GEMTEC
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Phase II
Environmental Site Assessment
3955 Kelly Farm Drive
Ottawa, Ontario

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Submitted to:

CEPEO
2445 St. Laurent Boulevard
Ottawa, Ontario
K1G 6C3

Phase II
Environmental Site Assessment
3955 Kelly Farm Drive
Ottawa, Ontario

March 31, 2021
Project: 100441.001

March 31, 2021 File: 100441.001

CEPEO
2445 St. Laurent Boulevard
Ottawa, Ontario
K1G 6C3

Attention: Mr. Brian Carré– Directeur de la planification et gestion des biens immobiliers

Re: Phase II Environmental Site Assessment
3955 Kelly Farm Drive
Ottawa, Ontario

Enclosed is our Phase II ESA report for the above-noted project. The report presented herein is based on the scope of work summarized in our proposal dated February 10, 2021 with follow up e-mails to confirm additional scope of work for the field program on February 25 and 26, 2021. The Phase II ESA was completed in general accordance with Canadian Standards Association (CSA) Z769-00 (R2018), to investigate areas of potential environmental concern (APECs) identified in the 2021 Phase I 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

NS/SKR

Enclosures
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EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by by Conseil des écoles publiques de l'Est de l'Ontario (CEPEO) to carry out a Phase II Environmental Site Assessment (ESA) for the property located at 3955 Kelly Farm Drive in Ottawa, Ontario. This Phase II ESA was completed in general accordance with the CSA Group standard Z769-00 (R2018). It should be noted that this Phase II ESA is not sufficient to support the submission of a Record of Site Condition (RSC) in accordance with Ontario Regulation (O.Reg.) 153/04, as amended.

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

- **APEC 1 – Importation of Fill Material of Unknown Quality**
- **APEC 2 – Historical Pesticide Use**
- **APEC 3 – Salt Manufacturing, Processing and Bulk Storage**
- **APEC 4 – Gasoline and Associated Products Storage in Fixed Tanks**

A total of eight boreholes (BH21-1 through BH21-8), three of which were completed as monitoring wells (MW21-1, MW21-4, and MW21-6) were advanced on the subject property in order to facilitate soil and groundwater investigation.

Collection and analysis of 14 soil samples, and 5 groundwater samples (including duplicates, and blanks) analyzed for some or all of the following contaminants of potential concern (COPCs): petroleum hydrocarbons four fractions F1-F4 (PHC F1-F4), benzene, toluene, ethylbenzene and xylene (BTEX), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), metals and inorganics, and Organochlorine Pesticides (OCP).

Based on the results of the Phase II ESA, GEMTEC offers the following conclusions:

- Subsurface geology at the subject site was generally described as fill material underlain by native deposits of silty clays which were encountered between 0.1 and 0.9 metres – Seven of the eight boreholes were terminated within the grey silty clay deposits at depths ranging between 1.2 and 4.6 metres below ground surface;
- Based on the groundwater table elevations recorded in March 2021, the local shallow groundwater flow was observed to be trending north/northwest. However, as indicated in the Phase I ESA (GEMTEC, 2021), and the conceptual site model summarized in Section

3.3, surrounding topography at the subject site generally slopes gradually towards the south/southwest. Accordingly, it is anticipated that regional groundwater flow may have a south/southwest flow direction component;

- Assessment of soil analytical results indicated that soil quality in the project limits meet the applicable MECP Table 2 SCS for all parameters analyzed with the exception of electrical conductivity at BH20-8 SA-3; and,
- Assessment of groundwater analytical results indicated that groundwater quality in the project limits meet the applicable MECP Table 2 SCS for all parameters analyzed.

Based on the results of the Phase II ESA, it is anticipated that the soil fill material in the vicinity of BH21-8 has exceedances of electrical conductivity, and therefore may be impacted by salt. Accordingly, prior to development, delineation of impacted fill material in this area, or where deleterious material is identified during construction should be completed to inform excess soil management, re-use and / or disposal recommendations.

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Conseil des Écoles Publiques de l'Est de l'Ontario (CEPEO) to carry out a Phase II Environmental Site Assessment (ESA) for the property located at 3955 Kelly Farm Drive in Ottawa, Ontario (hereafter referred to as the "subject property" or "subject site"). It is understood that this Phase II ESA is required as a due diligence measure to support potential property transaction. The site location and study area are provided on Figure A.1, Appendix A.

The Phase II ESA was completed following the recommendations provided in the GEMTEC, 2021, Phase I ESA submitted to CEPEO, under separate cover. This Phase II ESA was completed in general accordance with the CSA Group standard Z769-00 (R2018). It should be noted that this Phase II ESA is not sufficient to support the submission of a Record of Site Condition (RSC) in accordance with Ontario Regulation (O.Reg.) 153/04, as amended.

1.1 Site Description

The subject property is located at municipal address: 3955 Kelly Farm Drive, Ottawa, Ontario. The site is bordered by Barrett Farm drive on the northwest, by Aconitum Way on the northeast, by Lavatera Street on the southeast and by Kelly Farm Drive on the southwest. The location of the subject property is shown on Figure A.1, Appendix A.

The Parcel Register Abstract for PIN is 04328-4888 (LT); and legal description for the subject site is BLOCK 196, PLAN 4M1640; SUBJECT TO AN EASEMENT IN GROSS AS IN OC2168913; SUBJECT TO AN EASEMENT IN GROSS OVER PART 40 4R32389 AS IN OC2168915; CITY OF OTTAWA.

1.2 Property Ownership

The property is currently owned by FINDLAY CREEK PROPERTIES (NORTH) LTD., TARTAN HOMES (NORTH LEITRIM) INC., and TARTAN LAND (NORTH LEITRIM) INC. The contact person for the subject property is Mr. Brian Carré (CEPEO).

1.3 Current and Proposed Future Uses

The subject site is currently undeveloped, and appears to be being used partially as a laydown area for residential construction currently being completed in the area.

Historically the subject property has been used for agricultural purposes, and was included as part of a larger property designated as The City of Gloucester – Leitrim works site & garage. Barrett Farm Drive is present along the northern boundary of the subject property followed by residential development. Kelly Farm Drive is present along the western boundary of the subject property followed by undeveloped lands. Lavatera Street is present along the southern boundary of the subject property followed by residential development. Residential development followed by

Aconitum Way is present along the eastern boundary of the subject property followed by residential development.

It is understood that the Phase II ESA is required as a due diligence measure to support potential property transaction, prior to the potential future development of the subject property to an institutional use school.

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 (MECP), October 31, 2011), as amended. The selection of applicable SCS for comparison to analytical data was based on a review of various site characteristics which will need to be considered for the current property use and also to provide a preliminary indication of on-site soil and groundwater quality to inform the future planned development.

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

- Land Use: The site is currently an undeveloped property– however future development plans would result in the site land use becoming institutional.
- Soil Texture: Based on visual observations during the field program and in the absence of a grain size analysis completed on samples – as a conservative approach, coarse textured soils have been considered for this site.
- Soil Thickness and Proximity to Water Body: For the purposes of selection of the appropriate provincial standard, Section 43.1 of O. Reg.153/04 identifies specific SCS be applied if any of the following circumstances exist:

  (a) The property is a shallow soil property (i.e., at least 1/3 or more of the property area contains less than 2 metres depth of overburden); or

  (b) The property includes all or part of a water body or is adjacent to a water body or includes land that is within 30 metres of a water body.

  Based on results obtained from the intrusive investigation, the site is not considered a shallow soil property. Furthermore, the property is not within 30 metres of a water body.
- Groundwater Use: Potable water in the area of the Site is supplied by the City of Ottawa, however through review of the Ontario Well Records, domestic and commercial water wells were identified within the study area – accordingly as a conservative approach, groundwater use for the subject property and vicinity is considered potable.
- Environmentally Sensitive Site: Environmental sensitivity is considered in the selection of appropriate provincial standards for comparison. Section 41 of O. Reg.153/04 states that

a property is to be considered environmentally sensitive if any of the following are applicable:

(1) The property is,

(i) Within an area of natural significance;

(ii) Includes or is adjacent to an area of natural significance or part of such an area; or

(iii) Includes land that is within 30 metres of an area of natural significance or part of such an area;

(2) The soil at the property has a pH value as follows:

(i) For surface soil, less than 5 or greater than 9;

(ii) For sub surface soil, less than 5 or greater than 11; or

(3) A qualified person is of the opinion that, given the characteristics of the property and the certifications the qualified person would be required to make in a record of site condition in relation to the property as specified in Schedule A, it is appropriate to apply this section to the property.

The site is not considered to be environmentally sensitive. pH values for soil samples submitted were within the acceptable range and the property is not within, adjacent or include, in part, an area of natural significance.

Based on the review of site characteristics and intended future development of the property to residential, the following provincial standards were considered to be applicable to the soil quality results obtained during the environmental 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.

Based on the review of site characteristics, the following provincial standards were considered to be applicable to the groundwater quality results obtained during the environmental 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, all types of property use.

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), w reviewed to determine topographic features in the vicinity of the subject property and study area. The elevation of the subject property is

approximately 95 metres above sea level and surrounding topography generally slopes gradually downwards towards the south.

Groundwater flow often reflects topographic features and typically flows toward nearby lakes, rivers and wetland areas. Based on the topography of the area, it is expected that the local shallow groundwater flow will trend north and southwesterly, towards large provincially significant wetlands present approximately 1 kilometre north and south of the subject site, and towards the Rideau River located due westerly from the subject site.

Surficial soil and bedrock geology maps of the Ottawa area indicate that the overburden in the vicinity of the subject property generally consists of coarse-textured glaciomarine deposits; sand, gravel, minor silt and clay foreshore and basinal deposits with approximate thickness of between 0 and 5 metres. The bedrock is mapped as dolostone and sandstone of the Beekmantown Group.

2.2 Past Investigations

Two historical environmental reports were available for review. A summary of pertinent information obtained from the historical reports is provided in Sections 2.2.1 – 2.2.2.

2.2.1 2013, Phase I ESA, 2960 Leitrim Road, Ottawa, Ontario

One historical Phase I Environmental Site Assessment (ESA) report was provided to GEMTEC for review. The report was completed in 2013 by Golder Associates and was entitled “Phase I Environmental Site Assessment, 2960 Leitrim Road, Ottawa, Ontario”. This Phase I ESA included the property at 3955 Kelly Farm Drive, in addition to other adjoining parcels. Based on the Phase I ESA completed in 2013, no potentially contaminating activities (PCAs) were identified on the site or within the Phase I ESA Study Area at the time the study was completed – accordingly, no further work was recommended at that time.

2.2.2 2021, Phase I Environmental Site Assessment, 116 County Road 44

A Phase I ESA was completed for the subject property in 2021 by GEMTEC. The report was entitled “*Phase I ESA, 3955 Kelly Farm Drive, Ottawa, Ontario*”, and dated March 10th, 2021.

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

APEC 1 – Importation of Fill Material of Unknown Quality

Through a review of aerial photographs fill of unknown origin was identified. The presence of fill was also identified by information obtained during the interviews. The associated contaminants of potential concern (COPCs) are metals and inorganics (M&I), benzene, toluene, ethylbenzene

(BTEX), petroleum hydrocarbon four fractions (PHC F1-F4), and polycyclic aromatic hydrocarbons (PAHs) in soil. This APEC is present across the subject property.

APEC 2 – Historical Pesticide Use

Through a review of aerial photographs and during the site interview, it was confirmed that the subject property and study area were used for agricultural purposes in the past where pesticides and/or herbicides may have been used. The associated contaminants of potential concern are organochlorine pesticides (OCP) in soil and groundwater. This APEC is present across the subject property.

APEC 3 – Salt Manufacturing, Processing and Bulk Storage

Through a review of the City of Ottawa Historic Land Use inventory, Gloucester – Leitrim works site & garage was identified across what is currently the subject site, and adjacent properties. Documentation shows a total of 2,000 tonnes of salt deliveries on the subject site. The potentially associated contaminants of concern are electrical conductivity (EC), sodium adsorption ratio (SAR), sodium and chloride in soil and groundwater. This APEC is present across the subject property.

APEC 4 – Gasoline and Associated Products Storage in Fixed Tanks

Through a review of the City of Ottawa Historic Land Use inventory, Gloucester – Leitrim works site & garage was identified across what is currently the subject site, and adjacent properties. Heavy equipment storage and repairs including three pumps (gas & diesel) on site in 1981. The potentially associated contaminants of concern are M&I, PHC F1-F4, and volatile organic compounds (VOCs) in soil and groundwater. This APEC is present across 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 GEMTEC's proposal included the following:

- Advancement of five shallow, and three deep boreholes (BHs), three completed as monitoring wells (MWs) on the subject property;
- Collection and analysis of 14 soil samples, and 5 groundwater samples (including duplicates, and blanks) analyzed for some or all of the following contaminants of potential concern (COPCs): petroleum hydrocarbons four fractions F1-F4 (PHC F1-F4), benzene, toluene, ethylbenzene and xylene (BTEX), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), metals and inorganics, and Organochlorine

Pesticides (OCP); **Note**: No fill material was identified at location BH21-1 accordingly no fill sample could be collected, however as a substitute, one additional fill sample was submitted from BH21-8 where two layers of fill material were identified.

- Assessment of soil and groundwater analytical results against applicable provincial quality site condition standards; and,
- Preparation of a Phase II ESA report summarizing the purpose, methodology and results of the investigation (this report).

3.2 Media Investigated

Boreholes and monitoring wells were advanced on site to assess if soil and groundwater conditions at selected test locations satisfied the applicable MECP SCS for the investigated COPCs. COPCs identified in the Phase I ESA (GEMTEC, 2020) for the site included M&I, PAHs, PHC F1-F4, VOCs, BTEX, and OCPs. The sampling program included the collection of up to two representative soil samples per borehole, and one representative groundwater sample per monitoring well for laboratory analysis. Two field duplicate soil samples, one groundwater duplicate, and one groundwater sample trip blank for VOCs were also collected and analyzed for Quality Assurance / Quality Control (QA/QC) purposes.

As no water bodies are present on the subject property, no sediment or surface water sampling was conducted as part of this Phase II ESA.

3.3 Phase I Conceptual Site Model

Based on the historical review and site reconnaissance, GEMTEC (2020) concluded there is potential for adverse impacts to soil and groundwater quality at the subject property. The Phase I ESA CSM is presented under separate cover and is summarized as follows:

- The subject property is currently undeveloped with some fill of unknown origin and construction materials on-site, and has previously been used for primarily agricultural purposes;
- The surrounding properties to the south are fully serviced by the municipality and utility providers – although some wells were identified within the study area;
- Surrounding properties are primarily agricultural with some residential development beginning between 2017 and 2019;
- The MECP Well Records search identified 11 wells within the study area - The average depth to the water table based on the static water levels available from the MECP well records was 2.74 metres below ground surface;
- No provincially significant wetland (PSWs) or Areas of Natural and Scientific Interest (ANSIs) were identified on the subject site, or within the study area;

- The subject property has a relatively flat topography and is at an elevation of approximately 95 metres above sea level. Surrounding topography generally slopes gradually downwards towards a wetland approximately 700 m south of the subject property;
- Surficial soil and bedrock geology maps of the Ottawa area indicate that the overburden in the vicinity of the subject property generally consists of coarse-textured glaciomarine deposits; sand, gravel, minor silt and clay foreshore and basinal deposits with a thickness of between 0 and 5 metres. The bedrock is mapped as dolostone and sandstone of the Beekmantown Group; and,
- Based on the review of records, the interview and the site reconnaissance completed as part of the Phase I ESA, GEMTEC identified six PCAs for the study area. Four of the PCAs were determined to create APECs on the subject property.

3.3.1 PCAs, COPCs and APECs

The Phase I ESA (GEMTEC, 2021) identified several PCAs within the study area; defined in the Phase I ESA as the area located within a 250 metre radius of the site boundaries. A summary of PCAs, and resulting on-site APECs is provided in Table 3.1.

Table 3.1: Summary of PCAs and APEC

Type of PCA	Address / Location	Description	PCA Resulted in APEC / No APEC	Material of Concern	COPCs
PCA #30: Importation of Fill Material of Unknown Quality	On Site, across the subject property	Fill material of unknown origin was identified on the subject site during the aerial photographs, and site interview	Yes	Soil	PAHs M&I PHC F1-F4 BTEX
PCA # 40: Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications.	On Site, across the subject property	Through a review of aerial photographs and during the site interview, there is potential for pesticides having been historically used on the subject property.	Yes	Soil, Groundwater	OCP
Ot. Spill	163 Nepeta Crescent	A pipeline incident was identified summarized as pipeline damage at 163 Nepeta Crescent in 2020	No	-	-

Type of PCA	Address / Location	Description	PCA Resulted in APEC / No APEC	Material of Concern	COPCs
Ot. Spill	Leitrim Road between Bank Street and Kelly Farm Drive	Two spills were identified on Leitrim Road (i) Flooding in 2018 resulted in an overflow of storm water with suspended solids; and (ii) A 170lb leak of Freon occurred in 2011.	No	-	-
48. Salt Manufacturing, Processing and Bulk Storage	On Site, and adjacent properties	The HLUI identified city of Gloucester – Leitrim works site & garage across what is currently the subject site, and adjacent properties with 2,000 tonnes of salt delivery.	Yes	Soil, Groundwater	EC/SAR Chloride Sodium
28. Gasoline and Associated Products Storage in Fixed Tanks	On Site, and adjacent properties	The HLUI identified city of Gloucester – Leitrim works site & garage across what is currently the subject site, and adjacent properties with 3 pumps including gas and diesel.	Yes	Soil, Groundwater	M&I PHC F1-F4 VOCs

Notes: PAHs – Polycyclic Aromatic Hydrocarbons
M&I – Metals and Inorganics
PHCs F1-F4 – Petroleum Hydrocarbon Fractions F1- F4
BTEX – Benzene, Toluene, Ethylbenzene, and Xylene
OCPs – Organochloride Pesticides
EC – Electrical Conductivity
SAR – Sodium Adsorption Ratio
VOCs – Volatile Organic Compounds

3.4 Impediments and Deviations from Sampling and Analysis Plan

No impediments or deviations from the sampling and analysis plan were identified.

4.0 INVESTIGATION METHODOLOGY

4.1 General

Prior to any intrusive investigation at the site, underground private and public utility locates were completed through One Call and USL-1. 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 on March 5th and March 15th, 2021. At that time, a total of eight boreholes (BH21-1 through BH21-8), were advanced on-site. The boreholes were advanced by drill rig owned and operated by Strata Drilling Group (Strata) of Ottawa, Ontario operating under GEMTEC oversight. Boreholes were advanced though the overburden using a sampling sleeve, to an approximate depth of up to 5 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 three borehole locations to determine static groundwater elevations and to permit the collection of groundwater samples for analytical analysis. Monitoring wells were installed by Strata, 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 21-1, MW 21-4, and MW 21-6 following the same numbering convention as the boreholes.

Installation of all monitoring wells was completed using a 38-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 stick-up 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 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 and monitoring well 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 technicians each day according to the manufacturer's instructions.

4.4.2 Soil Sampling

Soil samples were recovered at regular intervals during drilling advancement following the *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario* (MOE, 1996). Soil samples recovered from each interval were split, with a portion transferred immediately into laboratory supplied containers and placed in the laboratory supplied 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 interval to prevent cross contamination.

Borehole locations and soil sampling intervals were identified as BH/XX-YY SS-Z where XX indicates the year the borehole was constructed, YY is the borehole identifier, and Z is the soil sampling interval that the sample was collected from. For example, BH20-2 SS-1 indicates the borehole was constructed in 2020, is borehole location 2, and that the soil sample was taken from the first interval as shown on the borehole log.

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 Monitoring Well and Borehole Logs in Appendix B.

The soil sampling program included the submission of 11 bulk 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. For soil samples collected for the analysis of PHC F1-F4 and BTEX, a core of soil was placed in a pre-weighed laboratory prepared vial containing a measured amount of methanol. A total of 14 soil samples (11 bulk plus three duplicate samples) were collected and stored in laboratory provided coolers with ice / ice packs and shipped to the laboratory for analysis. Samples were submitted to Paracel Laboratories of Ottawa, Ontario, a CALA-certified analytical laboratory, under standard chain-of-custody protocols and in accordance with GEMTEC QA/QC procedures. The soil samples submitted for analyses are summarized in Table 4.1.

