NA
cis-1,3-Dichloropropene	ug/g	0.03	NS	<0.030	<0.030	<0.030	NA	NA
trans-1,3-Dichloropropene	ug/g	0.03	NS	<0.030	<0.030	<0.030	NA	NA
1,3-Dichloropropene (cis & trans)	ug/g	0.042	0.05	<0.042	<0.042	<0.042	NA	NA
Ethylbenzene	ug/g	0.018	1.1	<0.018	<0.018	<0.018	NA	NA
n-Hexane	ug/g	0.05	2.8	<0.050	<0.050	<0.050	NA	NA
Methyl Ethyl Ketone	ug/g	0.5	16	<0.50	<0.50	<0.50	NA	NA
Methyl Isobutyl Ketone	ug/g	0.5	1.7	<0.50	<0.50	<0.50	NA	NA
MTBE	ug/g	0.05	0.75	<0.050	<0.050	<0.050	NA	NA
Styrene	ug/g	0.05	0.7	<0.050	<0.050	<0.050	NA	NA
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.058	<0.050	<0.050	<0.050	NA	NA
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	NA	NA
Tetrachloroethylene	ug/g	0.05	0.28	<0.050	<0.050	<0.050	NA	NA
Toluene	ug/g	0.08	2.3	<0.080	<0.080	<0.080	NA	NA
1,1,1-Trichloroethane	ug/g	0.05	0.38	<0.050	<0.050	<0.050	NA	NA
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	NA	NA
Trichloroethylene	ug/g	0.01	0.061	<0.010	<0.010	<0.010	NA	NA
Trichlorofluoromethane	ug/g	0.05	4	<0.050	<0.050	<0.050	NA	NA
Vinyl chloride	ug/g	0.02	0.02	<0.020	<0.020	<0.020	NA	NA
o-Xylene	ug/g	0.02	NS	<0.020	<0.020	<0.020	NA	NA
m+p-Xylenes	ug/g	0.03	NS	<0.030	<0.030	<0.030	NA	NA
Xylenes (Total)	ug/g	0.05	3.1	<0.050	<0.050	<0.050	NA	NA
4-Bromofluorobenzene	%	-	NS	89.7	83.9	77.6	NA	NA
1,4-Difluorobenzene	%	-	NS	108	103	96.2	NA	NA
Hydrocarbons								
F1 (C6-C10)	ug/g	5	55	<5.0	<5.0	<5.0	NA	NA
F1-BTEX	ug/g	5	55	<5.0	<5.0	<5.0	NA	NA
F2 (C10-C16)	ug/g	10	98	<10	<10	<10	NA	NA
F3 (C16-C34)	ug/g	50	300	<50	<50	<50	NA	NA
F4 (C34-C50)	ug/g	50	2800	<50	<50	<50	NA	NA
Total Hydrocarbons (C6-C50)	ug/g	72	NS	<72	<72	<72	NA	NA
2-Bromobenzotrifluoride	%	-	NS	78.4	72.7	76.3	NA	NA
3,4-Dichlorotoluene	%	-	NS	91.6	82.3	82.7	NA	NA
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	ug/g	0.05	7.9	NA	NA	NA	<0.050	<0.050
Acenaphthylene	ug/g	0.05	0.15	NA	NA	NA	<0.050	<0.050
Anthracene	ug/g	0.05	0.67	NA	NA	NA	<0.050	<0.050
Benzo(a)anthracene	ug/g	0.05	0.5	NA	NA	NA	<0.050	<0.050
Benzo(a)pyrene	ug/g	0.05	0.3	NA	NA	NA	<0.050	<0.050
Benzo(b)fluoranthene	ug/g	0.05	0.78	NA	NA	NA	<0.050	<0.050
Benzo(g,h,i)perylene	ug/g	0.2	6.6	NA	NA	NA	<0.050	<0.050
Benzo(k)fluoranthene	ug/g	0.05	0.78	NA	NA	NA	<0.050	<0.050
Chrysene	ug/g	0.05	7	NA	NA	NA	<0.050	<0.050
Dibenzo(ah)anthracene	ug/g	0.2	0.1	NA	NA	NA	<0.050	<0.050
Fluoranthene	ug/g	0.05	0.69	NA	NA	NA	<0.050	<0.050
Fluorene	ug/g	0.05	62	NA	NA	NA	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	ug/g	0.2	0.38	NA	NA	NA	<0.050	<0.050
1+2-Methylnaphthalenes	ug/g	0.0424	0.99	NA	NA	NA	<0.042	<0.042
1-Methylnaphthalene	ug/g	0.03	NS	NA	NA	NA	<0.030	<0.030
2-Methylnaphthalene	ug/g	0.03	NS	NA	NA	NA	<0.030	<0.030
Naphthalene	ug/g	0.013	0.6	NA	NA	NA	<0.013	<0.013
Phenanthrene	ug/g	0.046	6.2	NA	NA	NA	<0.046	<0.046
Pyrene	ug/g	0.05	78	NA	NA	NA	<0.050	<0.050
2-Fluorobiphenyl	%	-	NS	NA	NA	NA	101.6	98.3
p-Terphenyl d14	%	-	NS	NA	NA	NA	113.9	108

Notes:
'LDL': Lowest Detection Limit
'NA': Not Analyzed
'NS ' : No Standard / Guideline Established
*Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition. March 2004, amended July 1, 2011. Coarse Textured Soils for Residential/Parkland/Institutional Property Use.
**Soil sample BH20-1 SA10X is a duplicate of BH20-1 SAX
Bolded Exceeds MECP Table 2 SCS

TABLE C2
Groundwater Analytical Results
Phase Two Environmental Site Assessment
Proposed Residential Development
1050 Klondike - Ottawa, Ontario

Parameter	Units	LDL	Sample ID: Laboratory ID: Date Sampled: MECP Table 2 RPI*	MW20-1 2038695-01 18-Sep-20
Dissolved Metal				
Antimony (Sb)-Dissolved	ug/L	1	6	ND (0.5)
Arsenic (As)-Dissolved	ug/L	1	25	ND (1)
Barium (Ba)-Dissolved	ug/L	1	1000	108
Beryllium (Be)-Dissolved	ug/L	1	4	ND (0.5)
Boron (B)-Dissolved	ug/L	100	5000	16
Cadmium (Cd)-Dissolved	ug/L	0.05	2.7	ND (0.1)
Chromium (Cr)-Dissolved	ug/L	5	50	ND (1)
Cobalt (Co)-Dissolved	ug/L	1	3.8	0.6
Copper (Cu)-Dissolved	ug/L	2	87	0.8
Lead (Pb)-Dissolved	ug/L	0.5	10	ND (0.1)
Mercury (Hg)-Dissolved	mg/L	0.000005	0.29	NA
Molybdenum (Mo)-Dissolved	ug/L	0.5	70	4.24
Nickel (Ni)-Dissolved	ug/L	5	100	<5.0
Selenium (Se)-Dissolved	ug/L	0.5	10	<0.50
Silver (Ag)-Dissolved	ug/L	0.5	1.5	<0.50
Sodium (Na)-Dissolved	ug/L	500	490000	444000
Thallium (Tl)-Dissolved	ug/L	0.1	2	<0.10
Uranium (U)-Dissolved	ug/L	0.1	20	2.51
Vanadium (V)-Dissolved	ug/L	5	6.2	<5.0
Zinc (Zn)-Dissolved	ug/L	10	1100	<10
Speciated Metals				
Methylmercury (as MeHg)-Total	ug/L	0.00002	0.15	0.000254
Volatile Organic Compounds				
Acetone	ug/L	30	2700	<30
Benzene	ug/L	0.5	5	<0.50
Bromodichloromethane	ug/L	2	16	<2.0
Bromoform	ug/L	5	25	<5.0
Bromomethane	ug/L	0.5	0.89	<0.50
Carbon tetrachloride	ug/L	0.2	0.79	<0.20
Chlorobenzene	ug/L	0.5	30	<0.50
Dibromochloromethane	ug/L	2	25	<2.0
Chloroform	ug/L	1	2.4	<1.0
1,2-Dibromoethane	ug/L	0.2	0.2	<0.20
1,2-Dichlorobenzene	ug/L	0.5	3	<0.50
1,3-Dichlorobenzene	ug/L	0.5	59	<0.50
1,4-Dichlorobenzene	ug/L	0.5	1	<0.50
Dichlorodifluoromethane	ug/L	2	590	<2.0
1,1-Dichloroethane	ug/L	0.5	5	<0.50
1,2-Dichloroethane	ug/L	0.5	1.6	<0.50
1,1-Dichloroethylene	ug/L	0.5	1.6	<0.50
cis-1,2-Dichloroethylene	ug/L	0.5	1.6	<0.50
trans-1,2-Dichloroethylene	ug/L	0.5	1.6	<0.50
Methylene Chloride	ug/L	5	50	<5.0
1,2-Dichloropropane	ug/L	0.5	5	<0.50
cis-1,3-Dichloropropene	ug/L	0.3	NS	<0.30
trans-1,3-Dichloropropene	ug/L	0.3	NS	<0.30
1,3-Dichloropropene (cis & trans)	ug/L	0.5	0.5	<0.50
Ethylbenzene	ug/L	0.5	2.4	<0.50
n-Hexane	ug/L	0.5	51	<0.50
Methyl Ethyl Ketone	ug/L	20	1800	<20
Methyl Isobutyl Ketone	ug/L	20	640	<20
MTBE	ug/L	2	15	<2.0
Styrene	ug/L	0.5	5.4	<0.50
1,1,1,2-Tetrachloroethane	ug/L	0.5	1.1	<0.50
1,1,2,2-Tetrachloroethane	ug/L	0.5	1	<0.50
Tetrachloroethylene	ug/L	0.5	1.6	<0.50
Toluene	ug/L	0.5	24	<0.50
1,1,1-Trichloroethane	ug/L	0.5	200	<0.50
1,1,2-Trichloroethane	ug/L	0.5	4.7	<0.50
Trichloroethylene	ug/L	0.5	1.6	<0.50
Trichlorofluoromethane	ug/L	5	150	<5.0
Vinyl chloride	ug/L	0.5	0.5	<0.50
o-Xylene	ug/L	0.3	NS	<0.30
m+p-Xylenes	ug/L	0.4	NS	<0.40
Xylenes (Total)	ug/L	0.5	300	<0.50
Petroleum Hydrocarbons				
F1 (C6-C10)	ug/L	25	750	<25
F1-BTEX	ug/L	25	750	<25
F2 (C10-C16)	ug/L	100	150	<100
F3 (C16-C34)	ug/L	250	500	<250
F4 (C34-C50)	ug/L	250	500	<250
Total Hydrocarbons (C6-C50)	ug/L	370	NS	<370
Chrom. to baseline at nC50	-	-	NS	YES

Notes:
'LDL': Lowest Detection Limit
'NS ' : No Standard / Guideline Established
'NA': Not Analyzed
*Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition. March 2004, amended July 1, 2011. All Types of Property Use.

Bolded Exceeds MECP Table 2 SCS

APPENDIX D

Laboratory Analytical Reports

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Certificate of Analysis

GEMTEC Consulting Engineers and Scientists Limited

32 Steacie Drive
Kanata, ON K2K 2A9
Attn: Nicole Soucy

Client PO:
Project: 65153.01
Custody: 128658

Report Date: 23-Sep-2020
Order Date: 18-Sep-2020

Order #: 2038695

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2038695-01	MW20-1

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 23-Sep-2020

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 18-Sep-2020

Client PO:

Project Description: 65153.01

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Metals, ICP-MS	EPA 200.8 - ICP-MS	21-Sep-20	22-Sep-20
PHC F1	CWS Tier 1 - P&T GC-FID	18-Sep-20	19-Sep-20
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	21-Sep-20	21-Sep-20
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	18-Sep-20	19-Sep-20

Certificate of Analysis

Report Date: 23-Sep-2020

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 18-Sep-2020

Client PO:

Project Description: 65153.01

	Client ID:	MW20-1	-	-	-
	Sample Date:	18-Sep-20 12:00	-	-	-
	Sample ID:	2038695-01	-	-	-
	MDL/Units	Water	-	-	-
Metals					
Antimony	0.5 ug/L	<0.5	-	-	-
Arsenic	1 ug/L	<1	-	-	-
Barium	1 ug/L	108	-	-	-
Beryllium	0.5 ug/L	<0.5	-	-	-
Boron	10 ug/L	16	-	-	-
Cadmium	0.1 ug/L	<0.1	-	-	-
Chromium	1 ug/L	<1	-	-	-
Cobalt	0.5 ug/L	0.6	-	-	-
Copper	0.5 ug/L	0.8	-	-	-
Lead	0.1 ug/L	<0.1	-	-	-
Molybdenum	0.5 ug/L	0.9	-	-	-
Nickel	1 ug/L	2	-	-	-
Selenium	1 ug/L	<1	-	-	-
Silver	0.1 ug/L	<0.1	-	-	-
Sodium	200 ug/L	41200	-	-	-
Thallium	0.1 ug/L	<0.1	-	-	-
Uranium	0.1 ug/L	1.8	-	-	-
Vanadium	0.5 ug/L	3.4	-	-	-
Zinc	5 ug/L	<5	-	-	-
Volatiles					
Acetone	5.0 ug/L	<5.0	-	-	-
Benzene	0.5 ug/L	<0.5	-	-	-
Bromodichloromethane	0.5 ug/L	<0.5	-	-	-
Bromoform	0.5 ug/L	<0.5	-	-	-
Bromomethane	0.5 ug/L	<0.5	-	-	-
Carbon Tetrachloride	0.2 ug/L	<0.2	-	-	-
Chlorobenzene	0.5 ug/L	<0.5	-	-	-
Chloroform	0.5 ug/L	<0.5	-	-	-
Dibromochloromethane	0.5 ug/L	<0.5	-	-	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	-	-	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	-	-	-
1,1-Dichloroethane	0.5 ug/L	<0.5	-	-	-
1,2-Dichloroethane	0.5 ug/L	<0.5	-	-	-

Certificate of Analysis

Report Date: 23-Sep-2020

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 18-Sep-2020

Client PO:

Project Description: 65153.01

	Client ID:	MW20-1	-	-	-
	Sample Date:	18-Sep-20 12:00	-	-	-
	Sample ID:	2038695-01	-	-	-
	MDL/Units	Water	-	-	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	-	-	-
1,2-Dichloropropane	0.5 ug/L	<0.5	-	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	-	-	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	-	-	-
Hexane	1.0 ug/L	<1.0	-	-	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	-	-	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	-	-	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	-	-	-
Methylene Chloride	5.0 ug/L	<5.0	-	-	-
Styrene	0.5 ug/L	<0.5	-	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	-	-	-
Tetrachloroethylene	0.5 ug/L	<0.5	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	-	-	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	-	-	-
Trichloroethylene	0.5 ug/L	<0.5	-	-	-
Trichlorofluoromethane	1.0 ug/L	<1.0	-	-	-
Vinyl chloride	0.5 ug/L	<0.5	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-
4-Bromofluorobenzene	Surrogate	111%	-	-	-
Dibromofluoromethane	Surrogate	115%	-	-	-
Toluene-d8	Surrogate	113%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	-	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	-	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
F2 PHCs (C10-C16)	ND	100	ug/L						
F3 PHCs (C16-C34)	ND	100	ug/L						
F4 PHCs (C34-C50)	ND	100	ug/L						
Metals									
Antimony	ND	0.5	ug/L						
Arsenic	ND	1	ug/L						
Barium	ND	1	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10	ug/L						
Cadmium	ND	0.1	ug/L						
Chromium	ND	1	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.1	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1	ug/L						
Selenium	ND	1	ug/L						
Silver	ND	0.1	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.1	ug/L						
Uranium	ND	0.1	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5	ug/L						
Volatiles									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Chloroform	ND	0.5	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
Vinyl chloride	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: 4-Bromofluorobenzene	*96.0*		*ug/L*		*120*	*50-140*			
Surrogate: Dibromofluoromethane	*93.7*		*ug/L*		*117*	*50-140*			
Surrogate: Toluene-d8	*89.3*		*ug/L*		*112*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Metals									
Antimony	ND	0.5	ug/L	ND			NC	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Barium	106	1	ug/L	108			1.8	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	16	10	ug/L	16			1.1	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	0.63	0.5	ug/L	0.65			1.9	20	
Copper	0.82	0.5	ug/L	0.80			2.5	20	
Lead	ND	0.1	ug/L	ND			NC	20	
Molybdenum	0.94	0.5	ug/L	0.90			4.8	20	
Nickel	1.9	1	ug/L	1.8			3.0	20	
Selenium	ND	1	ug/L	ND			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	40100	200	ug/L	41200			2.6	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	1.9	0.1	ug/L	1.8			2.1	20	
Vanadium	3.38	0.5	ug/L	3.38			0.0	20	
Zinc	ND	5	ug/L	ND			NC	20	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	5.02	0.5	ug/L	4.29			15.7	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	10.9	0.5	ug/L	10.1			7.3	30	
Dibromochloromethane	2.90	0.5	ug/L	2.18			28.3	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	1.00	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*93.4*		*ug/L*		*117*	*50-140*			
Surrogate: Dibromofluoromethane	*92.8*		*ug/L*		*116*	*50-140*			
Surrogate: Toluene-d8	*89.0*		*ug/L*		*111*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1960	25	ug/L	ND	97.8	68-117			
F2 PHCs (C10-C16)	1750	100	ug/L	ND	109	60-140			
F3 PHCs (C16-C34)	4680	100	ug/L	ND	119	60-140			
F4 PHCs (C34-C50)	2840	100	ug/L	ND	114	60-140			
Metals									
Antimony	44.8	0.5	ug/L	ND	89.4	80-120			
Arsenic	51.1	1	ug/L	ND	101	80-120			
Barium	149	1	ug/L	108	81.2	80-120			
Beryllium	46.4	0.5	ug/L	ND	92.8	80-120			
Boron	61	10	ug/L	16	89.6	80-120			
Cadmium	47.2	0.1	ug/L	ND	94.5	80-120			
Chromium	55.2	1	ug/L	ND	109	80-120			
Cobalt	51.0	0.5	ug/L	0.65	101	80-120			
Copper	47.9	0.5	ug/L	0.80	94.3	80-120			
Lead	39.4	0.1	ug/L	ND	78.9	80-120			QM-07
Molybdenum	49.7	0.5	ug/L	0.90	97.7	80-120			
Nickel	48.2	1	ug/L	1.8	92.7	80-120			
Selenium	47.5	1	ug/L	ND	94.4	80-120			
Silver	45.7	0.1	ug/L	ND	91.5	80-120			
Sodium	52200	200	ug/L	41200	110	80-120			
Thallium	44.1	0.1	ug/L	ND	88.2	80-120			
Uranium	44.9	0.1	ug/L	1.8	86.2	80-120			
Vanadium	59.3	0.5	ug/L	3.38	112	80-120			
Zinc	45	5	ug/L	ND	86.5	80-120			
Volatiles									
Acetone	72.5	5.0	ug/L	ND	72.5	50-140			
Benzene	42.7	0.5	ug/L	ND	107	60-130			
Bromodichloromethane	43.8	0.5	ug/L	ND	110	60-130			
Bromoform	40.6	0.5	ug/L	ND	102	60-130			
Bromomethane	33.8	0.5	ug/L	ND	84.5	50-140			
Carbon Tetrachloride	45.0	0.2	ug/L	ND	113	60-130			
Chlorobenzene	38.8	0.5	ug/L	ND	97.0	60-130			
Chloroform	42.9	0.5	ug/L	ND	107	60-130			
Dibromochloromethane	43.9	0.5	ug/L	ND	110	60-130			
Dichlorodifluoromethane	34.2	1.0	ug/L	ND	85.5	50-140			
1,2-Dichlorobenzene	43.7	0.5	ug/L	ND	109	60-130			
1,3-Dichlorobenzene	42.9	0.5	ug/L	ND	107	60-130			
1,4-Dichlorobenzene	43.7	0.5	ug/L	ND	109	60-130			
1,1-Dichloroethane	41.8	0.5	ug/L	ND	104	60-130			
1,2-Dichloroethane	37.0	0.5	ug/L	ND	92.6	60-130			
1,1-Dichloroethylene	42.9	0.5	ug/L	ND	107	60-130			
cis-1,2-Dichloroethylene	43.0	0.5	ug/L	ND	108	60-130			
trans-1,2-Dichloroethylene	43.6	0.5	ug/L	ND	109	60-130			
1,2-Dichloropropane	39.8	0.5	ug/L	ND	99.4	60-130			
cis-1,3-Dichloropropylene	39.7	0.5	ug/L	ND	99.3	60-130			
trans-1,3-Dichloropropylene	36.7	0.5	ug/L	ND	91.8	60-130			
Ethylbenzene	39.6	0.5	ug/L	ND	99.1	60-130			
Ethylene dibromide (dibromoethane, 1,2	37.9	0.2	ug/L	ND	94.8	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hexane	42.2	1.0	ug/L	ND	106	60-130			
Methyl Ethyl Ketone (2-Butanone)	80.2	5.0	ug/L	ND	80.2	50-140			
Methyl Isobutyl Ketone	93.4	5.0	ug/L	ND	93.4	50-140			
Methyl tert-butyl ether	94.3	2.0	ug/L	ND	94.3	50-140			
Methylene Chloride	40.7	5.0	ug/L	ND	102	60-130			
Styrene	36.7	0.5	ug/L	ND	91.7	60-130			
1,1,1,2-Tetrachloroethane	38.8	0.5	ug/L	ND	96.9	60-130			
1,1,2,2-Tetrachloroethane	47.0	0.5	ug/L	ND	118	60-130			
Tetrachloroethylene	39.1	0.5	ug/L	ND	97.7	60-130			
Toluene	40.1	0.5	ug/L	ND	100	60-130			
1,1,1-Trichloroethane	43.1	0.5	ug/L	ND	108	60-130			
1,1,2-Trichloroethane	41.7	0.5	ug/L	ND	104	60-130			
Trichloroethylene	40.3	0.5	ug/L	ND	101	60-130			
Trichlorofluoromethane	44.7	1.0	ug/L	ND	112	60-130			
Vinyl chloride	36.4	0.5	ug/L	ND	91.0	50-140			
m,p-Xylenes	82.2	0.5	ug/L	ND	103	60-130			
o-Xylene	41.8	0.5	ug/L	ND	105	60-130			
Surrogate: 4-Bromofluorobenzene	*83.5*		*ug/L*		*104*	*50-140*			
Surrogate: Dibromofluoromethane	*91.2*		*ug/L*		*114*	*50-140*			
Surrogate: Toluene-d8	*80.5*		*ug/L*		*101*	*50-140*			

Qualifier Notes:

QC Qualifiers :

QM-07 : The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.
- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2038695

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2038695	Nº 128658

Client Name: Gemtec	Project Ref: 65153.01	Page 1 of 1
Contact Name: Nicole Soucy	Quote #:	Turnaround Time
Address: 32 Steacie Dr. Ottawa	PO #:	☐ 1 day ☐ 3 day
	E-mail: nicole.soucy@gemtec.ca	☐ 2 day ☑ Regular
Telephone: (613) 836-1422		Date Required:

Regulation 153/04	Other Regulation	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)	Required Analysis
☑ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO		
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA		
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm		
☐ Table	Mun:		
For RSC: ☐ Yes ☑ No	☐ Other:		

#	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)						
1	MW 20-1	GW	/	4	Sept. 18/20	12:00pm	✓	✓		✓									
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Comments:

Method of Delivery: PARACEL COURIER

Relinquished By (Sign): [signature]	Received By Driver/Depot: T. DEOUSE	Received at Lab: Jsneepayn Dokmai	Verified By: SRM
Relinquished By (Print): Adam Alamo	Date/Time: 18/09/20 1:22	Date/Time: Sep 18, 2020 02.22	Date/Time: Sept 18, 2020 15:44
Date/Time: Sept 18/20 @ 1:00pm	Temperature: °C PM.	Temperature: 9.9 °C	pH Verified: ☑ By: RS

GEMTEC Consulting Engineers & Scientists Limited
ATTN: Nicole Soucy
32 Staecie Dr.
Ottawa ON K2K 2A9

Date Received: 14-SEP-20
Report Date: 24-SEP-20 14:15 (MT)
Version: FINAL

Client Phone: --

Certificate of Analysis

Lab Work Order #: L2502579

Project P.O. #: 65153.01
Job Reference: 65153.01
C of C Numbers:
Legal Site Desc: KLONDIKE RD

Emily Smith
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2502579-1 BH20-1 SA7 Sampled By: CLIENT on 11-SEP-20 Matrix: SOIL							
Physical Tests							
% Moisture	29.2		0.25	%	15-SEP-20	16-SEP-20	R5224293
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Arsenic (As)	2.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Barium (Ba)	274		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Beryllium (Be)	0.66		0.50	ug/g	16-SEP-20	17-SEP-20	R5228824
Boron (B)	5.1		5.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Cadmium (Cd)	<0.50		0.50	ug/g	16-SEP-20	17-SEP-20	R5228824
Chromium (Cr)	66.5		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Cobalt (Co)	15.6		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Copper (Cu)	30.3		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Lead (Pb)	5.5		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Molybdenum (Mo)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Nickel (Ni)	35.7		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Selenium (Se)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Silver (Ag)	<0.20		0.20	ug/g	16-SEP-20	17-SEP-20	R5228824
Thallium (Tl)	<0.50		0.50	ug/g	16-SEP-20	17-SEP-20	R5228824
Uranium (U)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Vanadium (V)	82.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Zinc (Zn)	89.1		5.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	15-SEP-20	21-SEP-20	R5231261
Benzene	<0.0068		0.0068	ug/g	15-SEP-20	21-SEP-20	R5231261
Bromodichloromethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Bromoform	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Bromomethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Carbon tetrachloride	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Chlorobenzene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Dibromochloromethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Chloroform	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,2-Dibromoethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,2-Dichlorobenzene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,3-Dichlorobenzene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,4-Dichlorobenzene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Dichlorodifluoromethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,1-Dichloroethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,2-Dichloroethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,1-Dichloroethylene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Methylene Chloride	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2502579-1 BH20-1 SA7 Sampled By: CLIENT on 11-SEP-20 Matrix: SOIL							
Volatile Organic Compounds							
1,2-Dichloropropane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	15-SEP-20	21-SEP-20	R5231261
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	15-SEP-20	21-SEP-20	R5231261
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		21-SEP-20	
Ethylbenzene	<0.018		0.018	ug/g	15-SEP-20	21-SEP-20	R5231261
n-Hexane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Methyl Ethyl Ketone	<0.50		0.50	ug/g	15-SEP-20	21-SEP-20	R5231261
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	15-SEP-20	21-SEP-20	R5231261
MTBE	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Styrene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Tetrachloroethylene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Toluene	<0.080		0.080	ug/g	15-SEP-20	21-SEP-20	R5231261
1,1,1-Trichloroethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,1,2-Trichloroethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Trichloroethylene	<0.010		0.010	ug/g	15-SEP-20	21-SEP-20	R5231261
Trichlorofluoromethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Vinyl chloride	<0.020		0.020	ug/g	15-SEP-20	21-SEP-20	R5231261
o-Xylene	<0.020		0.020	ug/g	15-SEP-20	21-SEP-20	R5231261
m+p-Xylenes	<0.030		0.030	ug/g	15-SEP-20	21-SEP-20	R5231261
Xylenes (Total)	<0.050		0.050	ug/g		21-SEP-20	
Surrogate: 4-Bromofluorobenzene	89.7		50-140	%	15-SEP-20	21-SEP-20	R5231261
Surrogate: 1,4-Difluorobenzene	108.0		50-140	%	15-SEP-20	21-SEP-20	R5231261
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	15-SEP-20	21-SEP-20	R5231261
F1-BTEX	<5.0		5.0	ug/g		21-SEP-20	
F2 (C10-C16)	<10		10	ug/g	15-SEP-20	16-SEP-20	R5224853
F3 (C16-C34)	<50		50	ug/g	15-SEP-20	16-SEP-20	R5224853
F4 (C34-C50)	<50		50	ug/g	15-SEP-20	16-SEP-20	R5224853
Total Hydrocarbons (C6-C50)	<72		72	ug/g		21-SEP-20	
Chrom. to baseline at nC50	YES				15-SEP-20	16-SEP-20	R5224853
Surrogate: 2-Bromobenzotrifluoride	78.4		60-140	%	15-SEP-20	16-SEP-20	R5224853
Surrogate: 3,4-Dichlorotoluene	91.6		60-140	%	15-SEP-20	21-SEP-20	R5231261
L2502579-2 BH20-1 SA107 Sampled By: CLIENT on 11-SEP-20 Matrix: SOIL							
Physical Tests							
% Moisture	31.6		0.25	%	15-SEP-20	16-SEP-20	R5224293
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Arsenic (As)	2.3		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2502579-2 BH20-1 SA107 Sampled By: CLIENT on 11-SEP-20 Matrix: SOIL							
Metals							
Barium (Ba)	323		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Beryllium (Be)	0.75		0.50	ug/g	16-SEP-20	17-SEP-20	R5228824
Boron (B)	6.0		5.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Cadmium (Cd)	<0.50		0.50	ug/g	16-SEP-20	17-SEP-20	R5228824
Chromium (Cr)	74.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Cobalt (Co)	17.6		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Copper (Cu)	32.3		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Lead (Pb)	6.1		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Molybdenum (Mo)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Nickel (Ni)	40.3		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Selenium (Se)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Silver (Ag)	<0.20		0.20	ug/g	16-SEP-20	17-SEP-20	R5228824
Thallium (Tl)	<0.50		0.50	ug/g	16-SEP-20	17-SEP-20	R5228824
Uranium (U)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Vanadium (V)	89.9		1.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Zinc (Zn)	101		5.0	ug/g	16-SEP-20	17-SEP-20	R5228824
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	15-SEP-20	21-SEP-20	R5231261
Benzene	<0.0068		0.0068	ug/g	15-SEP-20	21-SEP-20	R5231261
Bromodichloromethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Bromoform	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Bromomethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Carbon tetrachloride	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Chlorobenzene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Dibromochloromethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Chloroform	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,2-Dibromoethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,2-Dichlorobenzene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,3-Dichlorobenzene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,4-Dichlorobenzene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Dichlorodifluoromethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,1-Dichloroethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,2-Dichloroethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,1-Dichloroethylene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Methylene Chloride	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,2-Dichloropropane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	15-SEP-20	21-SEP-20	R5231261
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	15-SEP-20	21-SEP-20	R5231261
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		21-SEP-20	