Table 4.1: Summary of Soil Sampling Program and COPC Analyses

Location ID	Sample ID	Depth Interval (mbgs)	Soil Description	Analytical Analyses
BH21-1	SA-2	0.76 – 1.52	Brown silty clay with sand	PHC F1-F4/VOCs, M&I, OCP
BH21-2	SA-1	0.00 – 0.91	Brown sandy silt with gravel (Fill Material)	PHC F1-F4/BTEX, PAHs, M&I
BH21-3	SA-1	0.00 – 0.69	Brown sandy silt with gravel (Fill Material)	PHC F1-F4/BTEX, PAHs, M&I
BH21-4	SA-1	0.00 – 0.91	Brown silty sand with gravel (Fill Material)	PHC F1-F4/VOCs, PAHs, M&I, OCP
	SA-101*	0.00 – 0.91	Brown silty sand with gravel (Fill Material)	PHC F1-F4/VOCs, PAHs, M&I
	SA-6	3.81 – 4.57	Grey silty clay	PHC F1-F4/VOCs, M&I, OCP
	SA-106*	3.81 – 4.57	Grey silty clay	OCP
BH21-5	SA-1	0.00 – 0.77	Brown sandy silt with gravel (Fill Material)	PHC F1-F4/BTEX, PAHs, M&I
	SA-101*	0.00 – 0.77	Brown sandy silt with gravel (Fill Material)	PHC F1-F4/BTEX, PAHs, M&I
BH21-6	SA-1	0.00 – 0.76	Brown sandy silt with gravel (Fill Material)	PHC F1-F4/VOCs, PAHs, M&I, OCP
	SA-4	2.43 – 2.73	Grey silty clay	PHC F1-F4/VOCs, M&I, OCP
BH21-7	SA-1	0.00 – 0.91	Brown silty sand with gravel (Fill Material)	PHC F1-F4/BTEX, PAHs, M&I
BH21-8	SA-2	0.45 – 0.85	Grey clay and silt (Fill Material)	PHC F1-F4/BTEX, PAHs, M&I, OCP
	SA-3	0.85 – 1.06	Brown sand and gavel with red brick	PHC F1-F4/VOCs, PAHs, M&I

Notes:

mbgs – Metres below ground surface
PHC F1-F4 – Petroleum Hydrocarbon Fractions F1-F4
BTEX – Benzene, Toluene, Ethylbenzene, Xylene
PAHs – Polycyclic Aromatic Hydrocarbons
M&I – Metals and Inorganics

VOC – Volatile Organic Compounds
OCP – Organochlorine Pesticides
* - Denotes duplicate sample collect for QA/QC purposes

4.4.3 Groundwater Monitoring and Sampling

Prior to groundwater sampling, depth to static groundwater levels were measured using an electronic oil-water interface probe. To prevent cross contamination between wells, the interface probe was decontaminated between locations by scrubbing with an Alconox© solution and rinsing well with distilled water. Due to the dedicated nature of monitoring well instrumentation (i.e., Waterra inertial hand pump and tubing) no decontamination procedures were required during groundwater sampling. All required lengths of tubing for the groundwater sampling were disposed of after usage at each designated well.

Depth to water table readings were recorded and groundwater quality samples were collected from the newly installed wells on March 17th, 2020. Each monitoring well was developed by purging the well dry three times each after installation 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.

A total of four groundwater samples (three bulk samples and one duplicate) were collected and stored in laboratory provided coolers with ice / ice packs and shipped to the laboratory for analysis. One trip blank sample was also transported to the property during the field program and submitted with the collected groundwater samples for analysis. Samples were submitted to Paracel under standard chain-of-custody protocols and in accordance with GEMTEC QA/QC procedures. The groundwater samples submitted are summarized in Table 4.2.

Table 4.2: Summary of Groundwater Sampling Program and COPC Analyses.

Monitoring Well	Screened Interval (mbgs)	Stratigraphic Unit	Analytical Analyses
MW21-1	0.76 – 3.81	Overburden	PAHs, M&I, PHC/VOCs, OCP
MW21-4	1.52 – 4.57	Overburden	PAHs, M&I, PHC/VOCs, OCP
MW21-104*	1.52 – 4.57	Overburden	PAHs, M&I, PHC/VOCs, OCP
MW21-6	0.61 – 3.65	Overburden	PAHs, M&I, PHC/VOCs, OCP
Trip Blank[1]	-	-	PHC/VOC

Notes: mbgs – metres below ground surface
PHC F1-F4 – Petroleum Hydrocarbon Fractions F1-F4
BTEX – Benzene, Toluene, Ethylbenzene, Xylene
VOCs – Volatile Organic Compounds

OCP – Organochlorine Pesticides
*MW21-104 is a duplicate samples of MW21-4

4.5 Laboratory Analytical Program

Soil and groundwater samples were collected directly into laboratory-supplied sampling containers. All samples were stored in dedicated coolers with ice / ice packs and shipped to Paracel Laboratories Ltd. of Ottawa, Ontario within the required holding times.

Paracel is 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.

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 the PVC risers) 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 / Quality Control Program

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 (SOPs) for intrusive investigations, including soil and groundwater sampling best practices;
- 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 and groundwater 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;
- A VOCs trip blank was transported to the project limits during the groundwater sampling event, and analyzed at the laboratory;
- 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 soil conditions identified in the boreholes advanced as part of this investigation are provided on the Record of Monitoring Well and Borehole Logs in Appendix B. The borehole and monitoring well 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 Fill Material

Fill material was encountered from ground surface at all boreholes with the exception of BH21-1. Fill material is variable in nature and can be described at this site as brown silty sand/sandy silt with gravel, some clay and silt. Organic material and red brick was observed within the fill material at some locations. The fill material has a thickness ranging between 0.1 and 0.9 metres. BH21-8 was terminated within the fill material.

5.1.2 Silty Clay

Native deposits of brown to grey silty clay were encountered below the fill materials in all boreholes, and from ground surface at BH21-1, with the exception of BH21-8 at depths ranging from about 0.1 and 0.9 metres below ground surface. Boreholes BH21-1 to BH21-7 were

terminated within the grey/brown silty clay deposits at depths ranging between 1.2 and 4.6 metres below ground surface.

5.2 Groundwater Elevations and Flow Direction

Groundwater depths were measured directly from the top of pipe in each monitoring well location on March 17th, 2021 using an electronic oil-water interface probe. Measured depths to groundwater table, and estimated groundwater elevations are summarized in Table 5.1.

Table 5.1: Groundwater Levels and Estimated Groundwater Elevations

Monitoring Well	Material	Groundwater depth (m pvc) March 17, 2021	Groundwater elevation (m asl) March 17, 2021
MW20-1	Overburden	3.80	92.38
MW20-4	Overburden	3.51	92.56
MW20-6	Overburden	3.56	92.78

Notes: m pvc – metres below PVC stickup
m asl – metres above sea level

Groundwater elevations and inferred groundwater flow contours are provided in Figure A.2, Appendix A. Based on the groundwater table elevations recorded in March 2021, the local shallow groundwater flow was observed to be trending north/northwest.

However, as indicated in the Phase I ESA (GEMTEC, 2021), and the conceptual site model summarized in Section 3.3, surrounding topography at the subject site generally slopes gradually towards the south/southwest. Accordingly, it is anticipated that regional groundwater flow may have a south/southwest flow direction component.

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 10 ppm.

Field screening results are provided within the borehole and monitoring well logs in Appendix B.

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 Sample Analytical Results

Location ID	Sample ID	Depth Interval (mbgs)	Analytical Analyses	MECP Table 2 SCS RPI Exceedances
BH21-1	SA-2	0.76 – 1.52	PHC F1-F4/VOCs, M&I, OCP	None
BH21-2	SA-1	0.00 – 0.91	PHC F1-F4/BTEX, PAHs, M&I	None
BH21-3	SA-1	0.00 – 0.69	PHC F1-F4/BTEX, PAHs, M&I	None
BH21-4	SA-1	0.00 – 0.91	PHC F1-F4/VOCs, PAHs, M&I, OCP	None
	SA-101*	0.00 – 0.91	PHC F1-F4/VOCs, PAHs, M&I	None
	SA-6	3.81 – 4.57	PHC F1-F4/VOCs, M&I, OCP	None
	SA-106*	3.81 – 4.57	OCP	None
BH21-5	SA-1	0.00 – 0.77	PHC F1-F4/BTEX, PAHs, M&I	None
	SA-101*	0.00 – 0.77	PHC F1-F4/BTEX, PAHs, M&I	None
BH21-6	SA-1	0.00 – 0.76	PHC F1-F4/VOCs, PAHs, M&I, OCP	None
	SA-4	2.43 – 2.73	PHC F1-F4/VOCs, M&I, OCP	None
BH21-7	SA-1	0.00 – 0.91	PHC F1-F4/BTEX, PAHs, M&I	None
BH21-8	SA-2	0.45 – 0.85	PHC F1-F4/BTEX, PAHs, M&I, OCP	None
	SA-3	0.85 – 1.06	PHC F1-F4/VOCs, PAHs, M&I	EC

Notes: mbgs – metres below ground surface
[1] QA/QC sample
PHC F1-F4 – Petroleum Hydrocarbon Fractions F1-F4
BTEX – Benzene, Toluene, Ethylbenzene, Xylene
PAHs – Polycyclic Aromatic Hydrocarbons
M&I – Metals and Inorganics
VOC – Volatile Organic Compounds
EC – Electrical Conductivity
OCP – Organochlorine Pesticides

It should be noted that the EC exceedance measured at BH21-8 SA-3 is the only location where deleterious material was visually identified within the fill layer by the GEMTEC field technician.

5.4.2 Groundwater Quality

Analytical results for the groundwater samples submitted for analyses, and exceedances to the Table 2 SCS, are presented in Table C2, Appendix C. A summary of the groundwater exceedances is provided in Table 5.3. Laboratory certificates of analysis are provided in Appendix D.

Table 5.3: Summary of Groundwater Sample Analytical Results

Monitoring Well	Screened Interval (mbgs)	Groundwater elevation (masl)	MECP Table 2 SCS Exceedances
MW21-1	0.76 – 3.81	92.38	None
MW21-4	1.52 – 4.57	92.57	None
MW21-104*	1.52 – 4.57	92.57	None
MW21-6	0.61 – 3.65	92.78	None
Trip Blank[1]	-	-	None

Notes: mbgs – metres below ground surface
masl – metres above sea level
*MW21-104 is a duplicate samples of MW21-4

5.5 Quality Assurance and Quality Control Results

5.5.1 Blind Field Duplicates

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 blind field duplicates. 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. Calculations of the relative percent differences (RPD) between the parent and duplicate samples were performed and compared to the acceptance limits outlined in the 'Protocol for Analytical Methods Used in the Assessment of Properties' under Part XV.1 of the Environmental Protection Act, April 2011. 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).

Three parent - duplicate soil sample sets were collected as part of the Phase II ESA investigation: BH21-4 SA-101 as a partial duplicate of BH21-4 SA-1, BH21-4 SA-106 as a partial duplicate BH21-4 SA-6, and BH21-5 SA-101 as a duplicate BH21-5 SA-1. One parent-duplicate groundwater sample set was also collected as part of the Phase II ESA investigation, MW21-104 as a duplicate of MW21-4. 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:

- BH21-4 SA-101 & BH21-4 SA-1: 0% to 36%;
    - All of the calculated RPDs were within the acceptable range for soils with the exception of SAR, chromium, and lead (MOE, 2011). This variability is likely due to the natural heterogeneous nature of soil.

- BH21-4 SA-106 & BH21-4 SA-6: None;
    - No RPDs could be calculated as analytical results from both the parent and duplicate sample were non-detect for all parameters analyzed.
- BH21-5 SA-101 & BH21-5 SA-1: 1% to 24%;
    - All of the calculated RPDs were within the acceptable range for soils with the exception of EC (MOE, 2011). This variability is likely due to the natural heterogeneous nature of soil.
- MW21-104 & MW21-4: 1% to 35%
    - All of the calculated RPDs were within the acceptable range for groundwater with the exception of Sodium (MOE, 2011).

5.5.2 Trip Blank

Trip blanks are laboratory prepared samples that are transported to the subject property in the same shipping containers used for the transport of the collected groundwater samples. The analysis of trip blanks is completed to determine if sample shipping or storage procedures have possibly influenced the analytical results. One trip blank was collected as part of this environmental sampling event.

The concentrations of VOC/PHC F1 parameters were less than the laboratory reportable detection limits in the trip blank sample, with laboratory detection limits below the applicable Table 2 SCS. These results indicate that the data quality is considered reliable, with no evidence of cross-contamination during groundwater sample transport to the laboratory.

5.5.3 Analytical Laboratory QA/QC

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 Paracel's QA/QC certificates indicates that:

- In Soils
    - Elevated detection limits for PHF F2 was identified due to nature of sample matrix – however detection limits are still below the selected site condition standards for the subject property;
    - Spike recovery of chromium for internal laboratory QA/QC is outside of established control limits due to sample matrix interference;
    - Duplicate results for PHC F3, and PHC F4, 1-Methylnapthalele, 2-Methylnapthalene, and Naphthalene exceeds RPD internal laboratory for QA/QC due to the non-homogeneous matrix;

- In Groundwater
    - The sample MW21-6 included significant amount of sediment which was included during extraction. The inclusion of sediment in the extraction is expected to reduce the accuracy and results may be biased high. Single VOC vials were decanted into a single vial prior to analysis due to presence of sediments; and,
    - Spike level outside of control limits for Endrin. Analysis batch accepted based on other QC included in batch.

5.5.4 QA/QC Summary

Based on the measures discussed above, considering the inherent heterogeneity of soil, 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, transport, or in the laboratory analysis methods.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the Phase II ESA, GEMTEC offers the following conclusions:

- Subsurface geology at the subject site was generally described as fill material underlain by native deposits of silty clays which were encountered between 0.1 and 0.9 metres – Seven of the eight boreholes were terminated within the grey silty clay deposits at depths ranging between 1.2 and 4.6 metres below ground surface;
- Based on the groundwater table elevations recorded in March 2021, the local shallow groundwater flow was observed to be trending north/northwest. However, as indicated in the Phase I ESA (GEMTEC, 2021), and the conceptual site model summarized in Section 3.3, surrounding topography at the subject site generally slopes gradually towards the south/southwest. Accordingly, it is anticipated that regional groundwater flow may have a south/southwest flow direction component;
- Assessment of soil analytical results indicated that soil quality in the project limits meet the applicable MECP Table 2 SCS for all parameters analyzed with the exception of electrical conductivity at BH20-8 SA-3; and,
- Assessment of groundwater analytical results indicated that groundwater quality in the project limits meet the applicable MECP Table 2 SCS for all parameters analyzed.

Based on the results of the Phase II ESA, it is anticipated that the soil fill material in the vicinity of BH21-8 has exceedances of electrical conductivity, and therefore may be impacted by salt. Accordingly, prior to development, delineation of impacted fill material in this area, or where

deleterious material is identified during construction should be completed to inform excess soil management, re-use and / or disposal recommendations.

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 CEPEO. It is intended for the exclusive use of CEPEO. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC and CEPEO. 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

Environmental Systems Research Institute (ESRI). 2011. ArcGIS Desktop: Release 10. Redlands, CA: Environmental Systems Research Institute.

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC). 2021. Phase I ESA, 3955 Kelly Farm Drive, Ottawa, Ontario. Dated March 10, 2021

Golder Associates. 2013. Phase I Environmental Site Assessment, 2960 Leitrim Road, Ottawa, Ontario.

Geography Network Canada (GNC). October 2004. Ontario Basic Mapping Accessed: March 2021. Available: http://www.geographynetwork.ca/website/obm/viewer.htm.

Google Earth™ Satellite Imagery, 2019.

Ontario Ministry of the Environment and Climate Change (MOE). Guidance on sampling and analytical methods for use at contaminated sites in Ontario. Revised December 1996.

Ontario Ministry of the Environment, Laboratory Services Branch (MOE). Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. March 9, 2004, amended as of July 1, 2011.

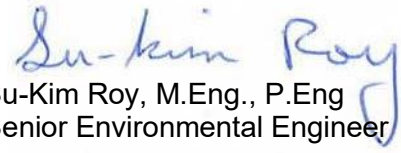
Ontario Ministry of the Environment, Conservation and Parks (MECP). Ontario Regulation 153/04, Made under the Environmental Protection Act, Part XV.1 – Records of Site Condition. October 31, 2011 updated January 1, 2014.

The City of Ottawa (GeoOttawa). 2000, last updated 2019. Accessed: March 2021. 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 contact the undersigned.

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

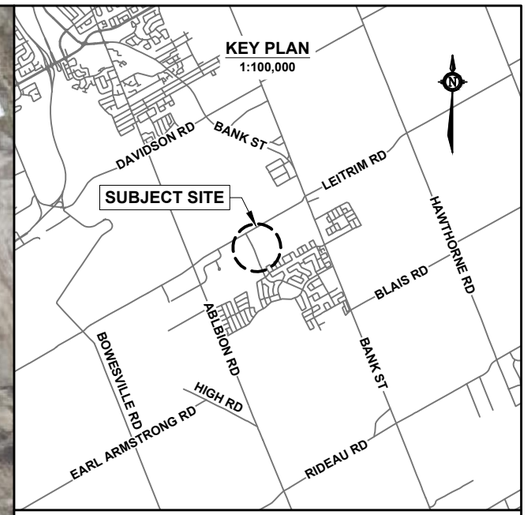


Su-Kim Roy, M.Eng., P.Eng
Senior Environmental Engineer

RF/NS/SKR

APPENDIX A

Figures



LEGEND

BH/ MW # ← BOREHOLE/ MONITORING WELL ID
XX.XX ← GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM

BOREHOLE
(current investigation by GEMTEC)

BOREHOLE / MONITORING WELL
(current investigation by GEMTEC)

APPROXIMATE PROPERTY BOUNDARY

Scale
1:1000
0 20 40 60m

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Tel: (613) 836-1422
www.gemtec.ca
ottawa@gemtec.ca

Drawing
BOREHOLE AND MONITORING WELL LOCATION PLAN

Client CONSEIL DES ÉCOLES PUBLIQUES DE L'EST DE L'ONTARIO (CEPEO)

Project 100441.001

PHASE II
ENVIRONMENTAL SITE ASSESSMENT
3955 KELLY FARM DRIVE
OTTAWA, ONTARIO

Drwn by	Chkd by
S.L.	N.S.

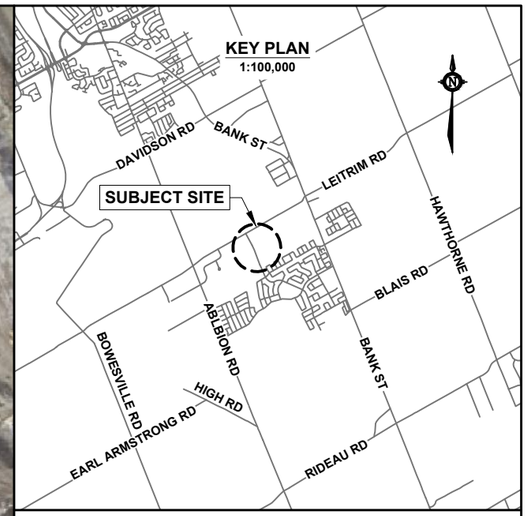
Date MARCH, 2021

Rev. 0

FIGURE A.1

N:\FILES\100400\100441.001\06_DRAFTING\1.DRAWINGS\100441.001_ESA-PHIL_R0_2021-03-31.DWG

Sample ID:	BH21-8 SA-3
Depth (mbgs):	0.85 - 1.06
Parameter	Analytical Result (uS/cm)
General Inorganics	
Conductivity	**2560**



LEGEND

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

BOREHOLE
(current investigation by GEMTEC)

BOREHOLE / MONITORING WELL
(current investigation by GEMTEC)

APPROXIMATE PROPERTY BOUNDARY

Parameter	MECP Table 2 RPI SCS1
General Inorganics	
Conductivity	700

Notes:

1 - MECP Table 2 RPI SCS: 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.

Bolded	Exceeds MECP Table 2 RPI SCS

Scale
1:1000
0 20 40 60m

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Drawing
SUMMARY OF SOIL EXCEEDANCES PLAN

Client
CONSEIL DES ÉCOLES PUBLIQUES DE L'EST DE L'ONTARIO (CEPEO)

Project
100441.001

PHASE II
ENVIRONMENTAL SITE ASSESSMENT
3955 KELLY FARM DRIVE
OTTAWA, ONTARIO

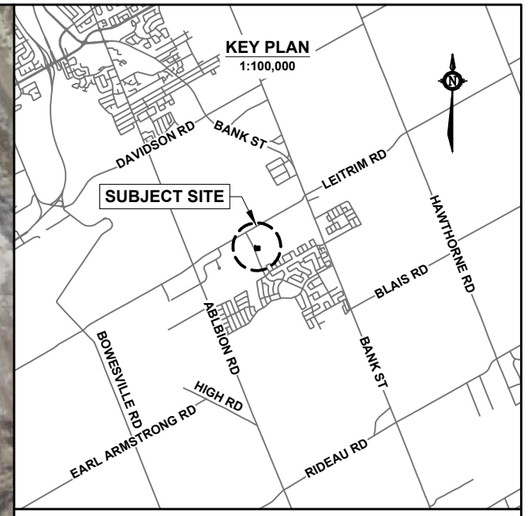
Drwn by	Chkd by
S.L.	N.S.