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2502579-2 BH20-1 SA107 Sampled By: CLIENT on 11-SEP-20 Matrix: SOIL							
Volatile Organic Compounds							
Ethylbenzene	<0.018		0.018	ug/g	15-SEP-20	21-SEP-20	R5231261
n-Hexane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Methyl Ethyl Ketone	<0.50		0.50	ug/g	15-SEP-20	21-SEP-20	R5231261
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	15-SEP-20	21-SEP-20	R5231261
MTBE	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Styrene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Tetrachloroethylene	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Toluene	<0.080		0.080	ug/g	15-SEP-20	21-SEP-20	R5231261
1,1,1-Trichloroethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
1,1,2-Trichloroethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Trichloroethylene	<0.010		0.010	ug/g	15-SEP-20	21-SEP-20	R5231261
Trichlorofluoromethane	<0.050		0.050	ug/g	15-SEP-20	21-SEP-20	R5231261
Vinyl chloride	<0.020		0.020	ug/g	15-SEP-20	21-SEP-20	R5231261
o-Xylene	<0.020		0.020	ug/g	15-SEP-20	21-SEP-20	R5231261
m+p-Xylenes	<0.030		0.030	ug/g	15-SEP-20	21-SEP-20	R5231261
Xylenes (Total)	<0.050		0.050	ug/g		21-SEP-20	
Surrogate: 4-Bromofluorobenzene	83.9		50-140	%	15-SEP-20	21-SEP-20	R5231261
Surrogate: 1,4-Difluorobenzene	103.0		50-140	%	15-SEP-20	21-SEP-20	R5231261
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	15-SEP-20	21-SEP-20	R5231261
F1-BTEX	<5.0		5.0	ug/g		21-SEP-20	
F2 (C10-C16)	<10		10	ug/g	15-SEP-20	16-SEP-20	R5224853
F3 (C16-C34)	<50		50	ug/g	15-SEP-20	16-SEP-20	R5224853
F4 (C34-C50)	<50		50	ug/g	15-SEP-20	16-SEP-20	R5224853
Total Hydrocarbons (C6-C50)	<72		72	ug/g		21-SEP-20	
Chrom. to baseline at nC50	YES				15-SEP-20	16-SEP-20	R5224853
Surrogate: 2-Bromobenzotrifluoride	72.7		60-140	%	15-SEP-20	16-SEP-20	R5224853
Surrogate: 3,4-Dichlorotoluene	82.3		60-140	%	15-SEP-20	21-SEP-20	R5231261
L2502579-3 BH20-2 SA1 Sampled By: CLIENT on 14-SEP-20 Matrix: SOIL							
Physical Tests							
Conductivity	0.130		0.0040	mS/cm		17-SEP-20	R5226217
% Moisture	11.0		0.25	%	15-SEP-20	16-SEP-20	R5224293
pH	7.29		0.10	pH units		16-SEP-20	R5224973
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5226601
Saturated Paste Extractables							
SAR	0.13		0.10	SAR		17-SEP-20	R5226672
Calcium (Ca)	14.4		0.50	mg/L		17-SEP-20	R5226672

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2502579-3 BH20-2 SA1 Sampled By: CLIENT on 14-SEP-20 Matrix: SOIL							
Saturated Paste Extractables							
Magnesium (Mg)	0.84		0.50	mg/L		17-SEP-20	R5226672
Sodium (Na)	1.81		0.50	mg/L		17-SEP-20	R5226672
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Arsenic (As)	1.4		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Barium (Ba)	53.8		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Beryllium (Be)	<0.50		0.50	ug/g	16-SEP-20	17-SEP-20	R5226036
Boron (B)	<5.0		5.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Boron (B), Hot Water Ext.	0.21		0.10	ug/g	17-SEP-20	17-SEP-20	R5226666
Cadmium (Cd)	<0.50		0.50	ug/g	16-SEP-20	17-SEP-20	R5226036
Chromium (Cr)	21.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Cobalt (Co)	5.3		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Copper (Cu)	11.8		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Lead (Pb)	5.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Mercury (Hg)	0.0125		0.0050	ug/g	16-SEP-20	17-SEP-20	R5226199
Molybdenum (Mo)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Nickel (Ni)	11.5		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Selenium (Se)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Silver (Ag)	<0.20		0.20	ug/g	16-SEP-20	17-SEP-20	R5226036
Thallium (Tl)	<0.50		0.50	ug/g	16-SEP-20	17-SEP-20	R5226036
Uranium (U)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Vanadium (V)	28.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Zinc (Zn)	30.9		5.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Speciated Metals							
Chromium, Hexavalent	<0.20		0.20	ug/g	15-SEP-20	17-SEP-20	R5226920
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Acenaphthylene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Anthracene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Benzo(a)anthracene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Benzo(a)pyrene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Benzo(b)fluoranthene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Benzo(k)fluoranthene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Chrysene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Fluoranthene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Fluorene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		17-SEP-20	
1-Methylnaphthalene	<0.030		0.030	ug/g	15-SEP-20	17-SEP-20	R5228198
2-Methylnaphthalene	<0.030		0.030	ug/g	15-SEP-20	17-SEP-20	R5228198

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2502579-3 BH20-2 SA1 Sampled By: CLIENT on 14-SEP-20 Matrix: SOIL							
Polycyclic Aromatic Hydrocarbons							
Naphthalene	<0.013		0.013	ug/g	15-SEP-20	17-SEP-20	R5228198
Phenanthrene	<0.046		0.046	ug/g	15-SEP-20	17-SEP-20	R5228198
Pyrene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Surrogate: 2-Fluorobiphenyl	101.6		50-140	%	15-SEP-20	17-SEP-20	R5228198
Surrogate: p-Terphenyl d14	113.9		50-140	%	15-SEP-20	17-SEP-20	R5228198
L2502579-5 BH20-3 SA2 Sampled By: CLIENT on 11-SEP-20 Matrix: SOIL							
Physical Tests							
Conductivity	0.0684		0.0040	mS/cm		17-SEP-20	R5226217
% Moisture	13.7		0.25	%	15-SEP-20	16-SEP-20	R5224293
pH	7.17		0.10	pH units		16-SEP-20	R5224973
Cyanides							
Cyanide, Weak Acid Diss	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5226601
Saturated Paste Extractables							
SAR	0.19	SAR:M	0.10	SAR		17-SEP-20	R5226672
Calcium (Ca)	3.92		0.50	mg/L		17-SEP-20	R5226672
Magnesium (Mg)	<0.50		0.50	mg/L		17-SEP-20	R5226672
Sodium (Na)	1.34		0.50	mg/L		17-SEP-20	R5226672
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Arsenic (As)	1.2		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Barium (Ba)	26.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Beryllium (Be)	<0.50		0.50	ug/g	16-SEP-20	17-SEP-20	R5226036
Boron (B)	<5.0		5.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Boron (B), Hot Water Ext.	<0.10		0.10	ug/g	17-SEP-20	17-SEP-20	R5226666
Cadmium (Cd)	<0.50		0.50	ug/g	16-SEP-20	17-SEP-20	R5226036
Chromium (Cr)	9.7		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Cobalt (Co)	4.5		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Copper (Cu)	8.4		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Lead (Pb)	2.4		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Mercury (Hg)	0.0058		0.0050	ug/g	16-SEP-20	17-SEP-20	R5226199
Molybdenum (Mo)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Nickel (Ni)	6.3		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Selenium (Se)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Silver (Ag)	<0.20		0.20	ug/g	16-SEP-20	17-SEP-20	R5226036
Thallium (Tl)	<0.50		0.50	ug/g	16-SEP-20	17-SEP-20	R5226036
Uranium (U)	<1.0		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Vanadium (V)	22.3		1.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Zinc (Zn)	17.9		5.0	ug/g	16-SEP-20	17-SEP-20	R5226036
Speciated Metals							
Chromium, Hexavalent	0.23		0.20	ug/g	15-SEP-20	17-SEP-20	R5226920

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2502579-5 BH20-3 SA2 Sampled By: CLIENT on 11-SEP-20 Matrix: SOIL							
Speciated Metals							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Acenaphthylene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Anthracene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Benzo(a)anthracene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Benzo(a)pyrene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Benzo(b)fluoranthene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Benzo(g,h,i)perylene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Benzo(k)fluoranthene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Chrysene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Dibenzo(ah)anthracene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Fluoranthene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Fluorene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Indeno(1,2,3-cd)pyrene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
1+2-Methylnaphthalenes	<0.042		0.042	ug/g		17-SEP-20	
1-Methylnaphthalene	<0.030		0.030	ug/g	15-SEP-20	17-SEP-20	R5228198
2-Methylnaphthalene	<0.030		0.030	ug/g	15-SEP-20	17-SEP-20	R5228198
Naphthalene	<0.013		0.013	ug/g	15-SEP-20	17-SEP-20	R5228198
Phenanthrene	<0.046		0.046	ug/g	15-SEP-20	17-SEP-20	R5228198
Pyrene	<0.050		0.050	ug/g	15-SEP-20	17-SEP-20	R5228198
Surrogate: 2-Fluorobiphenyl	98.3		50-140	%	15-SEP-20	17-SEP-20	R5228198
Surrogate: p-Terphenyl d14	108.0		50-140	%	15-SEP-20	17-SEP-20	R5228198
L2502579-7 BH20-1 SA9 Sampled By: CLIENT on 14-SEP-20 Matrix: SOIL							
Physical Tests							
% Moisture	27.9		0.25	%	17-SEP-20	18-SEP-20	R5228300
pH	7.79		0.10	pH units		18-SEP-20	R5230036
Metals							
Antimony (Sb)	<1.0		1.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Arsenic (As)	1.8		1.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Barium (Ba)	288		1.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Beryllium (Be)	0.72		0.50	ug/g	21-SEP-20	22-SEP-20	R5232109
Boron (B)	6.6		5.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Cadmium (Cd)	<0.50		0.50	ug/g	21-SEP-20	22-SEP-20	R5232109
Chromium (Cr)	66.1		1.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Cobalt (Co)	16.1		1.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Copper (Cu)	29.5		1.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Lead (Pb)	5.4		1.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Molybdenum (Mo)	<1.0		1.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Nickel (Ni)	36.0		1.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Selenium (Se)	<1.0		1.0	ug/g	21-SEP-20	22-SEP-20	R5232109

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2502579-7 BH20-1 SA9 Sampled By: CLIENT on 14-SEP-20 Matrix: SOIL							
Metals							
Silver (Ag)	<0.20		0.20	ug/g	21-SEP-20	22-SEP-20	R5232109
Thallium (Tl)	<0.50		0.50	ug/g	21-SEP-20	22-SEP-20	R5232109
Uranium (U)	<1.0		1.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Vanadium (V)	84.6		1.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Zinc (Zn)	92.6		5.0	ug/g	21-SEP-20	22-SEP-20	R5232109
Volatile Organic Compounds							
Acetone	<0.50		0.50	ug/g	17-SEP-20	19-SEP-20	R5230790
Benzene	<0.0068		0.0068	ug/g	17-SEP-20	19-SEP-20	R5230790
Bromodichloromethane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Bromoform	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Bromomethane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Carbon tetrachloride	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Chlorobenzene	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Dibromochloromethane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Chloroform	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
1,2-Dibromoethane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
1,2-Dichlorobenzene	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
1,3-Dichlorobenzene	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
1,4-Dichlorobenzene	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Dichlorodifluoromethane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
1,1-Dichloroethane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
1,2-Dichloroethane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
1,1-Dichloroethylene	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
cis-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
trans-1,2-Dichloroethylene	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Methylene Chloride	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
1,2-Dichloropropane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
cis-1,3-Dichloropropene	<0.030		0.030	ug/g	17-SEP-20	19-SEP-20	R5230790
trans-1,3-Dichloropropene	<0.030		0.030	ug/g	17-SEP-20	19-SEP-20	R5230790
1,3-Dichloropropene (cis & trans)	<0.042		0.042	ug/g		19-SEP-20	
Ethylbenzene	<0.018		0.018	ug/g	17-SEP-20	19-SEP-20	R5230790
n-Hexane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Methyl Ethyl Ketone	<0.50		0.50	ug/g	17-SEP-20	19-SEP-20	R5230790
Methyl Isobutyl Ketone	<0.50		0.50	ug/g	17-SEP-20	19-SEP-20	R5230790
MTBE	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Styrene	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
1,1,1,2-Tetrachloroethane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
1,1,2,2-Tetrachloroethane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Tetrachloroethylene	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Toluene	<0.080		0.080	ug/g	17-SEP-20	19-SEP-20	R5230790
1,1,1-Trichloroethane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2502579-7 BH20-1 SA9 Sampled By: CLIENT on 14-SEP-20 Matrix: SOIL							
Volatile Organic Compounds							
1,1,2-Trichloroethane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Trichloroethylene	<0.010		0.010	ug/g	17-SEP-20	19-SEP-20	R5230790
Trichlorofluoromethane	<0.050		0.050	ug/g	17-SEP-20	19-SEP-20	R5230790
Vinyl chloride	<0.020		0.020	ug/g	17-SEP-20	19-SEP-20	R5230790
o-Xylene	<0.020		0.020	ug/g	17-SEP-20	19-SEP-20	R5230790
m+p-Xylenes	<0.030		0.030	ug/g	17-SEP-20	19-SEP-20	R5230790
Xylenes (Total)	<0.050		0.050	ug/g		19-SEP-20	
Surrogate: 4-Bromofluorobenzene	77.6		50-140	%	17-SEP-20	19-SEP-20	R5230790
Surrogate: 1,4-Difluorobenzene	96.2		50-140	%	17-SEP-20	19-SEP-20	R5230790
Hydrocarbons							
F1 (C6-C10)	<5.0		5.0	ug/g	17-SEP-20	19-SEP-20	R5230790
F1-BTEX	<5.0		5.0	ug/g		21-SEP-20	
F2 (C10-C16)	<10		10	ug/g	17-SEP-20	21-SEP-20	R5231458
F3 (C16-C34)	<50		50	ug/g	17-SEP-20	21-SEP-20	R5231458
F4 (C34-C50)	<50		50	ug/g	17-SEP-20	21-SEP-20	R5231458
Total Hydrocarbons (C6-C50)	<72		72	ug/g		21-SEP-20	
Chrom. to baseline at nC50	YES				17-SEP-20	21-SEP-20	R5231458
Surrogate: 2-Bromobenzotrifluoride	76.3		60-140	%	17-SEP-20	21-SEP-20	R5231458
Surrogate: 3,4-Dichlorotoluene	82.7		60-140	%	17-SEP-20	19-SEP-20	R5230790

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Laboratory Control Sample	Carbon tetrachloride	MES	L2502579-7

Sample Parameter Qualifier key listed:

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
SAR:M	Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.

Reference Information

2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT Soil F1-O.Reg 153/04 (July 2011) E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT Soil F2-F4-O.Reg 153/04 (July 2011) CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

HG-200.2-CVAA-WT Soil Mercury in Soil by CVAAS EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

MET-200.2-CCMS-WT Soil Metals in Soil by CRC ICPMS EPA 200.2/6020B (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT Soil ABN-Calculated Parameters SW846 8270

MOISTURE-WT Soil % Moisture CCME PHC in Soil - Tier 1 (mod)

PAH-511-WT Soil PAH-O.Reg 153/04 (July 2011) SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT Soil pH MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental

Reference Information

Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)

Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

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

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid weight of sample
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L2502579 Report Date: 24-SEP-20

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
Ottawa ON K2K 2A9
Contact: Nicole Soucy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R5226666								
WG3406175-4 DUP		**L2502579-5**						
Boron (B), Hot Water Ext.		<0.10	<0.10	RPD-NA	ug/g	N/A	30	17-SEP-20
WG3406175-2 IRM		**WT SAR4**						
Boron (B), Hot Water Ext.			102.7		%		70-130	17-SEP-20
WG3406175-3 LCS								
Boron (B), Hot Water Ext.			103.0		%		70-130	17-SEP-20
WG3406175-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	17-SEP-20
CN-WAD-R511-WT	**Soil**							
Batch R5226601								
WG3405256-3 DUP		**L2502579-3**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	17-SEP-20
WG3405256-2 LCS								
Cyanide, Weak Acid Diss			95.7		%		80-120	17-SEP-20
WG3405256-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	17-SEP-20
WG3405256-4 MS		**L2502579-3**						
Cyanide, Weak Acid Diss			100.9		%		70-130	17-SEP-20
CR-CR6-IC-WT	**Soil**							
Batch R5226920								
WG3404912-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			102.4		%		70-130	17-SEP-20
WG3404912-3 DUP		**L2502672-25**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	17-SEP-20
WG3404912-2 LCS								
Chromium, Hexavalent			99.8		%		80-120	17-SEP-20
WG3404912-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	17-SEP-20
EC-WT	**Soil**							
Batch R5226217								
WG3406177-4 DUP		**WG3406177-3**						
Conductivity		0.138	0.140		mS/cm	1.2	20	17-SEP-20
WG3406177-2 IRM		**WT SAR4**						
Conductivity			104.0		%		70-130	17-SEP-20
WG3406436-1 LCS								
Conductivity			98.9		%		90-110	17-SEP-20
WG3406177-1 MB								

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
Ottawa ON K2K 2A9
Contact: Nicole Soucy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R5226217								
WG3406177-1 MB								
Conductivity			<0.0040		mS/cm		0.004	17-SEP-20
F1-HS-511-WT	**Soil**							
Batch R5230790								
WG3406973-4 DUP		**WG3406973-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	19-SEP-20
WG3406973-2 LCS								
F1 (C6-C10)			105.3		%		80-120	19-SEP-20
WG3406973-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	19-SEP-20
Surrogate: 3,4-Dichlorotoluene			93.3		%		60-140	19-SEP-20
WG3406973-6 MS		**L2504505-8**						
F1 (C6-C10)			88.0		%		60-140	19-SEP-20
Batch R5231261								
WG3404414-4 DUP		**WG3404414-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	21-SEP-20
WG3404414-2 LCS								
F1 (C6-C10)			97.8		%		80-120	21-SEP-20
WG3404414-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	21-SEP-20
Surrogate: 3,4-Dichlorotoluene			107.8		%		60-140	21-SEP-20
WG3404414-6 MS		**L2502693-2**						
F1 (C6-C10)			101.8		%		60-140	21-SEP-20
F2-F4-511-WT	**Soil**							
Batch R5224853								
WG3404809-3 DUP		**WG3404809-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	16-SEP-20
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	16-SEP-20
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	16-SEP-20
WG3404809-2 LCS								
F2 (C10-C16)			87.8		%		80-120	16-SEP-20
F3 (C16-C34)			92.8		%		80-120	16-SEP-20
F4 (C34-C50)			90.4		%		80-120	16-SEP-20
WG3404809-1 MB								
F2 (C10-C16)			<10		ug/g		10	16-SEP-20
F3 (C16-C34)			<50		ug/g		50	16-SEP-20

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
Ottawa ON K2K 2A9
Contact: Nicole Soucy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-511-WT	**Soil**							
Batch R5224853								
WG3404809-1 MB								
F4 (C34-C50)			<50		ug/g		50	16-SEP-20
Surrogate: 2-Bromobenzotrifluoride			84.1		%		60-140	16-SEP-20
WG3404809-4 MS		**WG3404809-5**						
F2 (C10-C16)			91.8		%		60-140	16-SEP-20
F3 (C16-C34)			98.6		%		60-140	16-SEP-20
F4 (C34-C50)			102.4		%		60-140	16-SEP-20
Batch R5231458								
WG3406690-3 DUP		**WG3406690-5**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	21-SEP-20
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	21-SEP-20
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	21-SEP-20
WG3406690-2 LCS								
F2 (C10-C16)			103.5		%		80-120	21-SEP-20
F3 (C16-C34)			101.6		%		80-120	21-SEP-20
F4 (C34-C50)			101.2		%		80-120	21-SEP-20
WG3406690-1 MB								
F2 (C10-C16)			<10		ug/g		10	21-SEP-20
F3 (C16-C34)			<50		ug/g		50	21-SEP-20
F4 (C34-C50)			<50		ug/g		50	21-SEP-20
Surrogate: 2-Bromobenzotrifluoride			89.8		%		60-140	21-SEP-20
WG3406690-4 MS		**WG3406690-5**						
F2 (C10-C16)			100.9		%		60-140	21-SEP-20
F3 (C16-C34)			100.4		%		60-140	21-SEP-20
F4 (C34-C50)			99.6		%		60-140	21-SEP-20
HG-200.2-CVAA-WT	**Soil**							
Batch R5226199								
WG3406145-2 CRM		**WT-SS-2**						
Mercury (Hg)			118.6		%		70-130	17-SEP-20
WG3406145-6 DUP		**WG3406145-5**						
Mercury (Hg)		0.0220	0.0215		ug/g	2.2	40	17-SEP-20
WG3406145-3 LCS								
Mercury (Hg)			116.0		%		80-120	17-SEP-20
WG3406145-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	17-SEP-20
MET-200.2-CCMS-WT	**Soil**							

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
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Contact: Nicole Soucy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5226036								
WG3406145-2 CRM		**WT-SS-2**						
Antimony (Sb)			108.4		%		70-130	17-SEP-20
Arsenic (As)			101.1		%		70-130	17-SEP-20
Barium (Ba)			114.0		%		70-130	17-SEP-20
Beryllium (Be)			111.7		%		70-130	17-SEP-20
Boron (B)			10.5		mg/kg		3.5-13.5	17-SEP-20
Cadmium (Cd)			115.9		%		70-130	17-SEP-20
Chromium (Cr)			114.1		%		70-130	17-SEP-20
Cobalt (Co)			104.3		%		70-130	17-SEP-20
Copper (Cu)			120.8		%		70-130	17-SEP-20
Lead (Pb)			110.9		%		70-130	17-SEP-20
Molybdenum (Mo)			103.2		%		70-130	17-SEP-20
Nickel (Ni)			103.6		%		70-130	17-SEP-20
Selenium (Se)			0.15		mg/kg		0-0.34	17-SEP-20
Silver (Ag)			100.3		%		70-130	17-SEP-20
Thallium (Tl)			0.085		mg/kg		0.029-0.129	17-SEP-20
Uranium (U)			104.6		%		70-130	17-SEP-20
Vanadium (V)			109.3		%		70-130	17-SEP-20
Zinc (Zn)			99.7		%		70-130	17-SEP-20
WG3406145-6 DUP		**WG3406145-5**						
Antimony (Sb)		0.10	0.10		ug/g	3.4	30	17-SEP-20
Arsenic (As)		4.63	4.66		ug/g	0.8	30	17-SEP-20
Barium (Ba)		94.6	99.7		ug/g	5.3	40	17-SEP-20
Beryllium (Be)		0.65	0.71		ug/g	8.9	30	17-SEP-20
Boron (B)		9.3	12.4		ug/g	29	30	17-SEP-20
Cadmium (Cd)		0.076	0.078		ug/g	1.7	30	17-SEP-20
Chromium (Cr)		21.0	22.8		ug/g	8.3	30	17-SEP-20
Cobalt (Co)		12.8	12.6		ug/g	1.6	30	17-SEP-20
Copper (Cu)		24.3	23.8		ug/g	2.3	30	17-SEP-20
Lead (Pb)		11.0	10.8		ug/g	1.8	40	17-SEP-20
Molybdenum (Mo)		0.56	0.59		ug/g	5.6	40	17-SEP-20
Nickel (Ni)		33.2	33.2		ug/g	0.2	30	17-SEP-20
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	17-SEP-20
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	17-SEP-20

Quality Control Report

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32 Staecie Dr.
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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5226036								
WG3406145-6 DUP		**WG3406145-5**						
Thallium (Tl)		0.255	0.280		ug/g	9.0	30	17-SEP-20
Uranium (U)		0.717	0.718		ug/g	0.1	30	17-SEP-20
Vanadium (V)		28.3	31.7		ug/g	11	30	17-SEP-20
Zinc (Zn)		52.5	53.4		ug/g	1.8	30	17-SEP-20
WG3406145-4 LCS								
Antimony (Sb)			102.7		%		80-120	17-SEP-20
Arsenic (As)			97.3		%		80-120	17-SEP-20
Barium (Ba)			95.1		%		80-120	17-SEP-20
Beryllium (Be)			91.7		%		80-120	17-SEP-20
Boron (B)			93.2		%		80-120	17-SEP-20
Cadmium (Cd)			98.5		%		80-120	17-SEP-20
Chromium (Cr)			92.9		%		80-120	17-SEP-20
Cobalt (Co)			90.1		%		80-120	17-SEP-20
Copper (Cu)			89.2		%		80-120	17-SEP-20
Lead (Pb)			90.4		%		80-120	17-SEP-20
Molybdenum (Mo)			103.4		%		80-120	17-SEP-20
Nickel (Ni)			89.7		%		80-120	17-SEP-20
Selenium (Se)			95.1		%		80-120	17-SEP-20
Silver (Ag)			99.7		%		80-120	17-SEP-20
Thallium (Tl)			92.6		%		80-120	17-SEP-20
Uranium (U)			88.3		%		80-120	17-SEP-20
Vanadium (V)			94.0		%		80-120	17-SEP-20
Zinc (Zn)			88.5		%		80-120	17-SEP-20
WG3406145-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	17-SEP-20
Arsenic (As)			<0.10		mg/kg		0.1	17-SEP-20
Barium (Ba)			<0.50		mg/kg		0.5	17-SEP-20
Beryllium (Be)			<0.10		mg/kg		0.1	17-SEP-20
Boron (B)			<5.0		mg/kg		5	17-SEP-20
Cadmium (Cd)			<0.020		mg/kg		0.02	17-SEP-20
Chromium (Cr)			<0.50		mg/kg		0.5	17-SEP-20
Cobalt (Co)			<0.10		mg/kg		0.1	17-SEP-20
Copper (Cu)			<0.50		mg/kg		0.5	17-SEP-20
Lead (Pb)			<0.50		mg/kg		0.5	17-SEP-20

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
Ottawa ON K2K 2A9
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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5226036								
WG3406145-1 MB								
Molybdenum (Mo)			<0.10		mg/kg		0.1	17-SEP-20
Nickel (Ni)			<0.50		mg/kg		0.5	17-SEP-20
Selenium (Se)			<0.20		mg/kg		0.2	17-SEP-20
Silver (Ag)			<0.10		mg/kg		0.1	17-SEP-20
Thallium (Tl)			<0.050		mg/kg		0.05	17-SEP-20
Uranium (U)			<0.050		mg/kg		0.05	17-SEP-20
Vanadium (V)			<0.20		mg/kg		0.2	17-SEP-20
Zinc (Zn)			<2.0		mg/kg		2	17-SEP-20
Batch R5228824								
WG3406148-2 CRM		**WT-SS-2**						
Antimony (Sb)			94.4		%		70-130	17-SEP-20
Arsenic (As)			98.2		%		70-130	17-SEP-20
Barium (Ba)			100.8		%		70-130	17-SEP-20
Beryllium (Be)			96.1		%		70-130	17-SEP-20
Boron (B)			8.7		mg/kg		3.5-13.5	17-SEP-20
Cadmium (Cd)			91.3		%		70-130	17-SEP-20
Chromium (Cr)			98.4		%		70-130	17-SEP-20
Cobalt (Co)			95.9		%		70-130	17-SEP-20
Copper (Cu)			98.7		%		70-130	17-SEP-20
Lead (Pb)			104.1		%		70-130	17-SEP-20
Molybdenum (Mo)			110.5		%		70-130	17-SEP-20
Nickel (Ni)			97.8		%		70-130	17-SEP-20
Selenium (Se)			0.14		mg/kg		0-0.34	17-SEP-20
Silver (Ag)			105.2		%		70-130	17-SEP-20
Thallium (Tl)			0.077		mg/kg		0.029-0.129	17-SEP-20
Uranium (U)			102.8		%		70-130	17-SEP-20
Vanadium (V)			98.7		%		70-130	17-SEP-20
Zinc (Zn)			93.4		%		70-130	17-SEP-20
WG3406148-6 DUP		**L2502579-2**						
Antimony (Sb)		<1.0	<1.0	RPD-NA	ug/g	N/A	30	17-SEP-20
Arsenic (As)		2.3	2.1		ug/g	9.2	30	17-SEP-20
Barium (Ba)		323	322		ug/g	0.5	40	17-SEP-20
Beryllium (Be)		0.75	0.70		ug/g	6.5	30	17-SEP-20
Boron (B)		6.0	5.3		ug/g	12	30	17-SEP-20