Date
MARCH, 2021

Rev.
0

FIGURE A.2

N:\FILES\100400\100441.001\06_DRAFTING\1.DRAWINGS\100441.001_ESA-PHIL_R0_2021-03-31.DWG



LEGEND

- **BH/ MW #** — BOREHOLE/ MONITORING WELL ID
- **XX.XX** — GROUNDWATER ELEVATION, IN METRES GEODETIC DATUM
- **BOREHOLE** (current investigation by GEMTEC)
- **BOREHOLE / MONITORING WELL** (current investigation by GEMTEC)
- APPROXIMATE PROPERTY BOUNDARY
- GROUNDWATER CONTOUR
- **80.0** — GROUNDWATER ELEVATION (mASL)
- INFERRED GROUNDWATER FLOW DIRECTION

Scale

1:1000

0 20 40 60m

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Drawing

GROUNDWATER ELEVATION AND INFERRED GROUNDWATER FLOW PLAN

Client CONSEIL DES ÉCOLES PUBLIQUES DE L'EST DE L'ONTARIO (CEPEO)

Project		PHASE II ENVIRONMENTAL SITE ASSESSMENT 3955 KELLY FARM DRIVE OTTAWA, ONTARIO
100441.001		
Drwn by: S.L.	Chkd by: N.S.	
Date: MARCH, 2021	Rev.: 0	**FIGURE A.3**

N:\FILES\100400\100441.001\06_DRAFTING\1.DRAWINGS\100441.001_ESA-PHIL_R0_2021-03-31.DWG

APPENDIX B

Borehole and Monitoring Well Logs

RECORD OF BOREHOLE 21-1

CLIENT: CEPEO Créateur Dèopportunités
PROJECT: 3955 Kelly Farm Drive, Ottawa, Ontario
JOB#: 100441.001
LOCATION: Refer to Borehole and Monitoring Well Location Plan, Figure A1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 5 2021

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		95.21									
0		Grey GRAVEL and SAND		95.06									
		Brown SILTY CLAY with sand		0.15	1	SS	457			Hex: 0 IBL: 1	None		Stick-up casing (0.97 m) Bentonite
													Filter Pack
1					2	SS	533		PHC F1-F4/VOC, PAHs, M&I, OCP	Hex: 0 IBL: 0	None		TOP OF SCREEN ELEV.: 94.45 m
					3	SS	533			Hex: 0 IBL: 1	None		
2				92.93									38 millimetre diameter slotted PVC pipe
		Grey SILTY CLAY		2.28									
3					4	SS	635			Hex: 10 IBL: 1	None		
				91.40									BOTTOM OF SCREEN ELEV.: 91.40 m
		End of Borehole		3.81									

GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEVATION (m)
Mar. 17/21	3.80 ▽	92.38

GEMTEC
Consulting Engineers and Scientists

LOGGED: R.F.
CHECKED: N.S.

ENV - BOREHOLE LOG BOREHOLE LOG- KELLY FARM DRIVE- 100441.001- MARCH 2021.GPJ GEMTEC 2018.GDT 31/3/21

RECORD OF BOREHOLE 21-2

CLIENT: CEPEO Créateur Dèopportunités
PROJECT: 3955 Kelly Farm Drive, Ottawa, Ontario
JOB#: 100441.001
LOCATION: Refer to Borehole and Monitoring Well Location Plan, Figure A1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 15 2021

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	SAMPLE DATA: TYPE	SAMPLE DATA: RECOVERY (mm)	SAMPLE DATA: BLOWS/0.3m	SAMPLE DATA: LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		94.79									
0		Brown SANDY SILT with gravel (fill material)		93.88	1	SL	254		PHC F1-F4/BTEX, PAHs, M&I	Hex: 0 IBL: 3	None		Backfilled with bentonite
1		Brown SILTY SAND		0.91 93.27	2	SL	737			Hex: 0 IBL: 3	None		
		End of Borehole		1.52									

GEMTEC
Consulting Engineers and Scientists

LOGGED: R.F.
CHECKED: N.S.

ENV - BOREHOLE LOG BOREHOLE LOG- KELLY FARM DRIVE- 100441.001- MARCH 2021.GPJ GEMTEC 2018.GDT 31/3/21

RECORD OF BOREHOLE 21-3

CLIENT: CEPEO Créateur Dèopportunités
PROJECT: 3955 Kelly Farm Drive, Ottawa, Ontario
JOB#: 100441.001
LOCATION: Refer to Borehole and Monitoring Well Location Plan, Figure A1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 5 2021

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	SAMPLE DATA: TYPE	SAMPLE DATA: RECOVERY (mm)	SAMPLE DATA: BLOWS/0.3m	SAMPLE DATA: LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		95.45									
0		Brown SANDY SILT with gravel (fill material)		94.76	1	SL	650		PHC F1-F4/BTEX, PAHs, M&I	Hex: 10 IBL: 1	None		Backfilled with bentonite
1		Brown SILTY CLAY with sand and gravel		0.69 94.15	2	SL	650				None		
		End of Borhole		1.30									

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LOGGED: R.F.
CHECKED: N.S.

ENV - BOREHOLE LOG BOREHOLE LOG- KELLY FARM DRIVE- 100441.001- MARCH 2021.GPJ GEMTEC 2018.GDT 31/3/21

RECORD OF BOREHOLE 21-4

CLIENT: CEPEO Créateur Dèopportunités
PROJECT: 3955 Kelly Farm Drive, Ottawa, Ontario
JOB#: 100441.001
LOCATION: Refer to Borehole and Monitoring Well Location Plan, Figure A1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 15 2021

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		95.04									
0	Power Auger Hollow Stem Auger (210mm OD)	Brown SILTY SAND with gravel (fill material)		94.13	1	SL	457		PHC F1-F4/VOCs, PAHs, M&I, OCP + DUP	Hex: 0 IBL: 1	None		Stick-up casing (1.03 m) Bentonite
1		Grey SILTY SAND with clay and gravel		0.91	2	SL	610			Hex: 0 IBL: 1	None		Filter Pack
2				92.76	3	SL	483			Hex: 0 IBL: 3	None		TOP OF SCREEN ELEV.: 93.52 m
3		Grey SILTY CLAY with sand seam		2.28	4	SL	483			Hex: 0 IBL: 3	None		38 millimetre diameter slotted PVC pipe
					5	SL	762			Hex: 0 IBL: 1	None		
4				90.47	6	SL	762		PHC F1-F4/VOC, M&I, OCP + DUP	Hex: 0 IBL: 4	None		BOTTOM OF SCREEN ELEV.: 90.47 m
		End of Borehole		4.57									

GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEVATION (m)
Mar. 17/21	3.51 ▽	92.56

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LOGGED: R.F.
CHECKED: N.S.

ENV - BOREHOLE LOG BOREHOLE LOG- KELLY FARM DRIVE- 100441.001- MARCH 2021.GPJ GEMTEC 2018.GDT 31/3/21

RECORD OF BOREHOLE 21-5

CLIENT: CEPEO Créateur Dèopportunités
PROJECT: 3955 Kelly Farm Drive, Ottawa, Ontario
JOB#: 100441.001
LOCATION: Refer to Borehole and Monitoring Well Location Plan, Figure A1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 5 2021

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	SAMPLE DATA: TYPE	SAMPLE DATA: RECOVERY (mm)	SAMPLE DATA: BLOWS/0.3m	SAMPLE DATA: LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		95.27									
0		Brown SANDY SILT with gravel (fill material)		94.50	1	SL	431		PHC F1-F4/VOC, M&I, OCP + DUP	Hex: 0 IBL: 1	None		Backfilled with bentonite
1		Brown SILTY CLAY with sand and gravel		0.77 94.05	2	SL	431			Hex: 0 IBL: 1	None		
		End of Borehole		1.22									

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Consulting Engineers and Scientists

LOGGED: R.F.
CHECKED: N.S.

ENV - BOREHOLE LOG BOREHOLE LOG- KELLY FARM DRIVE- 100441.001- MARCH 2021.GPJ GEMTEC 2018.GDT 31/3/21

RECORD OF BOREHOLE 21-6

CLIENT: CEPEO Créateur Dèopportunités
PROJECT: 3955 Kelly Farm Drive, Ottawa, Ontario
JOB#: 100441.001
LOCATION: Refer to Borehole and Monitoring Well Location Plan, Figure A1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 5 2021

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		95.37									
0		Brown SANDY SILT with gravel (fill material)		94.61	1	SL	635		PHC F1-F4/VOC, PAHs, M&I, OCP	Hex: 0 IBL: 0	None		Stick-up casing (0.97 m) Bentonite Filter Pack
1		Brown SILTY CLAY with sand and vegetation		0.76	2	SL	635			Hex: 0 IBL: 0	None		TOP OF SCREEN ELEV.: 94.76 m
2					3	SL	304				None		38 millimetre diameter slotted PVC pipe
		Grey SILTY CLAY/ CLAYEY SILT		92.93 2.44	4	SL	304		PHC F1-F4/VOC, M&I, OCP	Hex: 0 IBL: 0	None		
3					5	SI	914			Hex: 0 IBL: 0	None		
					6	SL	914			Hex: 10 IBL: 1	None		
		End of Borehole (Inferred Boulder)		91.72 3.65									BOTTOM OF SCREEN ELEV.: 91.72 m

GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEVATION (m)
Mar. 17/21	3.56 ▽	92.78

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LOGGED: R.F.
CHECKED: N.S.

ENV - BOREHOLE LOG BOREHOLE LOG- KELLY FARM DRIVE- 100441.001- MARCH 2021.GPJ GEMTEC 2018.GDT 31/3/21

RECORD OF BOREHOLE 21-7

CLIENT: CEPEO Créateur Dèopportunités
PROJECT: 3955 Kelly Farm Drive, Ottawa, Ontario
JOB#: 100441.001
LOCATION: Refer to Borehole and Monitoring Well Location Plan, Figure A1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 15 2021

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	SAMPLE DATA: TYPE	SAMPLE DATA: RECOVERY (mm)	SAMPLE DATA: BLOWS/0.3m	SAMPLE DATA: LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		95.38									
0		Brown SANDY SILT/SANDY SILT with gravel (fill material)			1	SL	381		PHC F1-F4/BTEX, PAHs, M&I	Hex: 0 IBL: 2	None		Backfilled with bentonite
1					2	SL	584			Hex: 0 IBL: 2	None		
				93.86									
		End of Borehole		1.52									

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CHECKED: N.S.

ENV - BOREHOLE LOG BOREHOLE LOG- KELLY FARM DRIVE- 100441.001- MARCH 2021.GPJ GEMTEC 2018.GDT 31/3/21

RECORD OF BOREHOLE 21-8

CLIENT: CEPEO Créateur Dèopportunités
PROJECT: 3955 Kelly Farm Drive, Ottawa, Ontario
JOB#: 100441.001
LOCATION: Refer to Borehole and Monitoring Well Location Plan, Figure A1

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Mar 5 2021

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	SAMPLE DATA: TYPE	SAMPLE DATA: RECOVERY (mm)	SAMPLE DATA: BLOWS/0.3m	SAMPLE DATA: LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		95.12									
0		Brown SANDY SILT (fill material)			1	SL	457			Hex: 0 IBL: 1	None		Backfilled with bentonite
		Grey CLAY AND SILT (fill material)		0.45	2	SL	396		PHC F1-F4/BTEX, PAHs, M&I, OCP	Hex: 5 IBL: 1	None		
1		Brown SAND AND GRAVEL with red brick (fill material)		0.85 94.06	3	SL	178		PHC F1-F4/VOCs, PAHs, M&I		None		
		End of Borehole		1.06									

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LOGGED: R.F.
CHECKED: N.S.

ENV - BOREHOLE LOG BOREHOLE LOG- KELLY FARM DRIVE- 100441.001- MARCH 2021.GPJ GEMTEC 2018.GDT 31/3/21

APPENDIX C

Analytical Summary Tables

TABLE C1
SOIL ANALYTICAL RESULTS
Phase II Environmental Site Assessment
3955 Kelly Farm Drive
Ottawa, Ontario

Parameter	Units	MDL	MECP Table 2 RPI SCS[1]	Sample ID: BH-21-1 SA-2 / Laboratory ID: 2111041-01 / Depth (mbgs): 0.76 – 1.52 / Date Sampled (dd/mm/yyyy): 03/05/2021	BH21-2 SA-1 / 2112125-01 / 0.00 – 0.91 / 03/15/2021	BH21-3 SA-1 / 2111041-02 / 0.00 – 0.69 / 03/05/2021	BH21-4 SA-1 / 2112125-03 / 0.00 – 0.91 / 03/15/2021	BH21-4 SA-101[2] / 2112125-05 / 0.00 – 0.91 / 03/15/2021	BH21-4 SA-6 / 2112125-04 / 3.81 – 4.57 / 03/15/2021	BH21-4 SA-106[2] / 2112125-04 / 3.81 – 4.57 / 03/15/2021	BH21-5 SA-1 / 2111041-03 / 0.00 – 0.77 / 03/05/2021	BH21-5 SA-101[2] / 2111041-04 / 0.00 – 0.77 / 03/05/2021	BH21-6 SA-1 / 2111041-05 / 0.00 – 0.76 / 03/05/2021	BH21-6 SA-4 / 2111041-06 / 2.43 – 2.73 / 03/05/2021	BH21-7 SA-1 / 2112125-02 / 0.00 – 0.91 / 03/15/2021	BH21-8 SA-2 / 2111041-07 / 0.45 – 0.85 / 03/05/2021	BH20-8 SA-3 / 2111041-08 / 0.85 – 1.06 / 03/05/2021
Physical Characteristics																	
% Solids	% by Wt.	0.1	NS	74.9	91	88.4	82.5	83.7	76	N/A	78.6	71.9	66.3	78.7	74.6	80.7	92.5
General Inorganics																	
SAR	N/A	0.01	5	0.81	1.09	1.05	1.39	1.15	0.36	N/A	0.54	0.55	0.61	0.46	0.61	1.04	1.88
Conductivity	uS/cm	5	700	275	576	561	563	564	162	N/A	359	455	302	188	306	548	**2560**
Cyanide, free	ug/g dry	0.03	0.051	ND (0.03)	ND (0.03)	ND (0.03)	ND (0.03)	ND (0.03)	ND (0.03)	N/A	ND (0.03)	ND (0.03)	ND (0.03)	ND (0.03)	ND (0.03)	ND (0.03)	ND (0.03)
pH	pH Units	0.05	5 to 9	7.18	7.62	7.3	7.53	7.59	7.86	N/A	7.27	7.28	7.25	7.26	7.42	7.32	7.55
Metals																	
Boron, available	ug/g dry	0.5	1.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	0.6	ND (0.5)	0.6	ND (0.5)	ND (0.5)	ND (0.5)	0.6
Chromium (VI)	ug/g dry	0.2	8	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	N/A	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	0.2	ND (0.2)
Mercury	ug/g dry	0.1	0.27	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	N/A	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Antimony	ug/g dry	1	7.5	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1.1
Arsenic	ug/g dry	1	18	2.4	4.3	3.9	2.6	3	3.2	N/A	3	3.1	2.8	3.9	2.9	2.6	5.3
Barium	ug/g dry	1	390	247	144	168	127	113	110	N/A	173	171	190	199	162	229	180
Beryllium	ug/g dry	0.5	4	0.7	ND (0.5)	0.6	ND (0.5)	ND (0.5)	ND (0.5)	N/A	0.7	0.6	0.7	0.7	0.6	0.5	ND (0.5)
Boron	ug/g dry	5	120	5.5	7.7	7.7	ND (5.0)	5.4	5.5	N/A	7.4	7	7.5	6.5	6.9	ND (5.0)	10.6
Cadmium	ug/g dry	0.5	1.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chromium	ug/g dry	5	160	86.4	30.9	39.1	41.8	29.7	21.8	N/A	46.6	42.6	50.7	71.4	41.9	47.4	19.9
Cobalt	ug/g dry	1	22	16.3	8.6	9.4	9.5	7.9	7.8	N/A	9.8	9.2	10.3	14.6	9.4	9.3	7.6
Copper	ug/g dry	5	140	42.4	18.7	19.8	20.8	16.8	21.5	N/A	22.7	20.6	21.2	33.4	21.6	22.7	16.8
Lead	ug/g dry	1	120	6.3	8.7	10.1	15.4	10.7	5.4	N/A	8.1	7.1	8.3	6.5	7.9	4.3	23.5
Molybdenum	ug/g dry	1	6.9	ND (1.0)	1.8	1.7	1.1	1.6	1.3	N/A	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1.1	ND (1.0)	3.7
Nickel	ug/g dry	5	100	47.2	19.9	23.4	24.4	19.6	17.5	N/A	23.6	22.2	25.3	37.6	22.2	26	18.3
Selenium	ug/g dry	1	2.4	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Silver	ug/g dry	0.3	20	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	N/A	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)
Thallium	ug/g dry	1	1	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Uranium	ug/g dry	1	23	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	N/A	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Vanadium	ug/g dry	10	86	69	34.3	39.8	43.1	36.1	34.7	N/A	48.3	46.7	50.1	71.7	44.9	48.8	23.6
Zinc	ug/g dry	20	340	82.1	51.8	57.6	51.5	41.2	33.1	N/A	65	56	64.3	71.1	57.7	46.3	40.2
Volatile Organic Compounds																	
Acetone	ug/g dry	0.5	16	ND (0.50)	N/A	N/A	ND (0.50)	ND (0.50)	ND (0.50)	N/A	N/A	N/A	ND (0.50)	ND (0.50)	N/A	N/A	ND (0.50)
Benzene	ug/g dry	0.02	0.21	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Bromodichloromethane	ug/g dry	0.05	1.5	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Bromoform	ug/g dry	0.05	0.27	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Bromomethane	ug/g dry	0.05	0.05	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Carbon Tetrachloride	ug/g dry	0.05	0.05	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Chlorobenzene	ug/g dry	0.05	2.4	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Chloroform	ug/g dry	0.05	0.05	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Dibromochloromethane	ug/g dry	0.05	2.3	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Dichlorodifluoromethane	ug/g dry	0.05	16	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
1,2-Dichlorobenzene	ug/g dry	0.05	1.2	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
1,3-Dichlorobenzene	ug/g dry	0.05	4.8	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
1,4-Dichlorobenzene	ug/g dry	0.05	0.083	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
1,1-Dichloroethane	ug/g dry	0.05	0.47	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
1,2-Dichloroethane	ug/g dry	0.05	0.05	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
1,1-Dichloroethylene	ug/g dry	0.05	0.05	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
cis-1,2-Dichloroethylene	ug/g dry	0.05	1.9	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
trans-1,2-Dichloroethylene	ug/g dry	0.05	0.084	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
1,2-Dichloropropane	ug/g dry	0.05	0.05	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
cis-1,3-Dichloropropylene	ug/g dry	0.05	NS	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)

TABLE C1 - CONTINUED
SOIL ANALYTICAL RESULTS
Phase II Environmental Site Assessment
3955 Kelly Farm Drive
Ottawa, Ontario

Parameter	Units	MDL	MECP Table 2 RPI SCS[1]	Sample ID: BH-21-1 SA-2 / Laboratory ID: 2111041-01 / Depth (mbgs): 0.76 – 1.52 / Date Sampled (dd/mm/yyyy): 03/05/2021	BH21-2 SA-1 / 2112125-01 / 0.00 – 0.91 / 03/15/2021	BH21-3 SA-1 / 2111041-02 / 0.00 – 0.69 / 03/05/2021	BH21-4 SA-1 / 2112125-03 / 0.00 – 0.91 / 03/15/2021	BH21-4 SA-101[2] / 2112125-05 / 0.00 – 0.91 / 03/15/2021	BH21-4 SA-6 / 2112125-04 / 3.81 – 4.57 / 03/15/2021	BH21-4 SA-106[2] / 2112125-04 / 3.81 – 4.57 / 03/15/2021	BH21-5 SA-1 / 2111041-03 / 0.00 – 0.77 / 03/05/2021	BH21-5 SA-101[2] / 2111041-04 / 0.00 – 0.77 / 03/05/2021	BH21-6 SA-1 / 2111041-05 / 0.00 – 0.76 / 03/05/2021	BH21-6 SA-4 / 2111041-06 / 2.43 – 2.73 / 03/05/2021	BH21-7 SA-1 / 2112125-02 / 0.00 – 0.91 / 03/15/2021	BH21-8 SA-2 / 2111041-07 / 0.45 – 0.85 / 03/05/2021	BH20-8 SA-3 / 2111041-08 / 0.85 – 1.06 / 03/05/2021
trans-1,3-Dichloropropylene	ug/g dry	0.05	NS	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
1,3-Dichloropropene, total	ug/g dry	0.05	0.05	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Ethylbenzene	ug/g dry	0.05	1.1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Ethylene dibromide	ug/g dry	0.05	0.05	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Hexane	ug/g dry	0.05	2.8	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Methyl Ethyl Ketone	ug/g dry	0.5	16	ND (0.50)	N/A	N/A	ND (0.50)	ND (0.50)	ND (0.50)	N/A	N/A	N/A	ND (0.50)	ND (0.50)	N/A	N/A	ND (0.50)
Methyl Isobutyl Ketone	ug/g dry	0.5	1.7	ND (0.50)	N/A	N/A	ND (0.50)	ND (0.50)	ND (0.50)	N/A	N/A	N/A	ND (0.50)	ND (0.50)	N/A	N/A	ND (0.50)
Methyl tert-butyl ether	ug/g dry	0.05	0.75	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Methylene Chloride	ug/g dry	0.05	0.1	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Styrene	ug/g dry	0.05	0.7	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
1,1,1,2-Tetrachloroethane	ug/g dry	0.05	0.058	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
1,1,2,2-Tetrachloroethane	ug/g dry	0.05	0.05	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Tetrachloroethylene	ug/g dry	0.05	0.28	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Toluene	ug/g dry	0.05	2.3	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1,1,1-Trichloroethane	ug/g dry	0.05	0.38	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
1,1,2-Trichloroethane	ug/g dry	0.05	0.05	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Trichloroethylene	ug/g dry	0.05	0.061	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Trichlorofluoromethane	ug/g dry	0.05	4	ND (0.05)	N/A	N/A	ND (0.05)	ND (0.05)	ND (0.05)	N/A	N/A	N/A	ND (0.05)	ND (0.05)	N/A	N/A	ND (0.05)
Vinyl Chloride	ug/g dry	0.02	0.02	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	N/A	ND (0.02)	ND (0.02)	N/A	N/A	ND (0.02)
m/p-Xylene	ug/g dry	0.05	NS	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.37	ND (0.05)	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
o-Xylene	ug/g dry	0.05	NS	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.09	ND (0.05)	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Xylenes, total	ug/g dry	0.05	3.1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.46	ND (0.05)	N/A	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Petroleum Hydrocarbons																	
F1 PHCs (C6-C10)	ug/g dry	7	55	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	N/A	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)
F2 PHCs (C10-C16)	ug/g dry	4	98	ND (4)	ND (4)	ND (4)	ND (4)	8	ND (4)	N/A	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (40)
F3 PHCs (C16-C34)	ug/g dry	8	300	ND (8)	ND (8)	ND (8)	ND (8)	9	ND (8)	N/A	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	ND (8)	83
F4 PHCs (C34-C50)	ug/g dry	6	2800	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	N/A	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	183
Polycyclic Aromatic Hydrocarbons																	
Acenaphthene	ug/g dry	0.02	7.9	N/A	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	ND (0.02)
Acenaphthylene	ug/g dry	0.02	0.15	N/A	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	ND (0.02)
Anthracene	ug/g dry	0.02	0.67	N/A	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	0.03
Benzo[a]anthracene	ug/g dry	0.02	0.5	N/A	ND (0.02)	ND (0.02)	0.02	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	0.06
Benzo[a]pyrene	ug/g dry	0.02	0.3	N/A	ND (0.02)	ND (0.02)	0.02	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	0.06
Benzo[b]fluoranthene	ug/g dry	0.02	0.78	N/A	ND (0.02)	ND (0.02)	0.02	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	0.06
Benzo[g,h,i]perylene	ug/g dry	0.02	6.6	N/A	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	0.04
Benzo[k]fluoranthene	ug/g dry	0.02	0.78	N/A	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	0.03
Chrysene	ug/g dry	0.02	7	N/A	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	0.06
Dibenzo[a,h]anthracene	ug/g dry	0.02	0.1	N/A	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	ND (0.02)
Fluoranthene	ug/g dry	0.02	0.69	N/A	ND (0.02)	0.03	0.05	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	0.12
Fluorene	ug/g dry	0.02	62	N/A	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	ND (0.02)
Indeno[1,2,3-cd]pyrene	ug/g dry	0.02	0.38	N/A	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	0.03
1-Methylnaphthalene	ug/g dry	0.02	0.99	N/A	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	ND (0.02)
2-Methylnaphthalene	ug/g dry	0.02	0.99	N/A	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	ND (0.02)
Methylnaphthalene (1&2)	ug/g dry	0.04	0.99	N/A	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	N/A	N/A	ND (0.04)	ND (0.04)	ND (0.04)	N/A	ND (0.04)	ND (0.04)	ND (0.04)
Naphthalene	ug/g dry	0.01	0.6	N/A	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A	N/A	ND (0.01)	ND (0.01)	ND (0.01)	N/A	ND (0.01)	ND (0.01)	ND (0.01)
Phenanthrene	ug/g dry	0.02	6.2	N/A	ND (0.02)	ND (0.02)	0.03	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	0.09
Pyrene	ug/g dry	0.02	78	N/A	ND (0.02)	0.03	0.05	ND (0.02)	N/A	N/A	ND (0.02)	ND (0.02)	ND (0.02)	N/A	ND (0.02)	ND (0.02)	0.11

TABLE C1 - CONTINUED
SOIL ANALYTICAL RESULTS
Phase II Environmental Site Assessment
3955 Kelly Farm Drive
Ottawa, Ontario

Parameter	Units	MDL	MECP Table 2 RPI SCS[1]	Sample ID: BH-21-1 SA-2	BH21-2 SA-1	BH21-3 SA-1	BH21-4 SA-1	BH21-4 SA-101[2]	BH21-4 SA-6	BH21-4 SA-106[2]	BH21-5 SA-1	BH21-5 SA-101[2]	BH21-6 SA-1	BH21-6 SA-4	BH21-7 SA-1	BH21-8 SA-2	BH20-8 SA-3
Laboratory ID:				2111041-01	2112125-01	2111041-02	2112125-03	2112125-05	2112125-04	2112125-04	2111041-03	2111041-04	2111041-05	2111041-06	2112125-02	2111041-07	2111041-08
Depth (mbgs):				0.76 – 1.52	0.00 – 0.91	0.00 – 0.69	0.00 – 0.91	0.00 – 0.91	3.81 – 4.57	3.81 – 4.57	0.00 – 0.77	0.00 – 0.77	0.00 – 0.76	2.43 – 2.73	0.00 – 0.91	0.45 – 0.85	0.85 – 1.06
Date Sampled (dd/mm/yyyy):				03/05/2021	03/15/2021	03/05/2021	03/15/2021	03/15/2021	03/15/2021	03/15/2021	03/05/2021	03/05/2021	03/05/2021	03/05/2021	03/15/2021	03/05/2021	03/05/2021
Organochlorine Pesticides																	
2,4'-DDD	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
2,4'-DDE	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
2,4'-DDT	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
4,4'-DDD	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
4,4'-DDE	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
4,4'-DDT	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Aldrin	µg/g dry	0.01	0.05	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
DDD (Total)	µg/g dry	0.01	3.3	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
DDE (Total)	µg/g dry	0.01	0.26	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
DDT (Total)	µg/g dry	0.01	1.4	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Decachlorobiphenyl (Surr.)	% Rec	-	NS	124	N/A	N/A	129	N/A	122	127	N/A	N/A	136	132	N/A	113	N/A
Dieldrin	µg/g dry	0.01	0.05	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Endosulfan I	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Endosulfan I + II	µg/g dry	0.01	0.04	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Endosulfan II	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Endosulfan sulfate	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Endrin	µg/g dry	0.01	0.04	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Endrin aldehyde	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Heptachlor	µg/g dry	0.01	0.15	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Heptachlor epoxide	µg/g dry	0.01	0.05	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Hexachlorobenzene	µg/g dry	0.01	0.52	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Hexachlorobutadiene	µg/g dry	0.01	0.012	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Hexachloroethane	µg/g dry	0.01	0.089	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Methoxychlor	µg/g dry	0.01	0.13	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Mirex	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
Oxychlordane	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
ß-BHC	µg/g dry	0.01	Ns	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
α - Chlordane	µg/g dry	0.01	0.05	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
α + γ -Chlordane	µg/g dry	0.01	0.05	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
α-BHC	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
γ - Chlordane	µg/g dry	0.01	0.05	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
γ-BHC (Lindane)	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A
δ-BHC	µg/g dry	0.01	NS	ND(0.009)	N/A	N/A	ND(0.009)	N/A	ND(0.01)	ND(0.01)	N/A	N/A	ND(0.009)	ND(0.01)	N/A	ND(0.01)	N/A

Notes:
'MDL': Method Detection Limit
'N/A': Not Analyzed
'ND' : Non Detect
'NS ' : No Standard / Guideline Established
'mbgs' : metres below ground surface
1 - MECP Table 2 RPI SCS: 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 - Soil sample BH21-3 SA-10X is a duplicate of BH21-3 SAX
Bolded Exceeds MECP Table 2 RPI SCS

TABLE C2
GROUNDWATER ANALYTICAL RESULTS
Phase II Environmental Site Assessment
3955 Kelly Farm Drive
Ottawa, Ontario

			Sample ID:	MW21-1	MW21-4	MW21-104	MW21-6	Trip Blank
			Laboratory ID:	2112364-01	2112364-02	2112364-04	2112364-03	2112364-05
			Screened Interval (mbgs):	0.76 - 3.81	1.52 - 4.57	1.52 - 4.57	0.61 - 3.65	-
			Date Sampled (dd/mm/yyyy):	03/17/2021	03/17/2021	03/17/2021	03/17/2021	03/17/2021
Parameter	Units	MDL	MECP Table 2 SCS[1]					
General Inorganics								
Cyanide, free	ug/L	2	66	ND (2)	ND (2)	ND (2)	ND (2)	N/A
pH	pH Units	0.1	5 to 9	7.8	7.6	7.7	7.9	N/A
Anions								
Chloride	mg/L	1	790	130	60	52	67	N/A
Metals								
Mercury	ug/L	0.1	0.29	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	N/A
Antimony	ug/L	0.5	6	0.6	ND (0.5)	ND (0.5)	ND (0.5)	N/A
Arsenic	ug/L	1	25	2	ND (1)	ND (1)	3	N/A
Barium	ug/L	1	1000	321	113	125	507	N/A
Beryllium	ug/L	0.5	4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	N/A
Boron	ug/L	10	5000	39	28	24	34	N/A
Cadmium	ug/L	0.1	2.7	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	N/A
Chromium	ug/L	1	50	ND (1)	ND (1)	ND (1)	ND (1)	N/A
Chromium (VI)	ug/L	10	25	ND (10)	ND (10)	ND (10)	ND (10)	N/A
Cobalt	ug/L	0.5	3.8	ND (0.5)	0.6	ND (0.5)	ND (0.5)	N/A
Copper	ug/L	0.5	87	0.6	2.4	1.9	1	N/A
Lead	ug/L	0.1	10	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	N/A
Molybdenum	ug/L	0.5	70	3.7	3.1	1.9	2.4	N/A
Nickel	ug/L	1	100	3	3	2	2	N/A
Selenium	ug/L	1	10	ND (1)	ND (1)	ND (1)	ND (1)	N/A
Silver	ug/L	0.1	1.5	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	N/A
Sodium	ug/L	200	490000	35100	31600	22200	13200	N/A
Thallium	ug/L	0.1	2	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	N/A
Uranium	ug/L	0.1	20	1.2	5.7	4.7	1.1	N/A
Vanadium	ug/L	0.5	6.2	ND (0.5)	0.9	1.1	1.1	N/A
Zinc	ug/L	5	1100	ND (5)	ND (5)	ND (5)	ND (5)	N/A
Volatile Organic Compounds								
Acetone	ug/L	5	2700	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Benzene	ug/L	0.5	5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromodichloromethane	ug/L	0.5	16	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromoform	ug/L	0.5	25	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromomethane	ug/L	0.5	0.89	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Carbon Tetrachloride	ug/L	0.2	0.79	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Chlorobenzene	ug/L	0.5	30	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chloroform	ug/L	0.5	2.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Dibromochloromethane	ug/L	0.5	25	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Dichlorodifluoromethane	ug/L	1	590	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichlorobenzene	ug/L	0.5	3	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,3-Dichlorobenzene	ug/L	0.5	59	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,4-Dichlorobenzene	ug/L	0.5	1	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethane	ug/L	0.5	5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichloroethane	ug/L	0.5	1.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloroethylene	ug/L	0.5	1.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
cis-1,2-Dichloroethylene	ug/L	0.5	1.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
trans-1,2-Dichloroethylene	ug/L	0.5	1.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichloropropane	ug/L	0.5	5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
cis-1,3-Dichloropropylene	ug/L	0.5	NS	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
trans-1,3-Dichloropropylene	ug/L	0.5	NS	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,3-Dichloropropene, total	ug/L	0.5	0.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Ethylbenzene	ug/L	0.5	2.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Ethylene dibromide (dibromoethane, 1	ug/L	0.2	0.2	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Hexane	ug/L	1	51	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Methyl Ethyl Ketone (2-Butanone)	ug/L	5	1800	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Methyl Isobutyl Ketone	ug/L	5	640	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Methyl tert-butyl ether	ug/L	2	15	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Methylene Chloride	ug/L	5	50	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Styrene	ug/L	0.5	5.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1,1,2-Tetrachloroethane	ug/L	0.5	1.1	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1,2,2-Tetrachloroethane	ug/L	0.5	1	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Tetrachloroethylene	ug/L	0.5	1.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Toluene	ug/L	0.5	24	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1,1-Trichloroethane	ug/L	0.5	200	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1,2-Trichloroethane	ug/L	0.5	4.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trichloroethylene	ug/L	0.5	1.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trichlorofluoromethane	ug/L	1	150	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Vinyl Chloride	ug/L	0.5	0.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
m/p-Xylene	ug/L	0.5	NS	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
o-Xylene	ug/L	0.5	NS	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Xylenes, total	ug/L	0.5	300	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Petroleum Hydrocarbons								
F1 PHCs (C6-C10)	ug/L	25	750	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)
F2 PHCs (C10-C16)	ug/L	100	150	ND (100)	ND (100)	ND (100)	ND (100)	N/A
F3 PHCs (C16-C34)	ug/L	100	500	ND (100)	ND (100)	ND (100)	150	N/A
F4 PHCs (C34-C50)	ug/L	100	500	ND (100)	ND (100)	ND (100)	ND (100)	N/A
Semi-Volatile Organic Compounds								
Acenaphthene	ug/L	0.05	4.1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
Acenaphthylene	ug/L	0.05	1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
Anthracene	ug/L	0.01	2.4	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Benzo[a]anthracene	ug/L	0.01	1	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Benzo[a]pyrene	ug/L	0.01	0.01	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Benzo[b]fluoranthene	ug/L	0.05	0.1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
Benzo[g,h,i]perylene	ug/L	0.05	0.2	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
Benzo[k]fluoranthene	ug/L	0.05	0.1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
Chrysene	ug/L	0.05	0.1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
Dibenzo[a,h]anthracene	ug/L	0.05	0.2	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
Fluoranthene	ug/L	0.01	0.41	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Fluorene	ug/L	0.05	120	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
Indeno[1,2,3-cd]pyrene	ug/L	0.05	0.2	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
1-Methylnaphthalene	ug/L	0.05	3.2	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
2-Methylnaphthalene	ug/L	0.05	3.2	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
Methylnaphthalene (1&2)	ug/L	0.1	3.2	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	N/A
Naphthalene	ug/L	0.05	11	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
Phenanthrene	ug/L	0.05	1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	N/A
Pyrene	ug/L	0.01	4.1	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
OrganoChlorine Pesticides								
Aldrin	ug/L	0.01	0.35	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
alpha-Chlordane	ug/L	0.01	NS	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
gamma-Chlordane	ug/L	0.01	NS	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Chlordane	ug/L	0.01	7	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
o,p-DDD	ug/L	0.01	NS	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
p,p-DDD	ug/L	0.01	NS	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
DDD	ug/L	0.01	10	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
o,p-DDE	ug/L	0.01	NS	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
p,p-DDE	ug/L	0.01	NS	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
DDE	ug/L	0.01	10	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
o,p-DDT	ug/L	0.01	NS	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
p,p-DDT	ug/L	0.01	NS	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
DDT	ug/L	0.01	2.8	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Dieldrin	ug/L	0.01	0.35	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Endosulfan I	ug/L	0.01	NS	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Endosulfan II	ug/L	0.01	NS	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Endosulfan I/II	ug/L	0.01	1.5	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Endrin	ug/L	0.01	0.48	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Heptachlor	ug/L	0.01	1.5	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Heptachlor Epoxide	ug/L	0.01	0.048	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Hexachlorobenzene	ug/L	0.01	1	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Hexachlorobutadiene	ug/L	0.01	0.44	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
G-BHC (LINDANE)	ug/L	0.01	1.2	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Hexachloroethane	ug/L	0.01	2.1	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A
Methoxychlor	ug/L	0.01	6.5	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	N/A

Notes:
'MDL': Method Detection Limit
'N/A': Not Analyzed
'ND' : Non Detect
'NS ' : No Standard / Guideline Established
'mbgs' : metres below ground surface
1 - MECP Table 2 RPI: 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 in a Potable Ground Water Condition, All Types of Property Use.
2 - Groundwater sample MW21-104 is a duplicate of MW21-4
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: 100441.001
Custody: 130456

Report Date: 19-Mar-2021
Order Date: 5-Mar-2021

Revised Report

Order #: 2111041

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

Paracel ID	Client ID
2111041-01	BH-21-1 SA-2
2111041-02	BH21-3 SA-1
2111041-03	BH21-5 SA-1
2111041-04	BH21-5 SA-101
2111041-05	BH21-6 SA-1
2111041-06	BH21-6 SA-4
2111041-07	BH21-8 SA-2
2111041-08	BH20-8 SA-3

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 5-Mar-2021

Client PO:

Project Description: 100441.001

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.7 - ICP-OES	9-Mar-21	9-Mar-21
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	9-Mar-21	10-Mar-21
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	8-Mar-21	9-Mar-21
Conductivity	MOE E3138 - probe @25 °C, water ext	9-Mar-21	9-Mar-21
Cyanide, free	MOE E3015 - Auto Colour, water extraction	8-Mar-21	10-Mar-21
Mercury by CVAA	EPA 7471B - CVAA, digestion	9-Mar-21	10-Mar-21
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	8-Mar-21	9-Mar-21
PHC F1	CWS Tier 1 - P&T GC-FID	9-Mar-21	10-Mar-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	8-Mar-21	9-Mar-21
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	9-Mar-21	9-Mar-21
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	8-Mar-21	9-Mar-21
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	9-Mar-21	10-Mar-21
SAR	Calculated	9-Mar-21	9-Mar-21
Solids, %	Gravimetric, calculation	8-Mar-21	9-Mar-21

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 5-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH-21-1 SA-2	BH21-3 SA-1	BH21-5 SA-1	BH21-5 SA-101
	Sample Date:	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00
	Sample ID:	2111041-01	2111041-02	2111041-03	2111041-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	74.9	88.4	78.6	71.9
General Inorganics					
SAR	0.01 N/A	0.81	1.05	0.54	0.55
Conductivity	5 uS/cm	275	561	359	455
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	7.18	7.30	7.27	7.28
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	2.4	3.9	3.0	3.1
Barium	1.0 ug/g dry	247	168	173	171
Beryllium	0.5 ug/g dry	0.7	0.6	0.7	0.6
Boron	5.0 ug/g dry	5.5	7.7	7.4	7.0
Boron, available	0.5 ug/g dry	<0.5	<0.5	0.6	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	86.4	39.1	46.6	42.6
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.2
Cobalt	1.0 ug/g dry	16.3	9.4	9.8	9.2
Copper	5.0 ug/g dry	42.4	19.8	22.7	20.6
Lead	1.0 ug/g dry	6.3	10.1	8.1	7.1
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	1.7	<1.0	<1.0
Nickel	5.0 ug/g dry	47.2	23.4	23.6	22.2
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	69.0	39.8	48.3	46.7
Zinc	20.0 ug/g dry	82.1	57.6	65.0	56.0
Volatiles					
Acetone	0.50 ug/g dry	<0.50	-	-	-
Benzene	0.02 ug/g dry	<0.02	-	-	-
Bromodichloromethane	0.05 ug/g dry	<0.05	-	-	-
Bromoform	0.05 ug/g dry	<0.05	-	-	-
Bromomethane	0.05 ug/g dry	<0.05	-	-	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	-	-	-