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
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Ottawa ON K2K 2A9
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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5228824								
WG3406148-6 DUP		**L2502579-2**						
Cadmium (Cd)		<0.50	<0.50	RPD-NA	ug/g	N/A	30	17-SEP-20
Chromium (Cr)		74.0	71.7		ug/g	3.1	30	17-SEP-20
Cobalt (Co)		17.6	17.4		ug/g	1.0	30	17-SEP-20
Copper (Cu)		32.3	31.6		ug/g	2.2	30	17-SEP-20
Lead (Pb)		6.1	5.8		ug/g	4.2	40	17-SEP-20
Molybdenum (Mo)		<1.0	<1.0	RPD-NA	ug/g	N/A	40	17-SEP-20
Nickel (Ni)		40.3	39.5		ug/g	2.1	30	17-SEP-20
Selenium (Se)		<1.0	<1.0	RPD-NA	ug/g	N/A	30	17-SEP-20
Silver (Ag)		<0.20	<0.20	RPD-NA	ug/g	N/A	40	17-SEP-20
Thallium (Tl)		<0.50	<0.50	RPD-NA	ug/g	N/A	30	17-SEP-20
Uranium (U)		<1.0	<1.0	RPD-NA	ug/g	N/A	30	17-SEP-20
Vanadium (V)		89.9	87.3		ug/g	2.9	30	17-SEP-20
Zinc (Zn)		101	99.9		ug/g	0.6	30	17-SEP-20
WG3406148-4 LCS								
Antimony (Sb)			102.1		%		80-120	17-SEP-20
Arsenic (As)			94.7		%		80-120	17-SEP-20
Barium (Ba)			95.9		%		80-120	17-SEP-20
Beryllium (Be)			89.1		%		80-120	17-SEP-20
Boron (B)			86.9		%		80-120	17-SEP-20
Cadmium (Cd)			92.4		%		80-120	17-SEP-20
Chromium (Cr)			93.9		%		80-120	17-SEP-20
Cobalt (Co)			89.9		%		80-120	17-SEP-20
Copper (Cu)			89.6		%		80-120	17-SEP-20
Lead (Pb)			95.9		%		80-120	17-SEP-20
Molybdenum (Mo)			97.9		%		80-120	17-SEP-20
Nickel (Ni)			91.9		%		80-120	17-SEP-20
Selenium (Se)			94.7		%		80-120	17-SEP-20
Silver (Ag)			95.8		%		80-120	17-SEP-20
Thallium (Tl)			98.7		%		80-120	17-SEP-20
Uranium (U)			90.4		%		80-120	17-SEP-20
Vanadium (V)			94.2		%		80-120	17-SEP-20
Zinc (Zn)			91.0		%		80-120	17-SEP-20
WG3406148-1 MB								
							0.1	

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Ottawa ON K2K 2A9
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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5228824								
WG3406148-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	17-SEP-20
Arsenic (As)			<0.10		mg/kg		0.1	17-SEP-20
Barium (Ba)			<0.50		mg/kg		0.5	17-SEP-20
Beryllium (Be)			<0.10		mg/kg		0.1	17-SEP-20
Boron (B)			<5.0		mg/kg		5	17-SEP-20
Cadmium (Cd)			<0.020		mg/kg		0.02	17-SEP-20
Chromium (Cr)			<0.50		mg/kg		0.5	17-SEP-20
Cobalt (Co)			<0.10		mg/kg		0.1	17-SEP-20
Copper (Cu)			<0.50		mg/kg		0.5	17-SEP-20
Lead (Pb)			<0.50		mg/kg		0.5	17-SEP-20
Molybdenum (Mo)			<0.10		mg/kg		0.1	17-SEP-20
Nickel (Ni)			<0.50		mg/kg		0.5	17-SEP-20
Selenium (Se)			<0.20		mg/kg		0.2	17-SEP-20
Silver (Ag)			<0.10		mg/kg		0.1	17-SEP-20
Thallium (Tl)			<0.050		mg/kg		0.05	17-SEP-20
Uranium (U)			<0.050		mg/kg		0.05	17-SEP-20
Vanadium (V)			<0.20		mg/kg		0.2	17-SEP-20
Zinc (Zn)			<2.0		mg/kg		2	17-SEP-20
Batch R5232109								
WG3408873-2 CRM		**WT-SS-2**						
Antimony (Sb)			102.4		%		70-130	22-SEP-20
Arsenic (As)			95.3		%		70-130	22-SEP-20
Barium (Ba)			99.4		%		70-130	22-SEP-20
Beryllium (Be)			107.4		%		70-130	22-SEP-20
Boron (B)			9.0		mg/kg		3.5-13.5	22-SEP-20
Cadmium (Cd)			99.8		%		70-130	22-SEP-20
Chromium (Cr)			100.2		%		70-130	22-SEP-20
Cobalt (Co)			99.4		%		70-130	22-SEP-20
Copper (Cu)			101.4		%		70-130	22-SEP-20
Lead (Pb)			103.9		%		70-130	22-SEP-20
Molybdenum (Mo)			98.7		%		70-130	22-SEP-20
Nickel (Ni)			100.7		%		70-130	22-SEP-20
Selenium (Se)			0.20		mg/kg		0-0.34	22-SEP-20
Silver (Ag)			83.4		%		70-130	22-SEP-20

Quality Control Report

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5232109								
WG3408873-2 CRM		**WT-SS-2**						
Thallium (Tl)			0.073		mg/kg		0.029-0.129	22-SEP-20
Uranium (U)			94.5		%		70-130	22-SEP-20
Vanadium (V)			99.4		%		70-130	22-SEP-20
Zinc (Zn)			95.0		%		70-130	22-SEP-20
WG3408873-6 DUP		**WG3408873-5**						
Antimony (Sb)		42.3	42.4		ug/g	0.2	30	22-SEP-20
Arsenic (As)		9.1	8.4		ug/g	7.0	30	22-SEP-20
Barium (Ba)		209	204		ug/g	2.4	40	22-SEP-20
Beryllium (Be)		<2.0	<2.0	RPD-NA	ug/g	N/A	30	22-SEP-20
Boron (B)		<100	<100	RPD-NA	ug/g	N/A	30	22-SEP-20
Cadmium (Cd)		0.57	0.44		ug/g	26	30	22-SEP-20
Chromium (Cr)		38	37		ug/g	3.1	30	22-SEP-20
Cobalt (Co)		20.8	20.3		ug/g	2.4	30	22-SEP-20
Copper (Cu)		47	46		ug/g	1.6	30	22-SEP-20
Lead (Pb)		3510	3380		ug/g	3.6	40	22-SEP-20
Molybdenum (Mo)		<2.0	<2.0	RPD-NA	ug/g	N/A	40	22-SEP-20
Nickel (Ni)		36	34		ug/g	7.4	30	22-SEP-20
Selenium (Se)		<4.0	<4.0	RPD-NA	ug/g	N/A	30	22-SEP-20
Silver (Ag)		<2.0	<2.0	RPD-NA	ug/g	N/A	40	22-SEP-20
Thallium (Tl)		<1.0	<1.0	RPD-NA	ug/g	N/A	30	22-SEP-20
Uranium (U)		<1.0	<1.0	RPD-NA	ug/g	N/A	30	22-SEP-20
Vanadium (V)		49.8	46.5		ug/g	6.9	30	22-SEP-20
Zinc (Zn)		205	195		ug/g	5.0	30	22-SEP-20
WG3408873-4 LCS								
Antimony (Sb)			102.6		%		80-120	22-SEP-20
Arsenic (As)			103.6		%		80-120	22-SEP-20
Barium (Ba)			103.9		%		80-120	22-SEP-20
Beryllium (Be)			100.1		%		80-120	22-SEP-20
Boron (B)			96.7		%		80-120	22-SEP-20
Cadmium (Cd)			102.7		%		80-120	22-SEP-20
Chromium (Cr)			105.1		%		80-120	22-SEP-20
Cobalt (Co)			102.1		%		80-120	22-SEP-20
Copper (Cu)			101.1		%		80-120	22-SEP-20

Quality Control Report

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Ottawa ON K2K 2A9
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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R5232109								
WG3408873-4 LCS								
Lead (Pb)			101.7		%		80-120	22-SEP-20
Molybdenum (Mo)			100.4		%		80-120	22-SEP-20
Nickel (Ni)			102.3		%		80-120	22-SEP-20
Selenium (Se)			101.7		%		80-120	22-SEP-20
Silver (Ag)			100.1		%		80-120	22-SEP-20
Thallium (Tl)			100.5		%		80-120	22-SEP-20
Uranium (U)			102.9		%		80-120	22-SEP-20
Vanadium (V)			106.3		%		80-120	22-SEP-20
Zinc (Zn)			98.2		%		80-120	22-SEP-20
WG3408873-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	22-SEP-20
Arsenic (As)			<0.10		mg/kg		0.1	22-SEP-20
Barium (Ba)			<0.50		mg/kg		0.5	22-SEP-20
Beryllium (Be)			<0.10		mg/kg		0.1	22-SEP-20
Boron (B)			<5.0		mg/kg		5	22-SEP-20
Cadmium (Cd)			<0.020		mg/kg		0.02	22-SEP-20
Chromium (Cr)			<0.50		mg/kg		0.5	22-SEP-20
Cobalt (Co)			<0.10		mg/kg		0.1	22-SEP-20
Copper (Cu)			<0.50		mg/kg		0.5	22-SEP-20
Lead (Pb)			<0.50		mg/kg		0.5	22-SEP-20
Molybdenum (Mo)			<0.10		mg/kg		0.1	22-SEP-20
Nickel (Ni)			<0.50		mg/kg		0.5	22-SEP-20
Selenium (Se)			<0.20		mg/kg		0.2	22-SEP-20
Silver (Ag)			<0.10		mg/kg		0.1	22-SEP-20
Thallium (Tl)			<0.050		mg/kg		0.05	22-SEP-20
Uranium (U)			<0.050		mg/kg		0.05	22-SEP-20
Vanadium (V)			<0.20		mg/kg		0.2	22-SEP-20
Zinc (Zn)			<2.0		mg/kg		2	22-SEP-20
MOISTURE-WT	**Soil**							
Batch R5224293								
WG3404745-3 DUP		**L2502579-1**						
% Moisture		29.2	28.1		%	3.7	20	16-SEP-20
WG3404745-2 LCS								
% Moisture			99.2		%		90-110	16-SEP-20

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
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Contact: Nicole Soucy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WT	**Soil**							
Batch R5224293								
WG3404745-1 MB								
% Moisture			<0.25		%		0.25	16-SEP-20
Batch R5228300								
WG3406658-3 DUP		**L2500254-41**						
% Moisture		2.87	2.97		%	3.1	20	18-SEP-20
WG3406658-2 LCS								
% Moisture			99.9		%		90-110	18-SEP-20
WG3406658-1 MB								
% Moisture			<0.25		%		0.25	18-SEP-20
PAH-511-WT	**Soil**							
Batch R5228198								
WG3405219-3 DUP		**WG3405219-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	17-SEP-20
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	17-SEP-20
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	17-SEP-20
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	17-SEP-20
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-SEP-20
WG3405219-2 LCS								
1-Methylnaphthalene			94.1		%		50-140	17-SEP-20
2-Methylnaphthalene			89.7		%		50-140	17-SEP-20
Acenaphthene			96.6		%		50-140	17-SEP-20

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Ottawa ON K2K 2A9
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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R5228198								
WG3405219-2 LCS								
Acenaphthylene			95.2		%		50-140	17-SEP-20
Anthracene			94.7		%		50-140	17-SEP-20
Benzo(a)anthracene			99.0		%		50-140	17-SEP-20
Benzo(a)pyrene			92.1		%		50-140	17-SEP-20
Benzo(b)fluoranthene			96.8		%		50-140	17-SEP-20
Benzo(g,h,i)perylene			82.4		%		50-140	17-SEP-20
Benzo(k)fluoranthene			83.6		%		50-140	17-SEP-20
Chrysene			92.1		%		50-140	17-SEP-20
Dibenzo(ah)anthracene			85.0		%		50-140	17-SEP-20
Fluoranthene			89.7		%		50-140	17-SEP-20
Fluorene			92.7		%		50-140	17-SEP-20
Indeno(1,2,3-cd)pyrene			89.7		%		50-140	17-SEP-20
Naphthalene			88.2		%		50-140	17-SEP-20
Phenanthrene			86.4		%		50-140	17-SEP-20
Pyrene			90.3		%		50-140	17-SEP-20
WG3405219-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	17-SEP-20
2-Methylnaphthalene			<0.030		ug/g		0.03	17-SEP-20
Acenaphthene			<0.050		ug/g		0.05	17-SEP-20
Acenaphthylene			<0.050		ug/g		0.05	17-SEP-20
Anthracene			<0.050		ug/g		0.05	17-SEP-20
Benzo(a)anthracene			<0.050		ug/g		0.05	17-SEP-20
Benzo(a)pyrene			<0.050		ug/g		0.05	17-SEP-20
Benzo(b)fluoranthene			<0.050		ug/g		0.05	17-SEP-20
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	17-SEP-20
Benzo(k)fluoranthene			<0.050		ug/g		0.05	17-SEP-20
Chrysene			<0.050		ug/g		0.05	17-SEP-20
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	17-SEP-20
Fluoranthene			<0.050		ug/g		0.05	17-SEP-20
Fluorene			<0.050		ug/g		0.05	17-SEP-20
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	17-SEP-20
Naphthalene			<0.013		ug/g		0.013	17-SEP-20
Phenanthrene			<0.046		ug/g		0.046	17-SEP-20
Pyrene			<0.050		ug/g		0.05	17-SEP-20

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R5228198								
WG3405219-1 MB								
Surrogate: 2-Fluorobiphenyl			103.4		%		50-140	17-SEP-20
Surrogate: p-Terphenyl d14			116.3		%		50-140	17-SEP-20
WG3405219-4 MS		**WG3405219-5**						
1-Methylnaphthalene			90.4		%		50-140	17-SEP-20
2-Methylnaphthalene			85.8		%		50-140	17-SEP-20
Acenaphthene			92.3		%		50-140	17-SEP-20
Acenaphthylene			89.0		%		50-140	17-SEP-20
Anthracene			89.8		%		50-140	17-SEP-20
Benzo(a)anthracene			94.6		%		50-140	17-SEP-20
Benzo(a)pyrene			88.2		%		50-140	17-SEP-20
Benzo(b)fluoranthene			90.3		%		50-140	17-SEP-20
Benzo(g,h,i)perylene			76.6		%		50-140	17-SEP-20
Benzo(k)fluoranthene			82.0		%		50-140	17-SEP-20
Chrysene			88.2		%		50-140	17-SEP-20
Dibenzo(ah)anthracene			78.8		%		50-140	17-SEP-20
Fluoranthene			87.5		%		50-140	17-SEP-20
Fluorene			88.2		%		50-140	17-SEP-20
Indeno(1,2,3-cd)pyrene			82.5		%		50-140	17-SEP-20
Naphthalene			84.5		%		50-140	17-SEP-20
Phenanthrene			82.8		%		50-140	17-SEP-20
Pyrene			87.2		%		50-140	17-SEP-20
PH-WT	**Soil**							
Batch R5224973								
WG3404776-1 DUP		**L2501987-1**						
pH		4.83	4.92	J	pH units	0.09	0.3	16-SEP-20
WG3405558-1 LCS								
pH			7.00		pH units		6.9-7.1	16-SEP-20
Batch R5230036								
WG3406939-1 DUP		**L2504320-1**						
pH		7.55	7.51	J	pH units	0.04	0.3	18-SEP-20
WG3407417-1 LCS								
pH			6.99		pH units		6.9-7.1	18-SEP-20
SAR-R511-WT	**Soil**							

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R5226672								
WG3406177-4 DUP		**WG3406177-3**						
Calcium (Ca)		5.45	5.42		mg/L	0.6	30	17-SEP-20
Sodium (Na)		12.6	12.8		mg/L	1.6	30	17-SEP-20
Magnesium (Mg)		0.95	0.95		mg/L	0.2	30	17-SEP-20
WG3406177-2 IRM		**WT SAR4**						
Calcium (Ca)			99.3		%		70-130	17-SEP-20
Sodium (Na)			103.8		%		70-130	17-SEP-20
Magnesium (Mg)			103.4		%		70-130	17-SEP-20
WG3406177-5 LCS								
Calcium (Ca)			102.0		%		80-120	17-SEP-20
Sodium (Na)			101.4		%		80-120	17-SEP-20
Magnesium (Mg)			98.6		%		80-120	17-SEP-20
WG3406177-1 MB								
Calcium (Ca)			<0.50		mg/L		0.5	17-SEP-20
Sodium (Na)			<0.50		mg/L		0.5	17-SEP-20
Magnesium (Mg)			<0.50		mg/L		0.5	17-SEP-20
VOC-511-HS-WT	**Soil**							
Batch R5230790								
WG3406973-4 DUP		**WG3406973-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	19-SEP-20
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	19-SEP-20
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5230790								
WG3406973-4 DUP		**WG3406973-3**						
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	19-SEP-20
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	19-SEP-20
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
m+p-Xylenes		0.060	0.059		ug/g	2.6	40	19-SEP-20
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	19-SEP-20
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	19-SEP-20
o-Xylene		0.029	0.029		ug/g	1.8	40	19-SEP-20
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
Toluene		0.121	0.122		ug/g	0.6	40	19-SEP-20
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	19-SEP-20
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	19-SEP-20
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	19-SEP-20
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	19-SEP-20
WG3406973-2 LCS								
1,1,1,2-Tetrachloroethane			108.6		%		60-130	19-SEP-20
1,1,2,2-Tetrachloroethane			96.2		%		60-130	19-SEP-20
1,1,1-Trichloroethane			118.1		%		60-130	19-SEP-20
1,1,2-Trichloroethane			97.3		%		60-130	19-SEP-20
1,1-Dichloroethane			116.7		%		60-130	19-SEP-20
1,1-Dichloroethylene			110.7		%		60-130	19-SEP-20
1,2-Dibromoethane			95.8		%		70-130	19-SEP-20
1,2-Dichlorobenzene			108.0		%		70-130	19-SEP-20

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5230790								
WG3406973-2 LCS								
1,2-Dichloroethane			106.6		%		60-130	19-SEP-20
1,2-Dichloropropane			102.5		%		70-130	19-SEP-20
1,3-Dichlorobenzene			111.6		%		70-130	19-SEP-20
1,4-Dichlorobenzene			115.1		%		70-130	19-SEP-20
Acetone			105.8		%		60-140	19-SEP-20
Benzene			106.9		%		70-130	19-SEP-20
Bromodichloromethane			116.3		%		50-140	19-SEP-20
Bromoform			106.8		%		70-130	19-SEP-20
Bromomethane			106.7		%		50-140	19-SEP-20
Carbon tetrachloride			130.7	MES	%		70-130	19-SEP-20
Chlorobenzene			106.0		%		70-130	19-SEP-20
Chloroform			118.5		%		70-130	19-SEP-20
cis-1,2-Dichloroethylene			110.6		%		70-130	19-SEP-20
cis-1,3-Dichloropropene			106.5		%		70-130	19-SEP-20
Dibromochloromethane			103.0		%		60-130	19-SEP-20
Dichlorodifluoromethane			63.0		%		50-140	19-SEP-20
Ethylbenzene			99.5		%		70-130	19-SEP-20
n-Hexane			102.8		%		70-130	19-SEP-20
Methylene Chloride			118.6		%		70-130	19-SEP-20
MTBE			101.0		%		70-130	19-SEP-20
m+p-Xylenes			106.4		%		70-130	19-SEP-20
Methyl Ethyl Ketone			90.6		%		60-140	19-SEP-20
Methyl Isobutyl Ketone			79.3		%		60-140	19-SEP-20
o-Xylene			107.2		%		70-130	19-SEP-20
Styrene			97.4		%		70-130	19-SEP-20
Tetrachloroethylene			118.1		%		60-130	19-SEP-20
Toluene			95.1		%		70-130	19-SEP-20
trans-1,2-Dichloroethylene			116.1		%		60-130	19-SEP-20
trans-1,3-Dichloropropene			100.3		%		70-130	19-SEP-20
Trichloroethylene			121.2		%		60-130	19-SEP-20
Trichlorofluoromethane			109.4		%		50-140	19-SEP-20
Vinyl chloride			93.9		%		60-140	19-SEP-20
WG3406973-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	19-SEP-20

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5230790								
WG3406973-1 MB								
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	19-SEP-20
1,1,1-Trichloroethane			<0.050		ug/g		0.05	19-SEP-20
1,1,2-Trichloroethane			<0.050		ug/g		0.05	19-SEP-20
1,1-Dichloroethane			<0.050		ug/g		0.05	19-SEP-20
1,1-Dichloroethylene			<0.050		ug/g		0.05	19-SEP-20
1,2-Dibromoethane			<0.050		ug/g		0.05	19-SEP-20
1,2-Dichlorobenzene			<0.050		ug/g		0.05	19-SEP-20
1,2-Dichloroethane			<0.050		ug/g		0.05	19-SEP-20
1,2-Dichloropropane			<0.050		ug/g		0.05	19-SEP-20
1,3-Dichlorobenzene			<0.050		ug/g		0.05	19-SEP-20
1,4-Dichlorobenzene			<0.050		ug/g		0.05	19-SEP-20
Acetone			<0.50		ug/g		0.5	19-SEP-20
Benzene			<0.0068		ug/g		0.0068	19-SEP-20
Bromodichloromethane			<0.050		ug/g		0.05	19-SEP-20
Bromoform			<0.050		ug/g		0.05	19-SEP-20
Bromomethane			<0.050		ug/g		0.05	19-SEP-20
Carbon tetrachloride			<0.050		ug/g		0.05	19-SEP-20
Chlorobenzene			<0.050		ug/g		0.05	19-SEP-20
Chloroform			<0.050		ug/g		0.05	19-SEP-20
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	19-SEP-20
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	19-SEP-20
Dibromochloromethane			<0.050		ug/g		0.05	19-SEP-20
Dichlorodifluoromethane			<0.050		ug/g		0.05	19-SEP-20
Ethylbenzene			<0.018		ug/g		0.018	19-SEP-20
n-Hexane			<0.050		ug/g		0.05	19-SEP-20
Methylene Chloride			<0.050		ug/g		0.05	19-SEP-20
MTBE			<0.050		ug/g		0.05	19-SEP-20
m+p-Xylenes			<0.030		ug/g		0.03	19-SEP-20
Methyl Ethyl Ketone			<0.50		ug/g		0.5	19-SEP-20
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	19-SEP-20
o-Xylene			<0.020		ug/g		0.02	19-SEP-20
Styrene			<0.050		ug/g		0.05	19-SEP-20
Tetrachloroethylene			<0.050		ug/g		0.05	19-SEP-20

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
Ottawa ON K2K 2A9
Contact: Nicole Soucy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5230790								
WG3406973-1 MB								
Toluene			<0.080		ug/g		0.08	19-SEP-20
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	19-SEP-20
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	19-SEP-20
Trichloroethylene			<0.010		ug/g		0.01	19-SEP-20
Trichlorofluoromethane			<0.050		ug/g		0.05	19-SEP-20
Vinyl chloride			<0.020		ug/g		0.02	19-SEP-20
Surrogate: 1,4-Difluorobenzene			108.5		%		50-140	19-SEP-20
Surrogate: 4-Bromofluorobenzene			86.3		%		50-140	19-SEP-20
WG3406973-5 MS		**WG3406973-3**						
1,1,1,2-Tetrachloroethane			99.1		%		50-140	19-SEP-20
1,1,2,2-Tetrachloroethane			86.8		%		50-140	19-SEP-20
1,1,1-Trichloroethane			108.7		%		50-140	19-SEP-20
1,1,2-Trichloroethane			87.2		%		50-140	19-SEP-20
1,1-Dichloroethane			108.9		%		50-140	19-SEP-20
1,1-Dichloroethylene			104.7		%		50-140	19-SEP-20
1,2-Dibromoethane			87.1		%		50-140	19-SEP-20
1,2-Dichlorobenzene			98.1		%		50-140	19-SEP-20
1,2-Dichloroethane			92.2		%		50-140	19-SEP-20
1,2-Dichloropropane			92.0		%		50-140	19-SEP-20
1,3-Dichlorobenzene			101.0		%		50-140	19-SEP-20
1,4-Dichlorobenzene			104.0		%		50-140	19-SEP-20
Acetone			93.8		%		50-140	19-SEP-20
Benzene			96.9		%		50-140	19-SEP-20
Bromodichloromethane			102.7		%		50-140	19-SEP-20
Bromoform			94.2		%		50-140	19-SEP-20
Bromomethane			101.3		%		50-140	19-SEP-20
Carbon tetrachloride			120.0		%		50-140	19-SEP-20
Chlorobenzene			97.2		%		50-140	19-SEP-20
Chloroform			106.4		%		50-140	19-SEP-20
cis-1,2-Dichloroethylene			99.7		%		50-140	19-SEP-20
cis-1,3-Dichloropropene			95.3		%		50-140	19-SEP-20
Dibromochloromethane			91.6		%		50-140	19-SEP-20
Dichlorodifluoromethane			69.2		%		50-140	19-SEP-20
Ethylbenzene			98.1		%		50-140	19-SEP-20

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
Ottawa ON K2K 2A9
Contact: Nicole Soucy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5230790								
WG3406973-5 MS		**WG3406973-3**						
n-Hexane			99.0		%		50-140	19-SEP-20
Methylene Chloride			105.2		%		50-140	19-SEP-20
MTBE			92.2		%		50-140	19-SEP-20
m+p-Xylenes			103.3		%		50-140	19-SEP-20
Methyl Ethyl Ketone			70.9		%		50-140	19-SEP-20
Methyl Isobutyl Ketone			68.3		%		50-140	19-SEP-20
o-Xylene			104.2		%		50-140	19-SEP-20
Styrene			88.3		%		50-140	19-SEP-20
Tetrachloroethylene			110.6		%		50-140	19-SEP-20
Toluene			104.5		%		50-140	19-SEP-20
trans-1,2-Dichloroethylene			106.8		%		50-140	19-SEP-20
trans-1,3-Dichloropropene			92.8		%		50-140	19-SEP-20
Trichloroethylene			110.5		%		50-140	19-SEP-20
Trichlorofluoromethane			106.4		%		50-140	19-SEP-20
Vinyl chloride			92.4		%		50-140	19-SEP-20
Batch R5231261								
WG3404414-4 DUP		**WG3404414-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-SEP-20
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	21-SEP-20
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
Ottawa ON K2K 2A9
Contact: Nicole Soucy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5231261								
WG3404414-4 DUP		**WG3404414-3**						
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-SEP-20
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	21-SEP-20
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-SEP-20
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-SEP-20
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	21-SEP-20
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	21-SEP-20
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	21-SEP-20
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	21-SEP-20
Trichloroethylene		0.022	0.023		ug/g	2.6	40	21-SEP-20
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	21-SEP-20
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	21-SEP-20
WG3404414-2 LCS								
1,1,1,2-Tetrachloroethane			102.7		%		60-130	21-SEP-20
1,1,2,2-Tetrachloroethane			91.7		%		60-130	21-SEP-20
1,1,1-Trichloroethane			104.8		%		60-130	21-SEP-20
1,1,2-Trichloroethane			105.9		%		60-130	21-SEP-20
1,1-Dichloroethane			103.9		%		60-130	21-SEP-20
1,1-Dichloroethylene			97.7		%		60-130	21-SEP-20
1,2-Dibromoethane			106.6		%		70-130	21-SEP-20
1,2-Dichlorobenzene			109.2		%		70-130	21-SEP-20

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
Ottawa ON K2K 2A9
Contact: Nicole Soucy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5231261								
WG3404414-2 LCS								
1,2-Dichloroethane			109.2		%		60-130	21-SEP-20
1,2-Dichloropropane			107.6		%		70-130	21-SEP-20
1,3-Dichlorobenzene			112.7		%		70-130	21-SEP-20
1,4-Dichlorobenzene			114.5		%		70-130	21-SEP-20
Acetone			121.7		%		60-140	21-SEP-20
Benzene			104.3		%		70-130	21-SEP-20
Bromodichloromethane			114.2		%		50-140	21-SEP-20
Bromoform			108.3		%		70-130	21-SEP-20
Bromomethane			95.4		%		50-140	21-SEP-20
Carbon tetrachloride			103.4		%		70-130	21-SEP-20
Chlorobenzene			107.9		%		70-130	21-SEP-20
Chloroform			109.8		%		70-130	21-SEP-20
cis-1,2-Dichloroethylene			113.2		%		70-130	21-SEP-20
cis-1,3-Dichloropropene			103.9		%		70-130	21-SEP-20
Dibromochloromethane			102.3		%		60-130	21-SEP-20
Dichlorodifluoromethane			57.1		%		50-140	21-SEP-20
Ethylbenzene			101.9		%		70-130	21-SEP-20
n-Hexane			90.4		%		70-130	21-SEP-20
Methylene Chloride			108.4		%		70-130	21-SEP-20
MTBE			104.9		%		70-130	21-SEP-20
m+p-Xylenes			104.9		%		70-130	21-SEP-20
Methyl Ethyl Ketone			110.5		%		60-140	21-SEP-20
Methyl Isobutyl Ketone			96.7		%		60-140	21-SEP-20
o-Xylene			111.1		%		70-130	21-SEP-20
Styrene			103.9		%		70-130	21-SEP-20
Tetrachloroethylene			103.0		%		60-130	21-SEP-20
Toluene			102.6		%		70-130	21-SEP-20
trans-1,2-Dichloroethylene			105.3		%		60-130	21-SEP-20
trans-1,3-Dichloropropene			105.6		%		70-130	21-SEP-20
Trichloroethylene			107.3		%		60-130	21-SEP-20
Trichlorofluoromethane			92.2		%		50-140	21-SEP-20
Vinyl chloride			90.1		%		60-140	21-SEP-20
WG3404414-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	21-SEP-20