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 5-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH-21-1 SA-2	BH21-3 SA-1	BH21-5 SA-1	BH21-5 SA-101
	Sample Date:	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00
	Sample ID:	2111041-01	2111041-02	2111041-03	2111041-04
	MDL/Units	Soil	Soil	Soil	Soil
Chlorobenzene	0.05 ug/g dry	<0.05	-	-	-
Chloroform	0.05 ug/g dry	<0.05	-	-	-
Dibromochloromethane	0.05 ug/g dry	<0.05	-	-	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	-	-	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	<0.05	-	-	-
Hexane	0.05 ug/g dry	<0.05	-	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	-	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	-	-	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	-	-	-
Methylene Chloride	0.05 ug/g dry	<0.05	-	-	-
Styrene	0.05 ug/g dry	<0.05	-	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	-	-	-
Trichloroethylene	0.05 ug/g dry	<0.05	-	-	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	-	-	-
Vinyl chloride	0.02 ug/g dry	<0.02	-	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	-	-	-
o-Xylene	0.05 ug/g dry	<0.05	-	-	-

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 5-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH-21-1 SA-2	BH21-3 SA-1	BH21-5 SA-1	BH21-5 SA-101
	Sample Date:	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00
	Sample ID:	2111041-01	2111041-02	2111041-03	2111041-04
	MDL/Units	Soil	Soil	Soil	Soil
Xylenes, total	0.05 ug/g dry	<0.05	-	-	-
4-Bromofluorobenzene	Surrogate	91.2%	-	-	-
Dibromofluoromethane	Surrogate	102%	-	-	-
Toluene-d8	Surrogate	112%	-	-	-
Benzene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	-	<0.05	<0.05	<0.05
Toluene	0.05 ug/g dry	-	<0.05	<0.05	<0.05
m,p-Xylenes	0.05 ug/g dry	-	<0.05	<0.05	<0.05
o-Xylene	0.05 ug/g dry	-	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	-	<0.05	<0.05	<0.05
Toluene-d8	Surrogate	-	110%	110%	109%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Anthracene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Benzo [a] anthracene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Benzo [a] pyrene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Chrysene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	-	0.03	<0.02	<0.02
Fluorene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
1-Methylnaphthalene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	-	<0.04	<0.04	<0.04
Naphthalene	0.01 ug/g dry	-	<0.01	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	-	<0.02	<0.02	<0.02
Pyrene	0.02 ug/g dry	-	0.03	<0.02	<0.02
2-Fluorobiphenyl	Surrogate	-	67.9%	58.2%	71.0%

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Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 5-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH-21-1 SA-2	BH21-3 SA-1	BH21-5 SA-1	BH21-5 SA-101
	Sample Date:	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00
	Sample ID:	2111041-01	2111041-02	2111041-03	2111041-04
	MDL/Units	Soil	Soil	Soil	Soil
Terphenyl-d14	Surrogate	-	96.1%	81.4%	103%

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 5-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH21-6 SA-1	BH21-6 SA-4	BH21-8 SA-2	BH20-8 SA-3
	Sample Date:	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00
	Sample ID:	2111041-05	2111041-06	2111041-07	2111041-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	66.3	78.7	80.7	92.5
General Inorganics					
SAR	0.01 N/A	0.61	0.46	1.04	1.88
Conductivity	5 uS/cm	302	188	548	2560
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	7.25	7.26	7.32	7.55
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	1.1
Arsenic	1.0 ug/g dry	2.8	3.9	2.6	5.3
Barium	1.0 ug/g dry	190	199	229	180
Beryllium	0.5 ug/g dry	0.7	0.7	0.5	<0.5
Boron	5.0 ug/g dry	7.5	6.5	<5.0	10.6
Boron, available	0.5 ug/g dry	0.6	<0.5	<0.5	0.6
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	50.7	71.4	47.4	19.9
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	0.2	<0.2
Cobalt	1.0 ug/g dry	10.3	14.6	9.3	7.6
Copper	5.0 ug/g dry	21.2	33.4	22.7	16.8
Lead	1.0 ug/g dry	8.3	6.5	4.3	23.5
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	3.7
Nickel	5.0 ug/g dry	25.3	37.6	26.0	18.3
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	50.1	71.7	48.8	23.6
Zinc	20.0 ug/g dry	64.3	71.1	46.3	40.2
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	-	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	-	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Bromomethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	-	<0.05

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 5-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH21-6 SA-1	BH21-6 SA-4	BH21-8 SA-2	BH20-8 SA-3
	Sample Date:	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00
	Sample ID:	2111041-05	2111041-06	2111041-07	2111041-08
	MDL/Units	Soil	Soil	Soil	Soil
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Ethylene dibromide (dibromoethane, 1	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Hexane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	-	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	-	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Styrene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	-	<0.02
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	-	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 5-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH21-6 SA-1	BH21-6 SA-4	BH21-8 SA-2	BH20-8 SA-3
	Sample Date:	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00
	Sample ID:	2111041-05	2111041-06	2111041-07	2111041-08
	MDL/Units	Soil	Soil	Soil	Soil
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	<0.05
4-Bromofluorobenzene	Surrogate	96.2%	97.6%	-	96.5%
Dibromofluoromethane	Surrogate	106%	91.3%	-	90.4%
Toluene-d8	Surrogate	109%	110%	-	110%
Benzene	0.02 ug/g dry	-	-	<0.02	-
Ethylbenzene	0.05 ug/g dry	-	-	<0.05	-
Toluene	0.05 ug/g dry	-	-	<0.05	-
m,p-Xylenes	0.05 ug/g dry	-	-	<0.05	-
o-Xylene	0.05 ug/g dry	-	-	<0.05	-
Xylenes, total	0.05 ug/g dry	-	-	<0.05	-
Toluene-d8	Surrogate	-	-	110%	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<40 [1]
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	83
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	183
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	-	<0.02	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	-	<0.02	<0.02
Anthracene	0.02 ug/g dry	<0.02	-	<0.02	0.03
Benzo [a] anthracene	0.02 ug/g dry	<0.02	-	<0.02	0.06
Benzo [a] pyrene	0.02 ug/g dry	<0.02	-	<0.02	0.06
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	-	<0.02	0.06
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	-	<0.02	0.04
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	-	<0.02	0.03
Chrysene	0.02 ug/g dry	<0.02	-	<0.02	0.06
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	<0.02	<0.02
Fluoranthene	0.02 ug/g dry	<0.02	-	<0.02	0.12
Fluorene	0.02 ug/g dry	<0.02	-	<0.02	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	<0.02	0.03
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	<0.02	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	<0.02	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	<0.04	<0.04
Naphthalene	0.01 ug/g dry	<0.01	-	<0.01	<0.01
Phenanthrene	0.02 ug/g dry	<0.02	-	<0.02	0.09

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 5-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH21-6 SA-1	BH21-6 SA-4	BH21-8 SA-2	BH20-8 SA-3
	Sample Date:	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00	05-Mar-21 09:00
	Sample ID:	2111041-05	2111041-06	2111041-07	2111041-08
	MDL/Units	Soil	Soil	Soil	Soil
Pyrene	0.02 ug/g dry	<0.02	-	<0.02	0.11
2-Fluorobiphenyl	Surrogate	59.6%	-	59.4%	71.5%
Terphenyl-d14	Surrogate	91.3%	-	106%	107%

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Conductivity	ND	5	uS/cm						
Cyanide, free	ND	0.03	ug/g						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron, available	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*0.894*		*ug/g*		*67.1*	*50-140*			
Surrogate: Terphenyl-d14	*1.29*		*ug/g*		*96.6*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*8.07*		*ug/g*		*101*	*50-140*			
Surrogate: Dibromofluoromethane	*6.94*		*ug/g*		*86.7*	*50-140*			
Surrogate: Toluene-d8	*8.66*		*ug/g*		*108*	*50-140*			
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*8.66*		*ug/g*		*108*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	3.10	0.01	N/A	3.06			1.3	30	
Conductivity	410	5	uS/cm	406			1.0	5	
Cyanide, free	ND	0.03	ug/g dry	ND			NC	35	
pH	7.63	0.05	pH Units	7.63			0.0	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	10			NC	30	
F3 PHCs (C16-C34)	209	8	ug/g dry	486			79.8	30	QR-04
F4 PHCs (C34-C50)	35	6	ug/g dry	73			70.6	30	QR-04
Metals									
Antimony	1.5	1.0	ug/g dry	ND			NC	30	
Arsenic	2.8	1.0	ug/g dry	2.4			14.1	30	
Barium	281	1.0	ug/g dry	247			12.7	30	
Beryllium	1.0	0.5	ug/g dry	0.7			NC	30	
Boron, available	ND	0.5	ug/g dry	ND			NC	35	
Boron	7.5	5.0	ug/g dry	5.5			NC	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g dry	ND			NC	35	
Chromium	102	5.0	ug/g dry	86.4			16.4	30	
Cobalt	19.0	1.0	ug/g dry	16.3			15.2	30	
Copper	47.9	5.0	ug/g dry	42.4			12.2	30	
Lead	7.6	1.0	ug/g dry	6.3			19.8	30	
Mercury	ND	0.1	ug/g dry	ND			NC	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	54.8	5.0	ug/g dry	47.2			15.0	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	81.1	10.0	ug/g dry	69.0			16.1	30	
Zinc	94.1	20.0	ug/g dry	82.1			13.6	30	
Physical Characteristics									
% Solids	93.8	0.1	% by Wt.	92.5			1.4	25	
Semi-Volatiles									
Acenaphthene	0.106	0.02	ug/g dry	ND			NC	40	
Acenaphthylene	0.026	0.02	ug/g dry	ND			NC	40	
Anthracene	0.095	0.02	ug/g dry	ND			NC	40	
Benzo [a] anthracene	0.023	0.02	ug/g dry	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Chrysene	0.024	0.02	ug/g dry	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Fluoranthene	0.048	0.02	ug/g dry	ND			NC	40	
Fluorene	0.108	0.02	ug/g dry	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND			NC	40	
1-Methylnaphthalene	0.585	0.02	ug/g dry	0.039			175.0	40	QR-04
2-Methylnaphthalene	0.746	0.02	ug/g dry	0.082			161.0	40	QR-04
Naphthalene	0.545	0.01	ug/g dry	0.039			173.0	40	QR-04
Phenanthrene	0.468	0.02	ug/g dry	ND			NC	40	
Pyrene	0.089	0.02	ug/g dry	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.06*		*ug/g dry*		*61.5*	*50-140*			
Surrogate: Terphenyl-d14	*1.34*		*ug/g dry*		*77.9*	*50-140*			
Volatiles									

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Acetone	ND	0.50	ug/g dry	ND			NC	50	
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g dry	ND			NC	50	
Bromoform	ND	0.05	ug/g dry	ND			NC	50	
Bromomethane	ND	0.05	ug/g dry	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g dry	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
Chloroform	ND	0.05	ug/g dry	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g dry	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g dry	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g dry	ND			NC	50	
Hexane	ND	0.05	ug/g dry	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g dry	ND			NC	50	
Styrene	ND	0.05	ug/g dry	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g dry	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g dry	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g dry	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			NC	50	
o-Xylene	ND	0.05	ug/g dry	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	*9.72*		*ug/g dry*		*91.0*	*50-140*			
Surrogate: Dibromofluoromethane	*11.0*		*ug/g dry*		*103*	*50-140*			
Surrogate: Toluene-d8	*11.8*		*ug/g dry*		*111*	*50-140*			
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			NC	50	
o-Xylene	ND	0.05	ug/g dry	ND			NC	50	
Surrogate: Toluene-d8	*11.8*		*ug/g dry*		*111*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Cyanide, free	0.280	0.03	ug/g	ND	93.5	70-130			
Hydrocarbons									
F1 PHCs (C6-C10)	183	7	ug/g	ND	91.6	80-120			
F2 PHCs (C10-C16)	97	4	ug/g	10	83.9	60-140			
F3 PHCs (C16-C34)	180	8	ug/g	ND	91.8	80-120			
F4 PHCs (C34-C50)	204	6	ug/g	73	82.0	60-140			
Metals									
Antimony	40.3	1.0	ug/g	ND	80.0	70-130			
Arsenic	46.9	1.0	ug/g	1.0	91.8	70-130			
Barium	155	1.0	ug/g	99.0	112	70-130			
Beryllium	48.7	0.5	ug/g	ND	96.8	70-130			
Boron, available	4.51	0.5	ug/g	ND	90.2	70-122			
Boron	46.5	5.0	ug/g	ND	88.6	70-130			
Cadmium	46.6	0.5	ug/g	ND	93.0	70-130			
Chromium (VI)	0.1	0.2	ug/g	ND	49.5	70-130			QM-01
Chromium	89.1	5.0	ug/g	34.6	109	70-130			
Cobalt	56.9	1.0	ug/g	6.5	101	70-130			
Copper	64.7	5.0	ug/g	16.9	95.6	70-130			
Lead	45.0	1.0	ug/g	2.5	84.9	70-130			
Mercury	1.35	0.1	ug/g	ND	90.1	70-130			
Molybdenum	47.7	1.0	ug/g	ND	94.9	70-130			
Nickel	67.7	5.0	ug/g	18.9	97.7	70-130			
Selenium	42.5	1.0	ug/g	ND	84.7	70-130			
Silver	45.6	0.3	ug/g	ND	91.0	70-130			
Thallium	43.6	1.0	ug/g	ND	86.8	70-130			
Uranium	44.2	1.0	ug/g	ND	87.8	70-130			
Vanadium	83.3	10.0	ug/g	27.6	111	70-130			
Zinc	80.3	20.0	ug/g	32.8	94.9	70-130			
Semi-Volatiles									
Acenaphthene	0.093	0.02	ug/g	ND	55.7	50-140			
Acenaphthylene	0.096	0.02	ug/g	ND	57.3	50-140			
Anthracene	0.102	0.02	ug/g	ND	61.0	50-140			
Benzo [a] anthracene	0.088	0.02	ug/g	ND	52.8	50-140			
Benzo [a] pyrene	0.102	0.02	ug/g	ND	61.0	50-140			
Benzo [b] fluoranthene	0.124	0.02	ug/g	ND	74.6	50-140			
Benzo [g,h,i] perylene	0.108	0.02	ug/g	ND	65.0	50-140			
Benzo [k] fluoranthene	0.113	0.02	ug/g	ND	67.5	50-140			
Chrysene	0.113	0.02	ug/g	ND	67.8	50-140			
Dibenzo [a,h] anthracene	0.105	0.02	ug/g	ND	62.7	50-140			
Fluoranthene	0.088	0.02	ug/g	ND	53.0	50-140			
Fluorene	0.099	0.02	ug/g	ND	59.6	50-140			
Indeno [1,2,3-cd] pyrene	0.100	0.02	ug/g	ND	60.0	50-140			
1-Methylnaphthalene	0.099	0.02	ug/g	ND	59.7	50-140			
2-Methylnaphthalene	0.111	0.02	ug/g	ND	66.5	50-140			
Naphthalene	0.119	0.01	ug/g	ND	71.2	50-140			
Phenanthrene	0.101	0.02	ug/g	ND	60.7	50-140			
Pyrene	0.090	0.02	ug/g	ND	53.8	50-140			
Surrogate: 2-Fluorobiphenyl	*1.10*		*ug/g*		*82.7*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Terphenyl-d14	*1.65*		*ug/g*		*124*	*50-140*			
Volatiles									
Acetone	13.0	0.50	ug/g	ND	130	50-140			
Benzene	4.58	0.02	ug/g	ND	115	60-130			
Bromodichloromethane	3.21	0.05	ug/g	ND	80.2	60-130			
Bromoform	2.54	0.05	ug/g	ND	63.5	60-130			
Bromomethane	4.17	0.05	ug/g	ND	104	50-140			
Carbon Tetrachloride	3.60	0.05	ug/g	ND	90.1	60-130			
Chlorobenzene	4.40	0.05	ug/g	ND	110	60-130			
Chloroform	4.64	0.05	ug/g	ND	116	60-130			
Dibromochloromethane	4.03	0.05	ug/g	ND	101	60-130			
Dichlorodifluoromethane	4.41	0.05	ug/g	ND	110	50-140			
1,2-Dichlorobenzene	3.96	0.05	ug/g	ND	98.9	60-130			
1,3-Dichlorobenzene	3.88	0.05	ug/g	ND	97.0	60-130			
1,4-Dichlorobenzene	3.88	0.05	ug/g	ND	96.9	60-130			
1,1-Dichloroethane	4.98	0.05	ug/g	ND	124	60-130			
1,2-Dichloroethane	4.84	0.05	ug/g	ND	121	60-130			
1,1-Dichloroethylene	4.24	0.05	ug/g	ND	106	60-130			
cis-1,2-Dichloroethylene	4.42	0.05	ug/g	ND	111	60-130			
trans-1,2-Dichloroethylene	4.17	0.05	ug/g	ND	104	60-130			
1,2-Dichloropropane	4.73	0.05	ug/g	ND	118	60-130			
cis-1,3-Dichloropropylene	2.48	0.05	ug/g	ND	62.0	60-130			
trans-1,3-Dichloropropylene	2.41	0.05	ug/g	ND	60.3	60-130			
Ethylbenzene	4.83	0.05	ug/g	ND	121	60-130			
Ethylene dibromide (dibromoethane, 1,2-	3.91	0.05	ug/g	ND	97.7	60-130			
Hexane	3.51	0.05	ug/g	ND	87.8	60-130			
Methyl Ethyl Ketone (2-Butanone)	12.7	0.50	ug/g	ND	127	50-140			
Methyl Isobutyl Ketone	9.64	0.50	ug/g	ND	96.4	50-140			
Methyl tert-butyl ether	10.8	0.05	ug/g	ND	108	50-140			
Methylene Chloride	3.87	0.05	ug/g	ND	96.8	60-130			
Styrene	3.62	0.05	ug/g	ND	90.6	60-130			
1,1,1,2-Tetrachloroethane	3.64	0.05	ug/g	ND	91.1	60-130			
1,1,2,2-Tetrachloroethane	2.60	0.05	ug/g	ND	65.0	60-130			
Tetrachloroethylene	4.18	0.05	ug/g	ND	105	60-130			
Toluene	4.94	0.05	ug/g	ND	123	60-130			
1,1,1-Trichloroethane	4.53	0.05	ug/g	ND	113	60-130			
1,1,2-Trichloroethane	4.28	0.05	ug/g	ND	107	60-130			
Trichloroethylene	5.06	0.05	ug/g	ND	127	60-130			
Trichlorofluoromethane	4.38	0.05	ug/g	ND	110	50-140			
Vinyl chloride	4.32	0.02	ug/g	ND	108	50-140			
m,p-Xylenes	8.83	0.05	ug/g	ND	110	60-130			
o-Xylene	4.48	0.05	ug/g	ND	112	60-130			
Surrogate: 4-Bromofluorobenzene	*7.63*		*ug/g*		*95.3*	*50-140*			
Surrogate: Dibromofluoromethane	*8.57*		*ug/g*		*107*	*50-140*			
Surrogate: Toluene-d8	*8.31*		*ug/g*		*104*	*50-140*			
Benzene	4.58	0.02	ug/g	ND	115	60-130			
Ethylbenzene	4.83	0.05	ug/g	ND	121	60-130			
Toluene	4.94	0.05	ug/g	ND	123	60-130			
m,p-Xylenes	8.83	0.05	ug/g	ND	110	60-130			
o-Xylene	4.48	0.05	ug/g	ND	112	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*8.31*		*ug/g*		*104*	*50-140*			

Qualifier Notes:

Login Qualifiers :

Container and COC sample IDs don't match - Jar labelled as BH21-8 SA-3, the vial is labelled as BH21 SSA3, chain of custody reads BH20-8 SA-3

Applies to samples: BH20-8 SA-3

Container and COC sample IDs don't match - Vial labelled as BH21-5 SA102, chain of custody reads BH21-5 SA-101

Applies to samples: BH21-5 SA-101

Sample Qualifiers :

1 : Elevated detection limits due to the nature of the sample matrix.

QC Qualifiers :

QM-01 : The spike recovery for this QC sample is outside of established control limits due to sample matrix interference.

QR-04 : Duplicate results exceeds RPD limits due to non-homogeneous matrix.

Sample Data Revisions

None

Work Order Revisions / Comments:

REVISION 1: This report includes an updated parameter list as per the client.