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
Ottawa ON K2K 2A9
Contact: Nicole Soucy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5231261								
WG3404414-1 MB								
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	21-SEP-20
1,1,1-Trichloroethane			<0.050		ug/g		0.05	21-SEP-20
1,1,2-Trichloroethane			<0.050		ug/g		0.05	21-SEP-20
1,1-Dichloroethane			<0.050		ug/g		0.05	21-SEP-20
1,1-Dichloroethylene			<0.050		ug/g		0.05	21-SEP-20
1,2-Dibromoethane			<0.050		ug/g		0.05	21-SEP-20
1,2-Dichlorobenzene			<0.050		ug/g		0.05	21-SEP-20
1,2-Dichloroethane			<0.050		ug/g		0.05	21-SEP-20
1,2-Dichloropropane			<0.050		ug/g		0.05	21-SEP-20
1,3-Dichlorobenzene			<0.050		ug/g		0.05	21-SEP-20
1,4-Dichlorobenzene			<0.050		ug/g		0.05	21-SEP-20
Acetone			<0.50		ug/g		0.5	21-SEP-20
Benzene			<0.0068		ug/g		0.0068	21-SEP-20
Bromodichloromethane			<0.050		ug/g		0.05	21-SEP-20
Bromoform			<0.050		ug/g		0.05	21-SEP-20
Bromomethane			<0.050		ug/g		0.05	21-SEP-20
Carbon tetrachloride			<0.050		ug/g		0.05	21-SEP-20
Chlorobenzene			<0.050		ug/g		0.05	21-SEP-20
Chloroform			<0.050		ug/g		0.05	21-SEP-20
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	21-SEP-20
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	21-SEP-20
Dibromochloromethane			<0.050		ug/g		0.05	21-SEP-20
Dichlorodifluoromethane			<0.050		ug/g		0.05	21-SEP-20
Ethylbenzene			<0.018		ug/g		0.018	21-SEP-20
n-Hexane			<0.050		ug/g		0.05	21-SEP-20
Methylene Chloride			<0.050		ug/g		0.05	21-SEP-20
MTBE			<0.050		ug/g		0.05	21-SEP-20
m+p-Xylenes			<0.030		ug/g		0.03	21-SEP-20
Methyl Ethyl Ketone			<0.50		ug/g		0.5	21-SEP-20
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	21-SEP-20
o-Xylene			<0.020		ug/g		0.02	21-SEP-20
Styrene			<0.050		ug/g		0.05	21-SEP-20
Tetrachloroethylene			<0.050		ug/g		0.05	21-SEP-20

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
Ottawa ON K2K 2A9
Contact: Nicole Soucy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5231261								
WG3404414-1 MB								
Toluene			<0.080		ug/g		0.08	21-SEP-20
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	21-SEP-20
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	21-SEP-20
Trichloroethylene			<0.010		ug/g		0.01	21-SEP-20
Trichlorofluoromethane			<0.050		ug/g		0.05	21-SEP-20
Vinyl chloride			<0.020		ug/g		0.02	21-SEP-20
Surrogate: 1,4-Difluorobenzene			112.1		%		50-140	21-SEP-20
Surrogate: 4-Bromofluorobenzene			93.1		%		50-140	21-SEP-20
WG3404414-5 MS		**WG3404414-3**						
1,1,1,2-Tetrachloroethane			111.4		%		50-140	21-SEP-20
1,1,2,2-Tetrachloroethane			105.3		%		50-140	21-SEP-20
1,1,1-Trichloroethane			115.0		%		50-140	21-SEP-20
1,1,2-Trichloroethane			112.4		%		50-140	21-SEP-20
1,1-Dichloroethane			111.5		%		50-140	21-SEP-20
1,1-Dichloroethylene			106.2		%		50-140	21-SEP-20
1,2-Dibromoethane			111.8		%		50-140	21-SEP-20
1,2-Dichlorobenzene			116.4		%		50-140	21-SEP-20
1,2-Dichloroethane			114.4		%		50-140	21-SEP-20
1,2-Dichloropropane			112.9		%		50-140	21-SEP-20
1,3-Dichlorobenzene			116.3		%		50-140	21-SEP-20
1,4-Dichlorobenzene			118.7		%		50-140	21-SEP-20
Acetone			130.3		%		50-140	21-SEP-20
Benzene			111.2		%		50-140	21-SEP-20
Bromodichloromethane			122.6		%		50-140	21-SEP-20
Bromoform			118.2		%		50-140	21-SEP-20
Bromomethane			101.4		%		50-140	21-SEP-20
Carbon tetrachloride			113.1		%		50-140	21-SEP-20
Chlorobenzene			115.3		%		50-140	21-SEP-20
Chloroform			119.1		%		50-140	21-SEP-20
cis-1,2-Dichloroethylene			121.3		%		50-140	21-SEP-20
cis-1,3-Dichloropropene			105.1		%		50-140	21-SEP-20
Dibromochloromethane			109.2		%		50-140	21-SEP-20
Dichlorodifluoromethane			61.1		%		50-140	21-SEP-20
Ethylbenzene			108.6		%		50-140	21-SEP-20

Quality Control Report

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
Ottawa ON K2K 2A9
Contact: Nicole Soucy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R5231261								
WG3404414-5 MS		**WG3404414-3**						
n-Hexane			98.6		%		50-140	21-SEP-20
Methylene Chloride			113.7		%		50-140	21-SEP-20
MTBE			113.1		%		50-140	21-SEP-20
m+p-Xylenes			111.9		%		50-140	21-SEP-20
Methyl Ethyl Ketone			102.4		%		50-140	21-SEP-20
Methyl Isobutyl Ketone			102.2		%		50-140	21-SEP-20
o-Xylene			118.4		%		50-140	21-SEP-20
Styrene			109.7		%		50-140	21-SEP-20
Tetrachloroethylene			109.5		%		50-140	21-SEP-20
Toluene			109.7		%		50-140	21-SEP-20
trans-1,2-Dichloroethylene			112.4		%		50-140	21-SEP-20
trans-1,3-Dichloropropene			106.9		%		50-140	21-SEP-20
Trichloroethylene			115.0		%		50-140	21-SEP-20
Trichlorofluoromethane			102.0		%		50-140	21-SEP-20
Vinyl chloride			95.1		%		50-140	21-SEP-20

Quality Control Report

Workorder: L2502579 Report Date: 24-SEP-20

Client: GEMTEC Consulting Engineers & Scientists Limited
32 Staecie Dr.
Ottawa ON K2K 2A9
Contact: Nicole Soucy

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

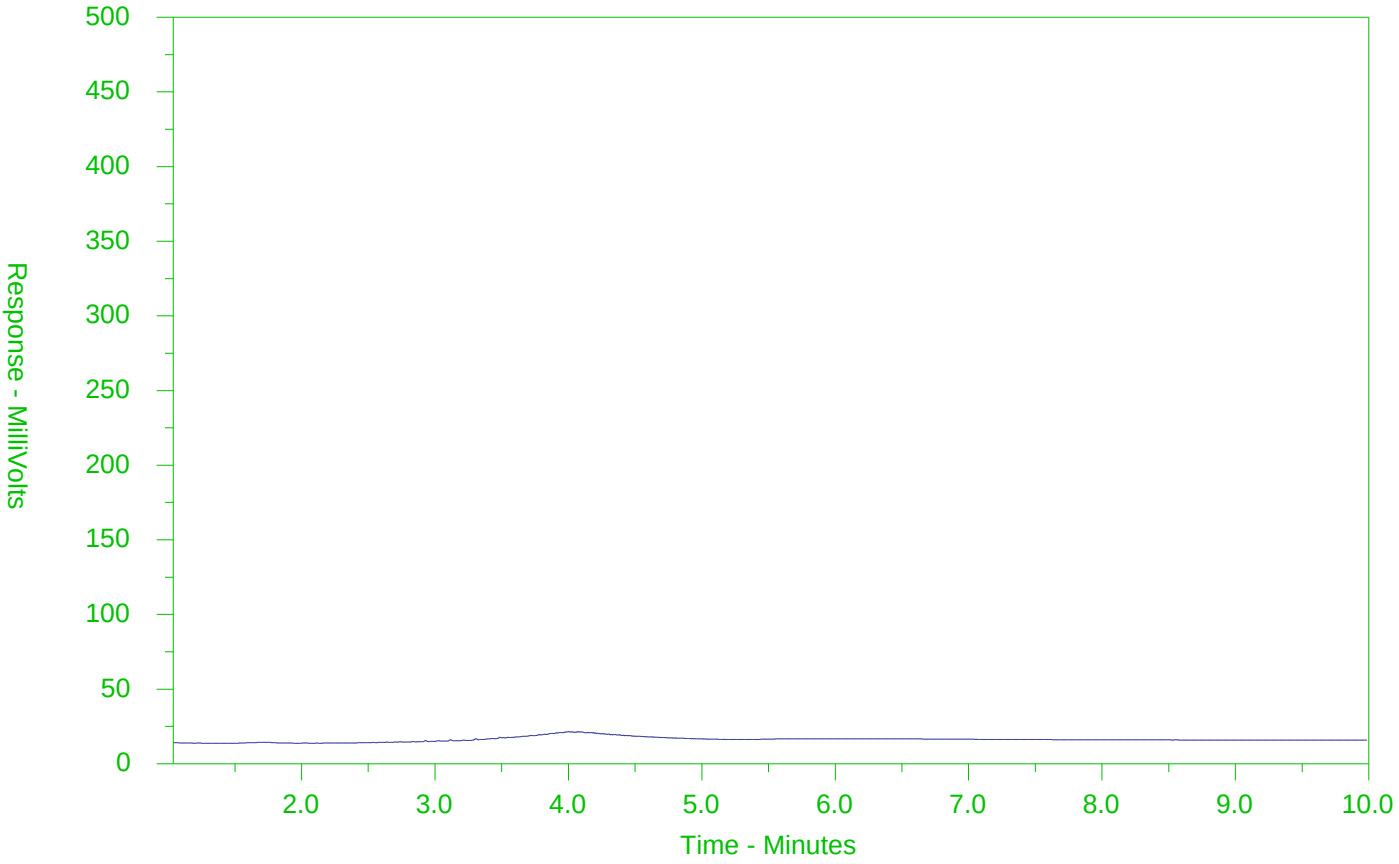
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2502579-1
Client Sample ID: BH20-1 SA7



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

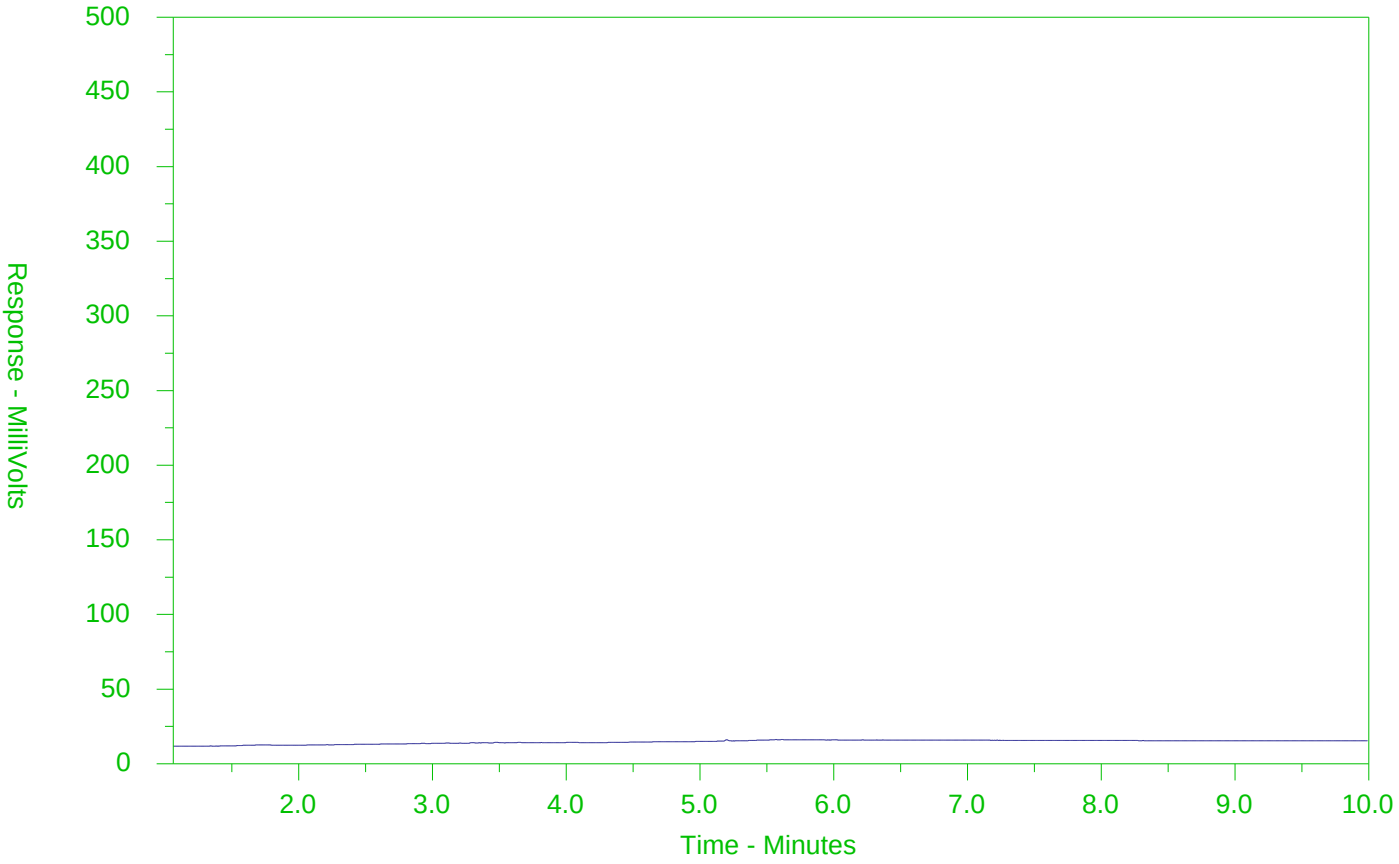
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2502579-2
Client Sample ID: BH20-1 SA107



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

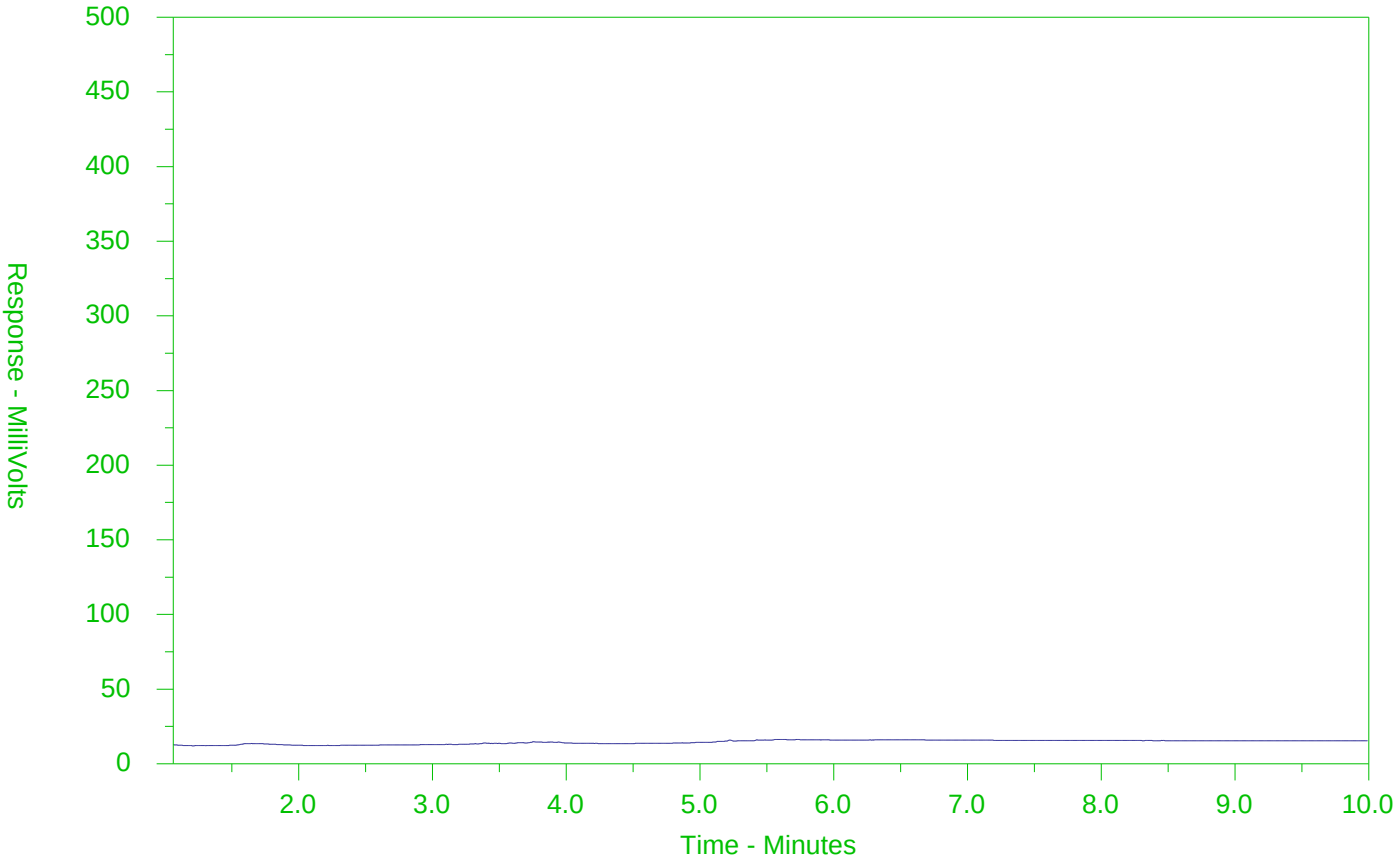
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2502579-4
Client Sample ID: BH20-2 SA3



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

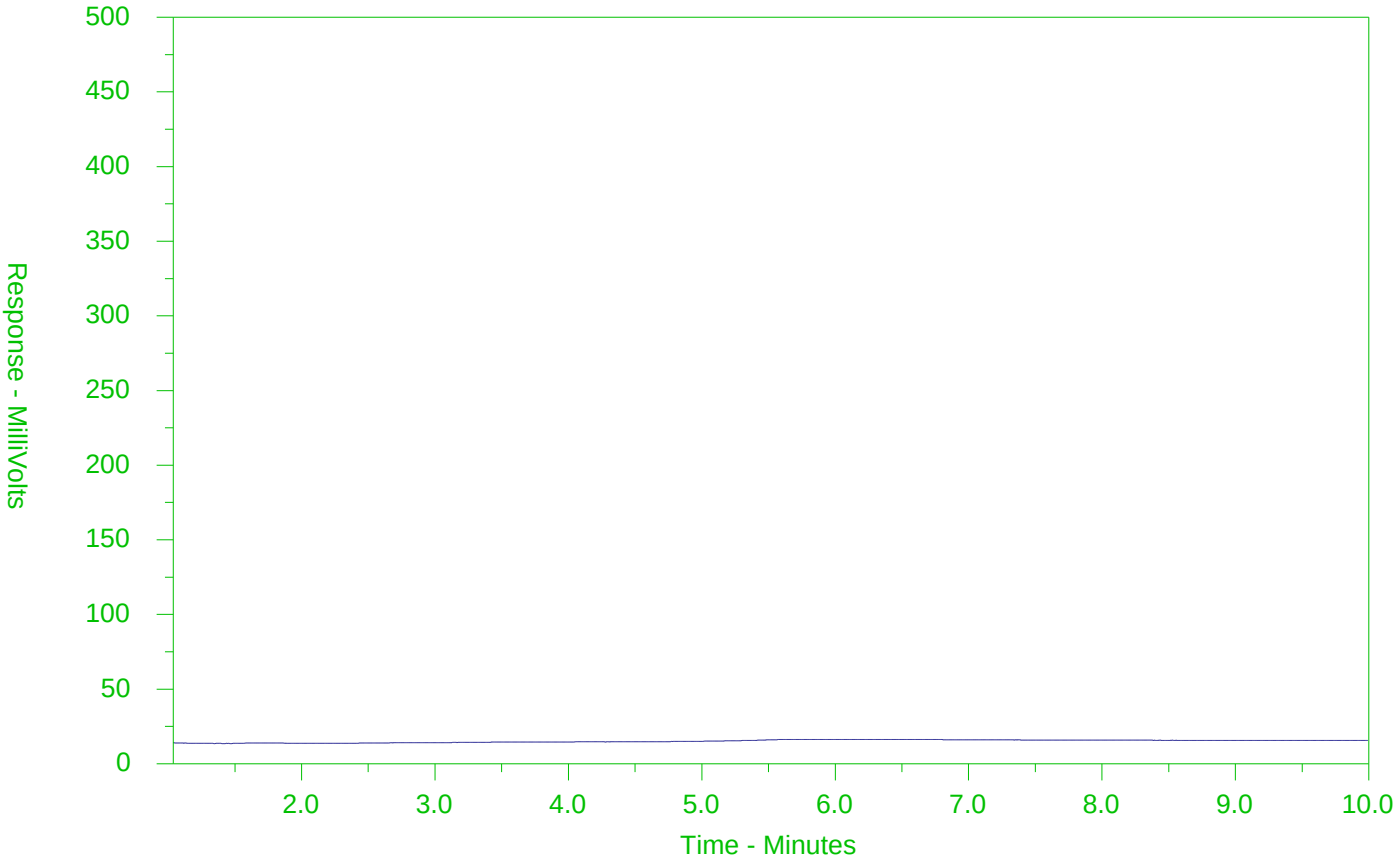
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2502579-6
Client Sample ID: BH20-3 SA4



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

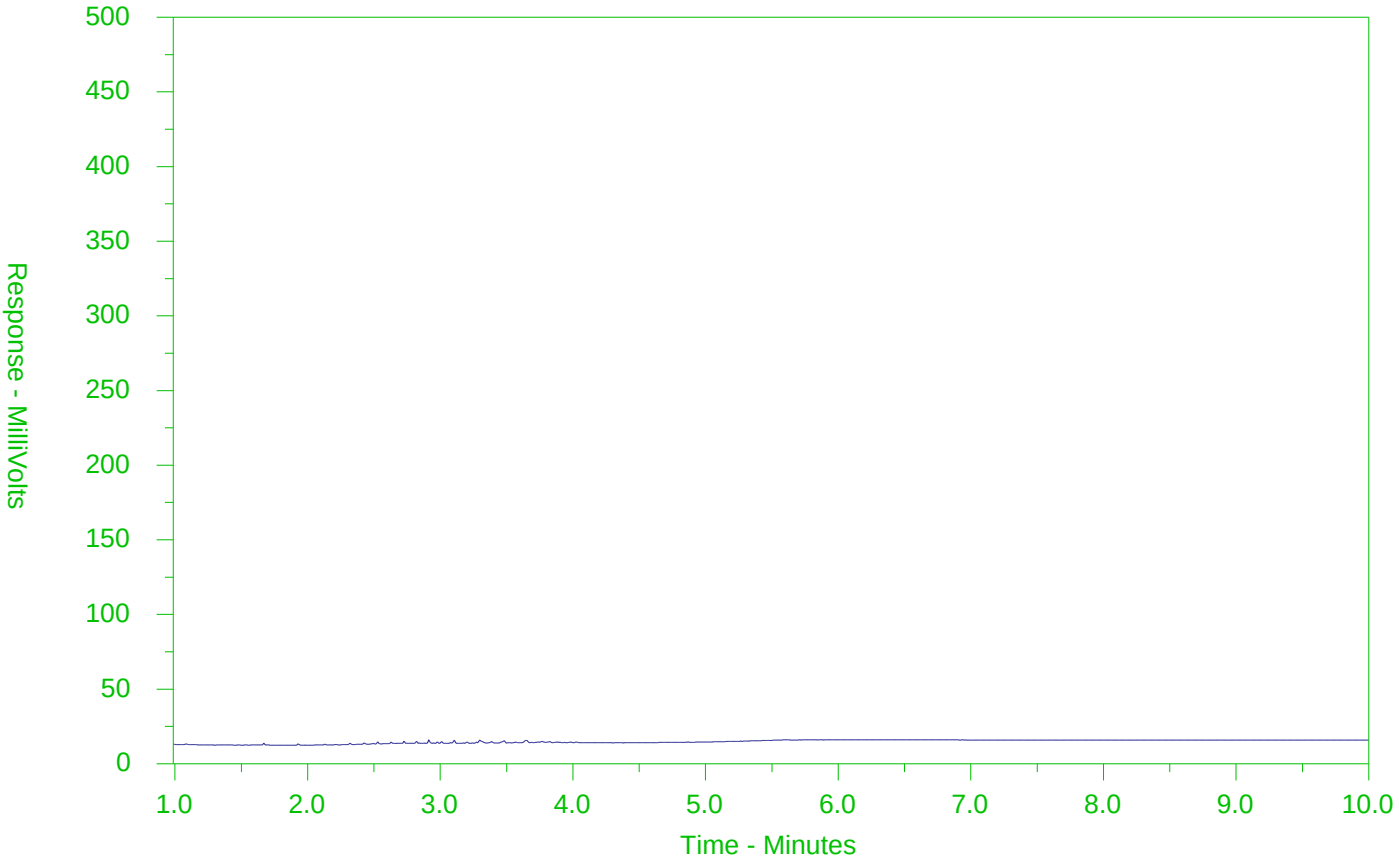
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2502579-7
Client Sample ID: BH20-1 SA9



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

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

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

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

ALS www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2502579-COFC

Report To	Contact and company name below will appear on the final report
Company:	Gemtec Consulting Engineers and Scientists Ltd
Contact:	Nicole Soucy
Phone:	613-223-5885; FAX 613-836-9731
	Company address below will appear on the final report
Street:	32 Steacie Drive
City/Province:	Ottawa, ON
Postal Code:	K2K 2A9
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Report Form	
Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	nicole.soucy@gemtec.ca
Email 2	
Email 3	

Invoice Distribution	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	accountspayable@gemtec.ca
Email 2	

Project Information	
ALS Account # / Quote #:	Q78209 (2020 SOA)
Job #:	~~61774-31~~ 65153.01
PO / AFE:	~~61774-31~~ 65153.01
LSD:	~~Frank Kenny Road~~ Klondike Rd

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only): L2502579 COF.

ALS Contact: Emily Smith

Sampler:

Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	pH-WT	M&I (R511-INORGANICS-P-WT)	Metals (ICP)	BTEX VOC	F1-PHC F1-F4	PAH (PAH-511-WT)	OC Pesticides (PEST-OC-511-P-WT)	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
1	BH 20-1 SA7	11 SEP 2020		Soil		●		X	X	X				
2	BH 20-1 SA107	11 SEP 2020		Soil		●		X	X	X				
3	BH 20-2 SA1	14 SEP 2020		Soil		●	X				X			
~~4~~	~~BH 20-2 SA3~~	~~14 SEP 2020~~		~~Soil~~				X	X	X				
5	BH 20-3 SA2	11 SEP 2020		Soil		X	X				X			
~~6~~	~~BH 20-3 SA4~~	~~11 SEP 2020~~		~~Soil~~				X	X	X				
	BH 20-1 SA9	11 SEP 2020		Soil		X		X	X	X				
		___ SEP 2020		Soil										
		___ SEP 2020		Soil										
		___ SEP 2020		Soil										
		___ SEP 2020		Soil										
		___ SEP 2020		Soil										

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

153/04

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☐

Ice Packs ☐ | Ice Cubes ☒ | Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

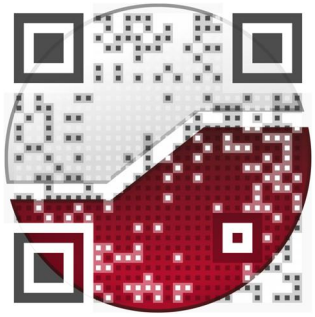
INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
6.1				8.2			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	Sept 14/20		COSTAS FARASSOGLOU	9/14/20	13:45		9/15/20	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

experience • knowledge • integrity



civil	civil
geotechnical	géotechnique
environmental	environnementale
field services	surveillance de chantier
materials testing	service de laboratoire des matériaux

expérience • connaissance • intégrité