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

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

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.

PARAC LABORATORIES

Paracel ID: 2111041

urent Blvd.
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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2111041	№ 130456

Client Name: GEMTEC	Project Ref: 100441.001	Page 1 of 1
Contact Name: NS	Quote #: 21-113	Turnaround Time
Address: 32 Steacie Dr	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
☒ 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:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals ~~+ Hydride~~	Hg	CrVI	B (HWS)	OCP						
1	BH-21-1 SA-2	S		3	March 5/21		X			X				X						
2	BH21-3 SA-1			2			X		X	X										
3	BH21-5 SA-1			2			X		X	X										
4	BH21-5 SA-101			2			X		X	X										
5	BH21-6 SA-1			3			X		X	X				X						
6	BH21-6 SA-4			3			X			X				X						
7	BH21-8 SA-2			3			X		X	X				X						
8	BH20-8 SA-3			2			X		X	X										
9																				
10																				

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: Simeeporn Obimpi	Verified By:
Relinquished By (Print): Nicole Soucy	Date/Time: 03/05/2021 4:15pm	Date/Time: Mar 08, 2021 11:00	Date/Time: 8/Mar/2021 11:58
Date/Time: March 5/21	Temperature: 8.5 °C	Temperature: 4.1 °C	pH Verified: ☐ By: NA

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Subcontracted Analysis

GEMTEC Consulting Engineers and Scientists Limited
32 Steacie Drive
Kanata, ON K2K 2A9
Attn: Nicole Soucy

Tel: (613) 836-1422
Fax: (613) 836-9731

Paracel Report No **2111041**
Client Project(s): **100441.001**
Client PO:
Reference: **#21-113 Gemtec - 100441.00 - 3955 Kelly Farm Drive**
CoC Number: **130456**

Order Date: 05-Mar-21
Report Date: 10-Mar-21

Sample(s) from this project were subcontracted for the listed parameters. A copy of the subcontractor's report is attached

Paracel ID	Client ID	Analysis
2111041-01	BH-21-1 SA-2	Pesticides - Organochlorine in soil
2111041-05	BH21-6 SA-1	Pesticides - Organochlorine in soil
2111041-06	BH21-6 SA-4	Pesticides - Organochlorine in soil
2111041-07	BH21-8 SA-2	Pesticides - Organochlorine in soil

TESTMARK Laboratories Ltd.
Committed to Quality and Service

CERTIFICATE OF ANALYSIS

Client:	Dale Robertson	Work Order Number:	424823
Company:	Paracel Laboratories Ltd.- Ottawa	PO #:	
Address:	300-2319 St. Laurent Blvd. Ottawa, ON, K1G 4J8	Regulation: Project #:	O.Reg 153 Table 1 Soil Stringent Criteria 2111041
Phone/Fax:	(613) 731-9577 / (613) 731-9064	DWS #:	
Email:	drobertson@paracellabs.com	Sampled By:	
Date Order Received:	3/9/2021	Analysis Started:	3/15/2021
Arrival Temperature:	12 °C	Analysis Completed:	3/15/2021

WORK ORDER SUMMARY

ANALYSES WERE PERFORMED ON THE FOLLOWING SAMPLES. THE RESULTS RELATE ONLY TO THE ITEMS TESTED.

Sample Description	Lab ID	Matrix	Type	Comments	Date Collected	Time Collected
BH-21-1 SA-2	1624131	Soil	None		3/5/2021	
BH-21-6 SA-1	1624132	Soil	None		3/5/2021	
BH-21-6 SA-4	1624133	Soil	None		3/5/2021	
BH-21-8 SA-2	1624134	Soil	None		3/5/2021	

METHODS AND INSTRUMENTATION

THE FOLLOWING METHODS WERE USED FOR YOUR SAMPLE(S):

Method	Lab	Description	Reference
Moisture (A99)	Garson	Determination of Percent Moisture	In-House
OCPs Soil (A19)	Garson	Determination of Organochlorine Pesticides in Soil by GC/ECD	Modified from SW846-8081B

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CERTIFICATE OF ANALYSIS

Paracel Laboratories Ltd.- Ottawa

Work Order Number: 424823

This report has been approved by:

Brad Halvorson, B.Sc.
Laboratory Director

7 Margaret Street, Garson, ON, P3L 1E1
Phone: (705) 693-1121 Fax: (705) 693-1124 Web: www.testmark.ca

CERTIFICATE OF ANALYSIS

Paracel Laboratories Ltd.- Ottawa

Work Order Number: 424823

WORK ORDER RESULTS

Sample Description	BH - 21 - 1 SA - 2		BH - 21 - 6 SA - 1		BH - 21 - 6 SA - 4		BH - 21 - 8 SA - 2			
Sample Date	3/5/2021 12:00 AM		3/5/2021 12:00 AM		3/5/2021 12:00 AM		3/5/2021 12:00 AM			
Lab ID	1624131		1624132		1624133		1624134			
General Chemistry	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 1 Soil Stringent Criteria
% Moisture	23.3	0.1	28.1	0.1	20.0	0.1	15.2	0.1	%	~

Sample Description	BH - 21 - 1 SA - 2		BH - 21 - 6 SA - 1		BH - 21 - 6 SA - 4		BH - 21 - 8 SA - 2			
Sample Date	3/5/2021 12:00 AM		3/5/2021 12:00 AM		3/5/2021 12:00 AM		3/5/2021 12:00 AM			
Lab ID	1624131		1624132		1624133		1624134			
OC Pesticides	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 1 Soil Stringent Criteria
2,4'-DDD	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
2,4'-DDE	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
2,4'-DDT	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
4,4'-DDD	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
4,4'-DDE	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
4,4'-DDT	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
Aldrin	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.05
DDD (Total) (Calc.)	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.05
DDE (Total) (Calc.)	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.05
DDT (Total) (Calc.)	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.078

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CERTIFICATE OF ANALYSIS

Paracel Laboratories Ltd.- Ottawa

Work Order Number: 424823

Sample Description	BH - 21 - 1 SA - 2		BH - 21 - 6 SA - 1		BH - 21 - 6 SA - 4		BH - 21 - 8 SA - 2			
Sample Date	3/5/2021 12:00 AM		3/5/2021 12:00 AM		3/5/2021 12:00 AM		3/5/2021 12:00 AM			
Lab ID	1624131		1624132		1624133		1624134			
OC Pesticides	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 1 Soil Stringent Criteria
Decachlorobiphenyl (Surr.)	124	N/A	136	N/A	132	N/A	112 [113]	N/A	% Rec	~
Dieldrin	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.05
Endosulfan I	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
Endosulfan I + II (Calc.)	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.04
Endosulfan II	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
Endosulfan sulfate	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
Endrin	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.04
Endrin aldehyde	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
Heptachlor	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.05
Heptachlor epoxide	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.05
Hexachlorobenzene	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.01
Hexachlorobutadiene	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.01
Hexachloroethane	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.01
Methoxychlor	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.05
Mirex	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
Oxychlordane	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~

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CERTIFICATE OF ANALYSIS

Paracel Laboratories Ltd.- Ottawa

Work Order Number: 424823

Sample Description	BH - 21 - 1 SA - 2		BH - 21 - 6 SA - 1		BH - 21 - 6 SA - 4		BH - 21 - 8 SA - 2			
Sample Date	3/5/2021 12:00 AM		3/5/2021 12:00 AM		3/5/2021 12:00 AM		3/5/2021 12:00 AM			
Lab ID	1624131		1624132		1624133		1624134			
OC Pesticides	Result	MDL	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 1 Soil Stringent Criteria
ß-BHC	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
α - Chlordane	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
α + γ -Chlordane (Calc.)	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.05
α-BHC	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
γ - Chlordane	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~
γ-BHC (Lindane)	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	0.01
δ-BHC	<0.009	0.009	<0.009	0.009	<0.01	0.01	<0.01 [<0.009]	0.01	µg/g	~

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CERTIFICATE OF ANALYSIS

Paracel Laboratories Ltd.- Ottawa

Work Order Number: 424823

LEGEND

Dates: Dates are formatted as mm/dd/year throughout this report.

[rr]: After a parameter name indicates a re-run of that parameter. If multiple re-runs exist they are suffixed by a number. Sample may not have been handled according to the recommended temperature, hold time and head space requirements of the method after the initial analysis.

MDL: Method detection limit or minimum reporting limit.

[ ]: Results for laboratory replicates are shown in square brackets immediately below the associated sample result for ease of comparison.

% Rec: Surrogate compounds are added to the sample in some cases and the recovery is reported as a % recovered.

~: In a criteria column indicates the criteria is not applicable for the parameter row.

Quality Control: All associated Quality Control data is available on request.

Field Data: Reports containing Field Parameters represent data that has been collected and provided by the client. Testmark is not responsible for the validity of this data which may be used in subsequent calculations.

Sample Condition Deviations: A noted sample condition deviation may affect the validity of the result. Results apply to the sample(s) as received.

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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: 100441.001
Custody: 129775

Report Date: 19-Mar-2021
Order Date: 15-Mar-2021

Revised Report

Order #: 2112125

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

Paracel ID	Client ID
2112125-01	BH21-2 SA-1
2112125-02	BH21-7 SA-1
2112125-03	BH21-4 SA-1
2112125-04	BH21-4 SA-6
2112125-05	BH21-4 SA-101

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 15-Mar-2021

Client PO:

Project Description: 100441.001

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Boron, available	MOE (HWE), EPA 200.7 - ICP-OES	17-Mar-21	17-Mar-21
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	16-Mar-21	16-Mar-21
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	15-Mar-21	17-Mar-21
Conductivity	MOE E3138 - probe @25 °C, water ext	17-Mar-21	17-Mar-21
Cyanide, free	MOE E3015 - Auto Colour, water extraction	16-Mar-21	17-Mar-21
Mercury by CVAA	EPA 7471B - CVAA, digestion	17-Mar-21	17-Mar-21
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	16-Mar-21	16-Mar-21
PHC F1	CWS Tier 1 - P&T GC-FID	16-Mar-21	16-Mar-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	16-Mar-21	16-Mar-21
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	17-Mar-21	17-Mar-21
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	16-Mar-21	16-Mar-21
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	16-Mar-21	16-Mar-21
SAR	Calculated	17-Mar-21	17-Mar-21
Solids, %	Gravimetric, calculation	16-Mar-21	16-Mar-21

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 15-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH21-2 SA-1	BH21-7 SA-1	BH21-4 SA-1	BH21-4 SA-6
	Sample Date:	15-Mar-21 09:00	15-Mar-21 09:00	15-Mar-21 09:00	15-Mar-21 09:00
	Sample ID:	2112125-01	2112125-02	2112125-03	2112125-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	91.0	74.6	82.5	76.0
General Inorganics					
SAR	0.01 N/A	1.09	0.61	1.39	0.36
Conductivity	5 uS/cm	576	306	563	162
Cyanide, free	0.03 ug/g dry	<0.03	<0.03	<0.03	<0.03
pH	0.05 pH Units	7.62	7.42	7.53	7.86
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	4.3	2.9	2.6	3.2
Barium	1.0 ug/g dry	144	162	127	110
Beryllium	0.5 ug/g dry	<0.5	0.6	<0.5	<0.5
Boron	5.0 ug/g dry	7.7	6.9	<5.0	5.5
Boron, available	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	<0.5
Chromium	5.0 ug/g dry	30.9	41.9	41.8	21.8
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	<0.2	<0.2
Cobalt	1.0 ug/g dry	8.6	9.4	9.5	7.8
Copper	5.0 ug/g dry	18.7	21.6	20.8	21.5
Lead	1.0 ug/g dry	8.7	7.9	15.4	5.4
Mercury	0.1 ug/g dry	<0.1	<0.1	<0.1	<0.1
Molybdenum	1.0 ug/g dry	1.8	1.1	1.1	1.3
Nickel	5.0 ug/g dry	19.9	22.2	24.4	17.5
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	<1.0
Vanadium	10.0 ug/g dry	34.3	44.9	43.1	34.7
Zinc	20.0 ug/g dry	51.8	57.7	51.5	33.1
Volatiles					
Acetone	0.50 ug/g dry	-	-	<0.50	<0.50
Benzene	0.02 ug/g dry	-	-	<0.02	<0.02
Bromodichloromethane	0.05 ug/g dry	-	-	<0.05	<0.05
Bromoform	0.05 ug/g dry	-	-	<0.05	<0.05
Bromomethane	0.05 ug/g dry	-	-	<0.05	<0.05
Carbon Tetrachloride	0.05 ug/g dry	-	-	<0.05	<0.05

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 15-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH21-2 SA-1	BH21-7 SA-1	BH21-4 SA-1	BH21-4 SA-6
	Sample Date:	15-Mar-21 09:00	15-Mar-21 09:00	15-Mar-21 09:00	15-Mar-21 09:00
	Sample ID:	2112125-01	2112125-02	2112125-03	2112125-04
	MDL/Units	Soil	Soil	Soil	Soil
Chlorobenzene	0.05 ug/g dry	-	-	<0.05	<0.05
Chloroform	0.05 ug/g dry	-	-	<0.05	<0.05
Dibromochloromethane	0.05 ug/g dry	-	-	<0.05	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	-	-	<0.05	<0.05
1,2-Dichlorobenzene	0.05 ug/g dry	-	-	<0.05	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	-	-	<0.05	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	-	-	<0.05	<0.05
1,1-Dichloroethane	0.05 ug/g dry	-	-	<0.05	<0.05
1,2-Dichloroethane	0.05 ug/g dry	-	-	<0.05	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	-	-	<0.05	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	-	-	<0.05	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	-	-	<0.05	<0.05
1,2-Dichloropropane	0.05 ug/g dry	-	-	<0.05	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	-	-	<0.05	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	-	-	<0.05	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	-	-	<0.05	<0.05
Ethylbenzene	0.05 ug/g dry	-	-	<0.05	<0.05
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	-	-	<0.05	<0.05
Hexane	0.05 ug/g dry	-	-	<0.05	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	-	-	<0.50	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	-	-	<0.50	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	-	-	<0.05	<0.05
Methylene Chloride	0.05 ug/g dry	-	-	<0.05	<0.05
Styrene	0.05 ug/g dry	-	-	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	-	-	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	-	-	<0.05	<0.05
Tetrachloroethylene	0.05 ug/g dry	-	-	<0.05	<0.05
Toluene	0.05 ug/g dry	-	-	<0.05	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	-	-	<0.05	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	-	-	<0.05	<0.05
Trichloroethylene	0.05 ug/g dry	-	-	<0.05	<0.05
Trichlorofluoromethane	0.05 ug/g dry	-	-	<0.05	<0.05
Vinyl chloride	0.02 ug/g dry	-	-	<0.02	<0.02
m,p-Xylenes	0.05 ug/g dry	-	-	<0.05	<0.05
o-Xylene	0.05 ug/g dry	-	-	<0.05	<0.05

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 15-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH21-2 SA-1	BH21-7 SA-1	BH21-4 SA-1	BH21-4 SA-6
	Sample Date:	15-Mar-21 09:00	15-Mar-21 09:00	15-Mar-21 09:00	15-Mar-21 09:00
	Sample ID:	2112125-01	2112125-02	2112125-03	2112125-04
	MDL/Units	Soil	Soil	Soil	Soil
Xylenes, total	0.05 ug/g dry	-	-	<0.05	<0.05
4-Bromofluorobenzene	Surrogate	-	-	110%	113%
Dibromofluoromethane	Surrogate	-	-	86.1%	88.2%
Toluene-d8	Surrogate	-	-	117%	117%
Benzene	0.02 ug/g dry	<0.02	<0.02	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene	0.05 ug/g dry	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g dry	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	-
Toluene-d8	Surrogate	117%	117%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	<7	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	<8	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	<6	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Acenaphthylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	<0.02	0.02	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	<0.02	0.02	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.02	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Chrysene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Fluoranthene	0.02 ug/g dry	<0.02	<0.02	0.05	-
Fluorene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	<0.02	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	<0.04	<0.04	-
Naphthalene	0.01 ug/g dry	<0.01	<0.01	<0.01	-
Phenanthrene	0.02 ug/g dry	<0.02	<0.02	0.03	-
Pyrene	0.02 ug/g dry	<0.02	<0.02	0.05	-
2-Fluorobiphenyl	Surrogate	68.6%	77.3%	84.0%	-

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 15-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH21-2 SA-1	BH21-7 SA-1	BH21-4 SA-1	BH21-4 SA-6
	Sample Date:	15-Mar-21 09:00	15-Mar-21 09:00	15-Mar-21 09:00	15-Mar-21 09:00
	Sample ID:	2112125-01	2112125-02	2112125-03	2112125-04
	MDL/Units	Soil	Soil	Soil	Soil
Terphenyl-d14	Surrogate	96.3%	109%	117%	-

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 15-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH21-4 SA-101	-	-	-
	Sample Date:	15-Mar-21 09:00	-	-	-
	Sample ID:	2112125-05	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	83.7	-	-	-
General Inorganics					
SAR	0.01 N/A	1.15	-	-	-
Conductivity	5 uS/cm	564	-	-	-
Cyanide, free	0.03 ug/g dry	<0.03	-	-	-
pH	0.05 pH Units	7.59	-	-	-
Metals					
Antimony	1.0 ug/g dry	<1.0	-	-	-
Arsenic	1.0 ug/g dry	3.0	-	-	-
Barium	1.0 ug/g dry	113	-	-	-
Beryllium	0.5 ug/g dry	<0.5	-	-	-
Boron	5.0 ug/g dry	5.4	-	-	-
Boron, available	0.5 ug/g dry	<0.5	-	-	-
Cadmium	0.5 ug/g dry	<0.5	-	-	-
Chromium	5.0 ug/g dry	29.7	-	-	-
Chromium (VI)	0.2 ug/g dry	<0.2	-	-	-
Cobalt	1.0 ug/g dry	7.9	-	-	-
Copper	5.0 ug/g dry	16.8	-	-	-
Lead	1.0 ug/g dry	10.7	-	-	-
Mercury	0.1 ug/g dry	<0.1	-	-	-
Molybdenum	1.0 ug/g dry	1.6	-	-	-
Nickel	5.0 ug/g dry	19.6	-	-	-
Selenium	1.0 ug/g dry	<1.0	-	-	-
Silver	0.3 ug/g dry	<0.3	-	-	-
Thallium	1.0 ug/g dry	<1.0	-	-	-
Uranium	1.0 ug/g dry	<1.0	-	-	-
Vanadium	10.0 ug/g dry	36.1	-	-	-
Zinc	20.0 ug/g dry	41.2	-	-	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	-	-	-
Benzene	0.02 ug/g dry	<0.02	-	-	-
Bromodichloromethane	0.05 ug/g dry	<0.05	-	-	-
Bromoform	0.05 ug/g dry	<0.05	-	-	-
Bromomethane	0.05 ug/g dry	<0.05	-	-	-
Carbon Tetrachloride	0.05 ug/g dry	<0.05	-	-	-

	Client ID:	BH21-4 SA-101	-	-	-
	Sample Date:	15-Mar-21 09:00	-	-	-
	Sample ID:	2112125-05	-	-	-
	MDL/Units	Soil	-	-	-
Chlorobenzene	0.05 ug/g dry	<0.05	-	-	-
Chloroform	0.05 ug/g dry	<0.05	-	-	-
Dibromochloromethane	0.05 ug/g dry	<0.05	-	-	-
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	-	-	-
1,2-Dichloropropane	0.05 ug/g dry	<0.05	-	-	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	-	-	-
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Ethylene dibromide (dibromoethane, 1	0.05 ug/g dry	<0.05	-	-	-
Hexane	0.05 ug/g dry	<0.05	-	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	-	-	-
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	-	-	-
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	-	-	-
Methylene Chloride	0.05 ug/g dry	<0.05	-	-	-
Styrene	0.05 ug/g dry	<0.05	-	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	-	-	-
Tetrachloroethylene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	-	-	-
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	-	-	-
Trichloroethylene	0.05 ug/g dry	<0.05	-	-	-
Trichlorofluoromethane	0.05 ug/g dry	<0.05	-	-	-
Vinyl chloride	0.02 ug/g dry	<0.02	-	-	-
m,p-Xylenes	0.05 ug/g dry	0.37	-	-	-
o-Xylene	0.05 ug/g dry	0.09	-	-	-

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 15-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	BH21-4 SA-101	-	-	-
	Sample Date:	15-Mar-21 09:00	-	-	-
	Sample ID:	2112125-05	-	-	-
	MDL/Units	Soil	-	-	-
Xylenes, total	0.05 ug/g dry	0.46	-	-	-
4-Bromofluorobenzene	Surrogate	117%	-	-	-
Dibromofluoromethane	Surrogate	90.1%	-	-	-
Toluene-d8	Surrogate	117%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	8	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	9	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	-	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	-	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	-	-	-
Anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	-	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	-	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Chrysene	0.02 ug/g dry	<0.02	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	-
Fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Fluorene	0.02 ug/g dry	<0.02	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	-
Naphthalene	0.01 ug/g dry	<0.01	-	-	-
Phenanthrene	0.02 ug/g dry	<0.02	-	-	-
Pyrene	0.02 ug/g dry	<0.02	-	-	-
2-Fluorobiphenyl	Surrogate	78.4%	-	-	-
Terphenyl-d14	Surrogate	112%	-	-	-

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 15-Mar-2021

Client PO:

Project Description: 100441.001

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Conductivity	ND	5	uS/cm						
Cyanide, free	ND	0.03	ug/g						
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	0.5	ug/g						
Boron, available	ND	0.5	ug/g						
Boron	ND	5.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium (VI)	ND	0.2	ug/g						
Chromium	ND	5.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	5.0	ug/g						
Lead	ND	1.0	ug/g						
Mercury	ND	0.1	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	5.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.3	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	10.0	ug/g						
Zinc	ND	20.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.07*		*ug/g*		*79.9*	*50-140*			
Surrogate: Terphenyl-d14	*1.55*		*ug/g*		*116*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g						
Benzene	ND	0.02	ug/g						
Bromodichloromethane	ND	0.05	ug/g						
Bromoform	ND	0.05	ug/g						
Bromomethane	ND	0.05	ug/g						

Certificate of Analysis

Report Date: 19-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 15-Mar-2021

Client PO:

Project Description: 100441.001

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Carbon Tetrachloride	ND	0.05	ug/g						
Chlorobenzene	ND	0.05	ug/g						
Chloroform	ND	0.05	ug/g						
Dibromochloromethane	ND	0.05	ug/g						
Dichlorodifluoromethane	ND	0.05	ug/g						
1,2-Dichlorobenzene	ND	0.05	ug/g						
1,3-Dichlorobenzene	ND	0.05	ug/g						
1,4-Dichlorobenzene	ND	0.05	ug/g						
1,1-Dichloroethane	ND	0.05	ug/g						
1,2-Dichloroethane	ND	0.05	ug/g						
1,1-Dichloroethylene	ND	0.05	ug/g						
cis-1,2-Dichloroethylene	ND	0.05	ug/g						
trans-1,2-Dichloroethylene	ND	0.05	ug/g						
1,2-Dichloropropane	ND	0.05	ug/g						
cis-1,3-Dichloropropylene	ND	0.05	ug/g						
trans-1,3-Dichloropropylene	ND	0.05	ug/g						
1,3-Dichloropropene, total	ND	0.05	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g						
Hexane	ND	0.05	ug/g						
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g						
Methyl Isobutyl Ketone	ND	0.50	ug/g						
Methyl tert-butyl ether	ND	0.05	ug/g						
Methylene Chloride	ND	0.05	ug/g						
Styrene	ND	0.05	ug/g						
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g						
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g						
Tetrachloroethylene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
1,1,1-Trichloroethane	ND	0.05	ug/g						
1,1,2-Trichloroethane	ND	0.05	ug/g						
Trichloroethylene	ND	0.05	ug/g						
Trichlorofluoromethane	ND	0.05	ug/g						
Vinyl chloride	ND	0.02	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: 4-Bromofluorobenzene	*8.71*		*ug/g*		*109*	*50-140*			
Surrogate: Dibromofluoromethane	*7.43*		*ug/g*		*92.8*	*50-140*			
Surrogate: Toluene-d8	*9.39*		*ug/g*		*117*	*50-140*			
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*9.39*		*ug/g*		*117*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	0.15	0.01	N/A	0.15			0.0	30	
Conductivity	117	5	uS/cm	118			0.9	5	
Cyanide, free	ND	0.03	ug/g dry	ND			NC	35	
pH	7.00	0.05	pH Units	7.05			0.7	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND			NC	30	
F4 PHCs (C34-C50)	19	6	ug/g dry	19			0.9	30	
Metals									
Antimony	2.3	1.0	ug/g dry	ND			NC	30	
Arsenic	1.8	1.0	ug/g dry	1.8			2.8	30	
Barium	18.2	1.0	ug/g dry	17.8			2.2	30	
Beryllium	ND	0.5	ug/g dry	ND			NC	30	
Boron, available	ND	0.5	ug/g dry	ND			NC	35	
Boron	ND	5.0	ug/g dry	ND			NC	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g dry	ND			NC	35	
Chromium	9.0	5.0	ug/g dry	9.0			0.0	30	
Cobalt	2.3	1.0	ug/g dry	2.2			4.1	30	
Copper	ND	5.0	ug/g dry	ND			NC	30	
Lead	8.2	1.0	ug/g dry	8.0			2.3	30	
Mercury	ND	0.1	ug/g dry	ND			NC	30	
Molybdenum	ND	1.0	ug/g dry	ND			NC	30	
Nickel	ND	5.0	ug/g dry	ND			NC	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	19.3	10.0	ug/g dry	20.9			8.1	30	
Zinc	ND	20.0	ug/g dry	ND			NC	30	
Physical Characteristics									
% Solids	80.1	0.1	% by Wt.	80.4			0.4	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g dry	ND			NC	40	
Anthracene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [a] anthracene	0.025	0.02	ug/g dry	ND			NC	40	
Benzo [a] pyrene	0.027	0.02	ug/g dry	ND			NC	40	
Benzo [b] fluoranthene	0.027	0.02	ug/g dry	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND			NC	40	
Chrysene	0.032	0.02	ug/g dry	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND			NC	40	
Fluoranthene	0.072	0.02	ug/g dry	0.041			NC	40	
Fluorene	ND	0.02	ug/g dry	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g dry	0.034			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g dry	0.047			NC	40	
Naphthalene	ND	0.01	ug/g dry	0.032			NC	40	
Phenanthrene	0.050	0.02	ug/g dry	0.039			25.3	40	
Pyrene	0.057	0.02	ug/g dry	0.034			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.31*		*ug/g dry*		*79.2*	*50-140*			
Surrogate: Terphenyl-d14	*1.86*		*ug/g dry*		*112*	*50-140*			
Volatiles									

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Acetone	ND	0.50	ug/g dry	ND			NC	50	
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g dry	ND			NC	50	
Bromoform	ND	0.05	ug/g dry	ND			NC	50	
Bromomethane	ND	0.05	ug/g dry	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g dry	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
Chloroform	ND	0.05	ug/g dry	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g dry	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g dry	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g dry	ND			NC	50	
Hexane	ND	0.05	ug/g dry	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g dry	ND			NC	50	
Styrene	ND	0.05	ug/g dry	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g dry	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g dry	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g dry	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			NC	50	
o-Xylene	ND	0.05	ug/g dry	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	*12.3*		*ug/g dry*		*115*	*50-140*			
Surrogate: Dibromofluoromethane	*9.36*		*ug/g dry*		*87.3*	*50-140*			
Surrogate: Toluene-d8	*12.6*		*ug/g dry*		*117*	*50-140*			
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			NC	50	
o-Xylene	ND	0.05	ug/g dry	ND			NC	50	
Surrogate: Toluene-d8	*12.6*		*ug/g dry*		*117*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Cyanide, free	0.272	0.03	ug/g	ND	90.8	70-130			
Hydrocarbons									
F1 PHCs (C6-C10)	206	7	ug/g	ND	103	80-120			
F2 PHCs (C10-C16)	70	4	ug/g	ND	78.8	60-140			
F3 PHCs (C16-C34)	226	8	ug/g	ND	104	60-140			
F4 PHCs (C34-C50)	154	6	ug/g	19	97.7	60-140			
Metals									
Antimony	43.6	1.0	ug/g	ND	86.6	70-130			
Arsenic	47.2	1.0	ug/g	ND	92.9	70-130			
Barium	54.1	1.0	ug/g	7.1	93.9	70-130			
Beryllium	50.3	0.5	ug/g	ND	100	70-130			
Boron, available	4.86	0.5	ug/g	ND	97.2	70-122			
Boron	46.9	5.0	ug/g	ND	91.2	70-130			
Cadmium	46.2	0.5	ug/g	ND	92.4	70-130			
Chromium (VI)	0.2	0.2	ug/g	ND	82.0	70-130			
Chromium	55.8	5.0	ug/g	ND	104	70-130			
Cobalt	50.8	1.0	ug/g	ND	99.8	70-130			
Copper	49.5	5.0	ug/g	ND	95.1	70-130			
Lead	44.8	1.0	ug/g	3.2	83.2	70-130			
Mercury	1.58	0.1	ug/g	ND	105	70-130			
Molybdenum	48.8	1.0	ug/g	ND	97.2	70-130			
Nickel	49.5	5.0	ug/g	ND	95.6	70-130			
Selenium	43.1	1.0	ug/g	ND	85.8	70-130			
Silver	44.9	0.3	ug/g	ND	89.8	70-130			
Thallium	42.4	1.0	ug/g	ND	84.7	70-130			
Uranium	44.6	1.0	ug/g	ND	88.9	70-130			
Vanadium	60.1	10.0	ug/g	ND	103	70-130			
Zinc	52.9	20.0	ug/g	ND	92.7	70-130			
Semi-Volatiles									
Acenaphthene	0.237	0.02	ug/g	ND	114	50-140			
Acenaphthylene	0.230	0.02	ug/g	ND	111	50-140			
Anthracene	0.254	0.02	ug/g	ND	122	50-140			
Benzo [a] anthracene	0.235	0.02	ug/g	ND	113	50-140			
Benzo [a] pyrene	0.242	0.02	ug/g	ND	117	50-140			
Benzo [b] fluoranthene	0.258	0.02	ug/g	ND	124	50-140			
Benzo [g,h,i] perylene	0.219	0.02	ug/g	ND	106	50-140			
Benzo [k] fluoranthene	0.258	0.02	ug/g	ND	125	50-140			
Chrysene	0.253	0.02	ug/g	ND	122	50-140			
Dibenzo [a,h] anthracene	0.204	0.02	ug/g	ND	98.3	50-140			
Fluoranthene	0.251	0.02	ug/g	0.041	101	50-140			
Fluorene	0.220	0.02	ug/g	ND	106	50-140			
Indeno [1,2,3-cd] pyrene	0.220	0.02	ug/g	ND	106	50-140			
1-Methylnaphthalene	0.235	0.02	ug/g	0.034	97.0	50-140			
2-Methylnaphthalene	0.256	0.02	ug/g	0.047	101	50-140			
Naphthalene	0.277	0.01	ug/g	0.032	118	50-140			
Phenanthrene	0.270	0.02	ug/g	0.039	111	50-140			
Pyrene	0.289	0.02	ug/g	0.034	123	50-140			
Surrogate: 2-Fluorobiphenyl	*1.41*		*ug/g*		*84.8*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Terphenyl-d14	*1.96*		*ug/g*		*118*	*50-140*			
Volatiles									
Acetone	8.40	0.50	ug/g	ND	84.0	50-140			
Benzene	4.42	0.02	ug/g	ND	111	60-130			
Bromodichloromethane	3.61	0.05	ug/g	ND	90.1	60-130			
Bromoform	2.45	0.05	ug/g	ND	61.3	60-130			
Bromomethane	4.62	0.05	ug/g	ND	116	50-140			
Carbon Tetrachloride	2.81	0.05	ug/g	ND	70.3	60-130			
Chlorobenzene	4.47	0.05	ug/g	ND	112	60-130			
Chloroform	3.93	0.05	ug/g	ND	98.3	60-130			
Dibromochloromethane	3.05	0.05	ug/g	ND	76.2	60-130			
Dichlorodifluoromethane	4.30	0.05	ug/g	ND	108	50-140			
1,2-Dichlorobenzene	4.29	0.05	ug/g	ND	107	60-130			
1,3-Dichlorobenzene	4.23	0.05	ug/g	ND	106	60-130			
1,4-Dichlorobenzene	4.24	0.05	ug/g	ND	106	60-130			
1,1-Dichloroethane	4.24	0.05	ug/g	ND	106	60-130			
1,2-Dichloroethane	3.92	0.05	ug/g	ND	97.9	60-130			
1,1-Dichloroethylene	4.58	0.05	ug/g	ND	115	60-130			
cis-1,2-Dichloroethylene	4.27	0.05	ug/g	ND	107	60-130			
trans-1,2-Dichloroethylene	4.30	0.05	ug/g	ND	107	60-130			
1,2-Dichloropropane	4.78	0.05	ug/g	ND	120	60-130			
cis-1,3-Dichloropropylene	3.70	0.05	ug/g	ND	92.5	60-130			
trans-1,3-Dichloropropylene	3.07	0.05	ug/g	ND	76.7	60-130			
Ethylbenzene	4.49	0.05	ug/g	ND	112	60-130			
Ethylene dibromide (dibromoethane, 1,2-	4.32	0.05	ug/g	ND	108	60-130			
Hexane	4.02	0.05	ug/g	ND	100	60-130			
Methyl Ethyl Ketone (2-Butanone)	11.5	0.50	ug/g	ND	115	50-140			
Methyl Isobutyl Ketone	10.2	0.50	ug/g	ND	102	50-140			
Methyl tert-butyl ether	8.01	0.05	ug/g	ND	80.1	50-140			
Methylene Chloride	3.87	0.05	ug/g	ND	96.8	60-130			
Styrene	4.52	0.05	ug/g	ND	113	60-130			
1,1,1,2-Tetrachloroethane	2.97	0.05	ug/g	ND	74.2	60-130			
1,1,2,2-Tetrachloroethane	4.63	0.05	ug/g	ND	116	60-130			
Tetrachloroethylene	4.91	0.05	ug/g	ND	123	60-130			
Toluene	5.16	0.05	ug/g	ND	129	60-130			
1,1,1-Trichloroethane	3.89	0.05	ug/g	ND	97.2	60-130			
1,1,2-Trichloroethane	4.88	0.05	ug/g	ND	122	60-130			
Trichloroethylene	4.58	0.05	ug/g	ND	114	60-130			
Trichlorofluoromethane	3.38	0.05	ug/g	ND	84.4	50-140			
Vinyl chloride	3.87	0.02	ug/g	ND	96.8	50-140			
m,p-Xylenes	9.04	0.05	ug/g	ND	113	60-130			
o-Xylene	4.28	0.05	ug/g	ND	107	60-130			
Surrogate: 4-Bromofluorobenzene	*8.31*		*ug/g*		*104*	*50-140*			
Surrogate: Dibromofluoromethane	*7.20*		*ug/g*		*90.1*	*50-140*			
Surrogate: Toluene-d8	*8.64*		*ug/g*		*108*	*50-140*			
Benzene	4.42	0.02	ug/g	ND	111	60-130			
Ethylbenzene	4.49	0.05	ug/g	ND	112	60-130			
Toluene	5.16	0.05	ug/g	ND	129	60-130			
m,p-Xylenes	9.04	0.05	ug/g	ND	113	60-130			
o-Xylene	4.28	0.05	ug/g	ND	107	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: Toluene-d8	*8.64*		*ug/g*		*108*	*50-140*			

Qualifier Notes:

QC Qualifiers :

Sample Data Revisions

None

Work Order Revisions / Comments:

REVISION 1: This report includes an updated parameter list as per the client.

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

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

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

Paracel ID: 2112125

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Paracel Order Number (Lab Use Only): 2112125

Chain Of Custody (Lab Use Only) № 129775

Client Name: Gemtec
Project Ref: 100441.001
Page 1 of 1

Contact Name: NS
Quote #: 21-113

Address: 32 Steacie Drive
PO #:

E-mail: nicole.soucy@gemtec.ca

Telephone: 613-836-1422

Turnaround Time: ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular

Date Required:

Regulation 153/04			Other Regulation	
☒ 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:	

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analysis

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	OCP					
1	BH21-2 SA-1	S	N/A	2	March 15/21		X		X	X									
2	BH21-7 SA-1	↓	↓	2	↓		X		X	X									
3	BH21-4 SA-1			~~2~~ 3			X		X	X				X					
4	BH21-4 SA-6			3			X			X				X					
5	BH21-4 SA-101			2			X		X	X									
6	BH21-4 SA-106			1										X					
7																			
8																			
9																			
10																			

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign): [signature]	Received By Driver/Depot: Aly	Received at Lab: Sumeepam Dohmai	Verified By: [signature]
Relinquished By (Print): R. Fox	Date/Time: Mar 15/21 14:34	Date/Time: Mar 15, 2021 04.25	Date/Time: 3-15-21 16:53
Date/Time: March 15/2021 13:00	Temperature: 8.6 °C	Temperature: 3.8 °C	pH Verified: ☐ By:

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Subcontracted Analysis

GEMTEC Consulting Engineers and Scientists Limited
32 Steacie Drive
Kanata, ON K2K 2A9
Attn: Nicole Soucy

Tel: (613) 836-1422
Fax: (613) 836-9731

Paracel Report No **2112125**
Client Project(s): **100441.001**
Client PO:
Reference: **#21-113 Gemtec - 100441.00 - 3955 Kelly Farm Drive**
CoC Number: **129775**

Order Date: 15-Mar-21
Report Date: 18-Mar-21

Sample(s) from this project were subcontracted for the listed parameters. A copy of the subcontractor's report is attached

Paracel ID	Client ID	Analysis
2112125-03	BH21-4 SA-1	Pesticides - Organochlorine in soil
2112125-04	BH21-4 SA-6	Pesticides - Organochlorine in soil
2112125-06	BH21-4 SA-106	Pesticides - Organochlorine in soil

TESTMARK Laboratories Ltd.
Committed to Quality and Service

CERTIFICATE OF ANALYSIS

Client:	Dale Robertson	Work Order Number:	425489
Company:	Paracel Laboratories Ltd.- Ottawa	PO #:	
Address:	300-2319 St. Laurent Blvd. Ottawa, ON, K1G 4J8	Regulation: Project #:	O.Reg 153 Table 1 Soil Stringent Criteria 2112125
Phone/Fax:	(613) 731-9577 / (613) 731-9064	DWS #:	
Email:	drobertson@paracellabs.com	Sampled By:	
Date Order Received:	3/17/2021	Analysis Started:	3/19/2021
Arrival Temperature:	15 °C	Analysis Completed:	3/23/2021

WORK ORDER SUMMARY

ANALYSES WERE PERFORMED ON THE FOLLOWING SAMPLES. THE RESULTS RELATE ONLY TO THE ITEMS TESTED.

Sample Description	Lab ID	Matrix	Type	Comments	Date Collected	Time Collected
BH21-4 SA-1	1626284	Soil	None		3/15/2021	
BH21-4 SA-6	1626285	Soil	None		3/15/2021	
BH21-4 SA-106	1626286	Soil	None		3/15/2021	

METHODS AND INSTRUMENTATION

THE FOLLOWING METHODS WERE USED FOR YOUR SAMPLE(S):

Method	Lab	Description	Reference
Moisture (A99)	Garson	Determination of Percent Moisture	In-House
OCPs Soil (A19)	Garson	Determination of Organochlorine Pesticides in Soil by GC/ECD	Modified from SW846-8081B

7 Margaret Street, Garson, ON, P3L 1E1
Phone: (705) 693-1121 Fax: (705) 693-1124 Web: www.testmark.ca

CERTIFICATE OF ANALYSIS

Paracel Laboratories Ltd.- Ottawa

Work Order Number: 425489

This report has been approved by:

Brad Halvorson, B.Sc.
Laboratory Director

7 Margaret Street, Garson, ON, P3L 1E1
Phone: (705) 693-1121 Fax: (705) 693-1124 Web: www.testmark.ca

CERTIFICATE OF ANALYSIS

Paracel Laboratories Ltd.- Ottawa

Work Order Number: 425489

WORK ORDER RESULTS

Sample Description	BH21 - 4 SA - 1		BH21 - 4 SA - 6		BH21 - 4 SA - 106			
Sample Date	3/15/2021 12:00 AM		3/15/2021 12:00 AM		3/15/2021 12:00 AM			
Lab ID	1626284		1626285		1626286			
General Chemistry	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 1 Soil Stringent Criteria
% Moisture	16.2	0.1	20.9	0.1	17.3	0.1	%	~

Sample Description	BH21 - 4 SA - 1		BH21 - 4 SA - 6		BH21 - 4 SA - 106			
Sample Date	3/15/2021 12:00 AM		3/15/2021 12:00 AM		3/15/2021 12:00 AM			
Lab ID	1626284		1626285		1626286			
OC Pesticides	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 1 Soil Stringent Criteria
2,4'-DDD	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
2,4'-DDE	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
2,4'-DDT	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
4,4'-DDD	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
4,4'-DDE	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
4,4'-DDT	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
Aldrin	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.05
DDD (Total) (Calc.)	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.05
DDE (Total) (Calc.)	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.05
DDT (Total) (Calc.)	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.078
Decachlorobiphenyl (Surr.)	129	N/A	122	N/A	127	N/A	% Rec	~
Dieldrin	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.05
Endosulfan I	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
Endosulfan I + II (Calc.)	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.04

7 Margaret Street, Garson, ON, P3L 1E1
Phone: (705) 693-1121 Fax: (705) 693-1124 Web: www.testmark.ca

CERTIFICATE OF ANALYSIS

Paracel Laboratories Ltd.- Ottawa

Work Order Number: 425489

Sample Description	BH21 - 4 SA - 1		BH21 - 4 SA - 6		BH21 - 4 SA - 106			
Sample Date	3/15/2021 12:00 AM		3/15/2021 12:00 AM		3/15/2021 12:00 AM			
Lab ID	1626284		1626285		1626286			
OC Pesticides	Result	MDL	Result	MDL	Result	MDL	Units	Criteria: O.Reg 153 Table 1 Soil Stringent Criteria
Endosulfan II	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
Endosulfan sulfate	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
Endrin	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.04
Endrin aldehyde	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
Heptachlor	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.05
Heptachlor epoxide	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.05
Hexachlorobenzene	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.01
Hexachlorobutadiene	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.01
Hexachloroethane	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.01
Methoxychlor	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.05
Mirex	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
Oxychlordane	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
ß-BHC	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
α - Chlordane	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
α + γ -Chlordane (Calc.)	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.05
α-BHC	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
γ - Chlordane	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~
γ-BHC (Lindane)	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	0.01
δ-BHC	<0.009	0.009	<0.01	0.01	<0.01	0.01	µg/g	~

7 Margaret Street, Garson, ON, P3L 1E1
Phone: (705) 693-1121 Fax: (705) 693-1124 Web: www.testmark.ca

CERTIFICATE OF ANALYSIS

Paracel Laboratories Ltd.- Ottawa

Work Order Number: 425489

LEGEND

Dates: Dates are formatted as mm/dd/year throughout this report.

[rr]: After a parameter name indicates a re-run of that parameter. If multiple re-runs exist they are suffixed by a number. Sample may not have been handled according to the recommended temperature, hold time and head space requirements of the method after the initial analysis.

MDL: Method detection limit or minimum reporting limit.

% Rec: Surrogate compounds are added to the sample in some cases and the recovery is reported as a % recovered.

~: In a criteria column indicates the criteria is not applicable for the parameter row.

Quality Control: All associated Quality Control data is available on request.

Field Data: Reports containing Field Parameters represent data that has been collected and provided by the client. Testmark is not responsible for the validity of this data which may be used in subsequent calculations.

Sample Condition Deviations: A noted sample condition deviation may affect the validity of the result. Results apply to the sample(s) as received.

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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: 100441.001
Custody:

Report Date: 23-Mar-2021
Order Date: 17-Mar-2021

Order #: 2112364

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

Paracel ID	Client ID
2112364-01	MW21-1
2112364-02	MW21-4
2112364-03	MW21-6
2112364-04	MW21-104
2112364-05	Trip Blank

Approved By:

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 23-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 17-Mar-2021

Client PO:

Project Description: 100441.001

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Anions	EPA 300.1 - IC	18-Mar-21	18-Mar-21
Chromium, hexavalent - water	MOE E3056 - colourimetric	17-Mar-21	18-Mar-21
Cyanide, free	MOE E3015 - Auto Colour	18-Mar-21	18-Mar-21
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	18-Mar-21	19-Mar-21
Metals, ICP-MS	EPA 200.8 - ICP-MS	19-Mar-21	19-Mar-21
pH	EPA 150.1 - pH probe @25 °C	22-Mar-21	22-Mar-21
PHC F1	CWS Tier 1 - P&T GC-FID	18-Mar-21	18-Mar-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	18-Mar-21	19-Mar-21
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	19-Mar-21	22-Mar-21
REG 153: Pesticides, OC	EPA 8081B - GC-ECD	17-Mar-21	18-Mar-21
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	18-Mar-21	18-Mar-21

Certificate of Analysis

Report Date: 23-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 17-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	MW21-1	MW21-4	MW21-6	MW21-104
	Sample Date:	17-Mar-21 00:00	17-Mar-21 00:00	17-Mar-21 00:00	17-Mar-21 00:00
	Sample ID:	2112364-01	2112364-02	2112364-03	2112364-04
	MDL/Units	Water	Water	Water	Water
General Inorganics					
Cyanide, free	2 ug/L	<2	<2	<2	<2
pH	0.1 pH Units	7.8	7.6	7.9	7.7
Anions					
Chloride	1 mg/L	130	60	67	52
Metals					
Mercury	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Antimony	0.5 ug/L	0.6	<0.5	<0.5	<0.5
Arsenic	1 ug/L	2	<1	3	<1
Barium	1 ug/L	321	113	507	125
Beryllium	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Boron	10 ug/L	39	28	34	24
Cadmium	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Chromium	1 ug/L	<1	<1	<1	<1
Chromium (VI)	10 ug/L	<10	<10	<10	<10
Cobalt	0.5 ug/L	<0.5	0.6	<0.5	<0.5
Copper	0.5 ug/L	0.6	2.4	1.0	1.9
Lead	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Molybdenum	0.5 ug/L	3.7	3.1	2.4	1.9
Nickel	1 ug/L	3	3	2	2
Selenium	1 ug/L	<1	<1	<1	<1
Silver	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Sodium	200 ug/L	35100	31600	13200	22200
Thallium	0.1 ug/L	<0.1	<0.1	<0.1	<0.1
Uranium	0.1 ug/L	1.2	5.7	1.1	4.7
Vanadium	0.5 ug/L	<0.5	0.9	1.1	1.1
Zinc	5 ug/L	<5	<5	<5	<5
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0 [5]	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2 [5]	<0.2
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5

Certificate of Analysis

Report Date: 23-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 17-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	MW21-1	MW21-4	MW21-6	MW21-104
	Sample Date:	17-Mar-21 00:00	17-Mar-21 00:00	17-Mar-21 00:00	17-Mar-21 00:00
	Sample ID:	2112364-01	2112364-02	2112364-03	2112364-04
	MDL/Units	Water	Water	Water	Water
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0 [5]	<1.0
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	<0.2	<0.2 [5]	<0.2
Hexane	1.0 ug/L	<1.0	<1.0	<1.0 [5]	<1.0
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0 [5]	<5.0
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0 [5]	<5.0
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0 [5]	<2.0
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0 [5]	<5.0
Styrene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Toluene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0 [5]	<1.0
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5 [5]	<0.5
4-Bromofluorobenzene	Surrogate	89.6%	91.5%	90.0% [5]	91.4%
Dibromofluoromethane	Surrogate	90.8%	87.3%	88.6% [5]	88.9%

Certificate of Analysis

Report Date: 23-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 17-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	MW21-1	MW21-4	MW21-6	MW21-104
	Sample Date:	17-Mar-21 00:00	17-Mar-21 00:00	17-Mar-21 00:00	17-Mar-21 00:00
	Sample ID:	2112364-01	2112364-02	2112364-03	2112364-04
	MDL/Units	Water	Water	Water	Water
Toluene-d8	Surrogate	107%	106%	106% [5]	107%
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25 [5]	<25
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100 [4]	<100
F3 PHCs (C16-C34)	100 ug/L	<100	<100	150 [4]	<100
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100 [4]	<100
Semi-Volatiles					
Acenaphthene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
Acenaphthylene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
Anthracene	0.01 ug/L	<0.01	<0.01	<0.01 [4]	<0.01
Benzo [a] anthracene	0.01 ug/L	<0.01	<0.01	<0.01 [4]	<0.01
Benzo [a] pyrene	0.01 ug/L	<0.01	<0.01	<0.01 [4]	<0.01
Benzo [b] fluoranthene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
Benzo [g,h,i] perylene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
Benzo [k] fluoranthene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
Chrysene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
Dibenzo [a,h] anthracene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
Fluoranthene	0.01 ug/L	<0.01	<0.01	<0.01 [4]	<0.01
Fluorene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
Indeno [1,2,3-cd] pyrene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
1-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
2-Methylnaphthalene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
Methylnaphthalene (1&2)	0.10 ug/L	<0.10	<0.10	<0.10 [4]	<0.10
Naphthalene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
Phenanthrene	0.05 ug/L	<0.05	<0.05	<0.05 [4]	<0.05
Pyrene	0.01 ug/L	<0.01	<0.01	<0.01 [4]	<0.01
2-Fluorobiphenyl	Surrogate	84.9%	86.6%	86.8% [4]	85.8%
Terphenyl-d14	Surrogate	114%	120%	117% [4]	95.1%
Pesticides, OC					
Aldrin	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
alpha-Chlordane	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
gamma-Chlordane	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Chlordane	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
o,p'-DDD	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
p,p'-DDD	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
DDD	0.01 ug/L	<0.01	<0.01	<0.01	<0.01

Certificate of Analysis

Report Date: 23-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 17-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	MW21-1	MW21-4	MW21-6	MW21-104
	Sample Date:	17-Mar-21 00:00	17-Mar-21 00:00	17-Mar-21 00:00	17-Mar-21 00:00
	Sample ID:	2112364-01	2112364-02	2112364-03	2112364-04
	MDL/Units	Water	Water	Water	Water
o,p'-DDE	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
p,p'-DDE	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
DDE	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
o,p'-DDT	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
p,p'-DDT	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
DDT	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Dieldrin	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Endosulfan I	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Endosulfan II	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Endosulfan I/II	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Endrin	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Heptachlor	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Heptachlor epoxide	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Hexachlorobenzene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Hexachlorobutadiene	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Hexachlorocyclohexane, gamma	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Methoxychlor	0.01 ug/L	<0.01	<0.01	<0.01	<0.01
Decachlorobiphenyl	Surrogate	119%	138%	126%	97.0%

Certificate of Analysis

Report Date: 23-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 17-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	Trip Blank	-	-	-
	Sample Date:	12-Mar-21 00:00	-	-	-
	Sample ID:	2112364-05	-	-	-
	MDL/Units	Water	-	-	-
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	-	-	-
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	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	-	-	-

Certificate of Analysis

Report Date: 23-Mar-2021

Client: GEMTEC Consulting Engineers and Scientists Limited

Order Date: 17-Mar-2021

Client PO:

Project Description: 100441.001

	Client ID:	Trip Blank	-	-	-
	Sample Date:	12-Mar-21 00:00	-	-	-
	Sample ID:	2112364-05	-	-	-
	MDL/Units	Water	-	-	-
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	85.4%	-	-	-
Dibromofluoromethane	Surrogate	82.4%	-	-	-
Toluene-d8	Surrogate	106%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
General Inorganics									
Cyanide, free	ND	2	ug/L						
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									
Mercury	ND	0.1	ug/L						
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 (VI)	ND	10	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						
Pesticides, OC									
Aldrin	ND	0.01	ug/L						
alpha-Chlordane	ND	0.01	ug/L						
gamma-Chlordane	ND	0.01	ug/L						
Chlordane	ND	0.01	ug/L						
o,p'-DDD	ND	0.01	ug/L						
p,p'-DDD	ND	0.01	ug/L						
DDD	ND	0.01	ug/L						
o,p'-DDE	ND	0.01	ug/L						
p,p'-DDE	ND	0.01	ug/L						
DDE	ND	0.01	ug/L						
o,p'-DDT	ND	0.01	ug/L						
p,p'-DDT	ND	0.01	ug/L						
DDT	ND	0.01	ug/L						
Dieldrin	ND	0.01	ug/L						
Endosulfan I	ND	0.01	ug/L						
Endosulfan II	ND	0.01	ug/L						
Endosulfan I/II	ND	0.01	ug/L						
Endrin	ND	0.01	ug/L						
Heptachlor	ND	0.01	ug/L						
Heptachlor epoxide	ND	0.01	ug/L						
Hexachlorobenzene	ND	0.01	ug/L						
Hexachlorobutadiene	ND	0.01	ug/L						
Hexachlorocyclohexane, gamma	ND	0.01	ug/L						
Hexachloroethane	ND	0.01	ug/L						
Methoxychlor	ND	0.01	ug/L						
Surrogate: Decachlorobiphenyl	*0.618*		*ug/L*		*124*	*50-140*			

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*16.6*		*ug/L*		*83.0*	*50-140*			
Surrogate: Terphenyl-d14	*23.2*		*ug/L*		*116*	*50-140*			
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						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*76.4*		*ug/L*		*95.5*	*50-140*			
Surrogate: Dibromofluoromethane	*64.5*		*ug/L*		*80.6*	*50-140*			
Surrogate: Toluene-d8	*86.4*		*ug/L*		*108*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	2.05	1	mg/L	2.18			6.2	10	
General Inorganics									
Cyanide, free	ND	2	ug/L	ND			NC	20	
pH	7.7	0.1	pH Units	7.7			0.1	3.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	ND	0.5	ug/L	ND			NC	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Barium	ND	1	ug/L	ND			NC	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	ND	10	ug/L	ND			NC	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	ND	0.5	ug/L	ND			NC	20	
Lead	ND	0.1	ug/L	ND			NC	20	
Molybdenum	ND	0.5	ug/L	ND			NC	20	
Nickel	ND	1	ug/L	ND			NC	20	
Selenium	ND	1	ug/L	ND			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	ND	200	ug/L	ND			NC	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	ND	0.1	ug/L	ND			NC	20	
Vanadium	ND	0.5	ug/L	ND			NC	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	ND	0.5	ug/L	ND			NC	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	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	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	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	ND	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	
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	*72.2*		*ug/L*		*90.2*	*50-140*			
Surrogate: Dibromofluoromethane	*78.6*		*ug/L*		*98.3*	*50-140*			
Surrogate: Toluene-d8	*85.4*		*ug/L*		*107*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	11.7	1	mg/L	2.18	95.3	77-123			
General Inorganics									
Cyanide, free	24.4	2	ug/L	ND	81.3	70-130			
Hydrocarbons									
F1 PHCs (C6-C10)	1800	25	ug/L	ND	89.8	68-117			
F2 PHCs (C10-C16)	1580	100	ug/L	ND	98.6	60-140			
F3 PHCs (C16-C34)	3570	100	ug/L	ND	91.2	60-140			
F4 PHCs (C34-C50)	2220	100	ug/L	ND	89.5	60-140			
Metals									
Mercury	3.20	0.1	ug/L	ND	107	70-130			
Antimony	43.2	0.5	ug/L	ND	86.4	80-120			
Arsenic	49.0	1	ug/L	ND	97.9	80-120			
Barium	48.4	1	ug/L	ND	96.4	80-120			
Beryllium	53.9	0.5	ug/L	ND	108	80-120			
Boron	49	10	ug/L	ND	98.4	80-120			
Cadmium	48.7	0.1	ug/L	ND	97.4	80-120			
Chromium (VI)	208	10	ug/L	ND	104	70-130			
Chromium	52.6	1	ug/L	ND	105	80-120			
Cobalt	49.7	0.5	ug/L	ND	99.5	80-120			
Copper	49.0	0.5	ug/L	ND	98.0	80-120			
Lead	45.8	0.1	ug/L	ND	91.5	80-120			
Molybdenum	48.3	0.5	ug/L	ND	96.6	80-120			
Nickel	48.0	1	ug/L	ND	96.0	80-120			
Selenium	47.5	1	ug/L	ND	94.9	80-120			
Silver	49.3	0.1	ug/L	ND	98.5	80-120			
Sodium	11100	200	ug/L	ND	111	80-120			
Thallium	45.2	0.1	ug/L	ND	90.5	80-120			
Uranium	43.5	0.1	ug/L	ND	87.0	80-120			
Vanadium	52.5	0.5	ug/L	ND	105	80-120			
Zinc	52	5	ug/L	ND	103	80-120			
Pesticides, OC									
Aldrin	0.58	0.01	ug/L	ND	116	50-140			
alpha-Chlordane	0.58	0.01	ug/L	ND	115	50-140			
gamma-Chlordane	0.56	0.01	ug/L	ND	113	50-140			
o,p'-DDD	0.70	0.01	ug/L	ND	140	50-140			
p,p'-DDD	0.61	0.01	ug/L	ND	123	50-140			
o,p'-DDE	0.68	0.01	ug/L	ND	135	50-140			
p,p'-DDE	0.62	0.01	ug/L	ND	123	50-140			
o,p'-DDT	0.68	0.01	ug/L	ND	135	50-140			
p,p'-DDT	0.62	0.01	ug/L	ND	125	50-140			
Dieldrin	0.60	0.01	ug/L	ND	120	50-140			
Endosulfan I	0.60	0.01	ug/L	ND	120	50-140			
Endosulfan II	0.57	0.01	ug/L	ND	115	50-140			
Endrin	0.18	0.01	ug/L	ND	35.0	50-140			QS-02
Heptachlor	0.58	0.01	ug/L	ND	116	50-140			
Heptachlor epoxide	0.55	0.01	ug/L	ND	110	50-140			
Hexachlorobenzene	0.40	0.01	ug/L	ND	80.4	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hexachlorobutadiene	0.54	0.01	ug/L	ND	108	50-140			
Hexachlorocyclohexane, gamma	0.55	0.01	ug/L	ND	110	50-140			
Hexachloroethane	0.36	0.01	ug/L	ND	71.0	50-140			
Methoxychlor	0.55	0.01	ug/L	ND	110	50-140			
Surrogate: Decachlorobiphenyl	*0.643*		*ug/L*		*129*	*50-140*			
Semi-Volatiles									
Acenaphthene	4.74	0.05	ug/L	ND	94.8	50-140			
Acenaphthylene	4.42	0.05	ug/L	ND	88.5	50-140			
Anthracene	5.05	0.01	ug/L	ND	101	50-140			
Benzo [a] anthracene	4.60	0.01	ug/L	ND	92.0	50-140			
Benzo [a] pyrene	4.85	0.01	ug/L	ND	97.0	50-140			
Benzo [b] fluoranthene	5.91	0.05	ug/L	ND	118	50-140			
Benzo [g,h,i] perylene	4.56	0.05	ug/L	ND	91.2	50-140			
Benzo [k] fluoranthene	5.33	0.05	ug/L	ND	107	50-140			
Chrysene	5.21	0.05	ug/L	ND	104	50-140			
Dibenzo [a,h] anthracene	4.88	0.05	ug/L	ND	97.6	50-140			
Fluoranthene	4.66	0.01	ug/L	ND	93.3	50-140			
Fluorene	4.37	0.05	ug/L	ND	87.4	50-140			
Indeno [1,2,3-cd] pyrene	4.84	0.05	ug/L	ND	96.9	50-140			
1-Methylnaphthalene	4.38	0.05	ug/L	ND	87.6	50-140			
2-Methylnaphthalene	4.62	0.05	ug/L	ND	92.3	50-140			
Naphthalene	4.94	0.05	ug/L	ND	98.8	50-140			
Phenanthrene	4.60	0.05	ug/L	ND	92.0	50-140			
Pyrene	4.65	0.01	ug/L	ND	93.0	50-140			
Surrogate: 2-Fluorobiphenyl	*16.2*		*ug/L*		*80.8*	*50-140*			
Surrogate: Terphenyl-d14	*23.5*		*ug/L*		*117*	*50-140*			
Volatiles									
Acetone	99.7	5.0	ug/L	ND	99.7	50-140			
Benzene	35.1	0.5	ug/L	ND	87.6	60-130			
Bromodichloromethane	30.2	0.5	ug/L	ND	75.4	60-130			
Bromoform	35.4	0.5	ug/L	ND	88.4	60-130			
Bromomethane	37.6	0.5	ug/L	ND	94.0	50-140			
Carbon Tetrachloride	29.3	0.2	ug/L	ND	73.2	60-130			
Chlorobenzene	40.1	0.5	ug/L	ND	100	60-130			
Chloroform	34.5	0.5	ug/L	ND	86.2	60-130			
Dibromochloromethane	31.3	0.5	ug/L	ND	78.2	60-130			
Dichlorodifluoromethane	45.1	1.0	ug/L	ND	113	50-140			
1,2-Dichlorobenzene	37.4	0.5	ug/L	ND	93.6	60-130			
1,3-Dichlorobenzene	38.0	0.5	ug/L	ND	95.0	60-130			
1,4-Dichlorobenzene	38.2	0.5	ug/L	ND	95.6	60-130			
1,1-Dichloroethane	35.9	0.5	ug/L	ND	89.8	60-130			
1,2-Dichloroethane	40.0	0.5	ug/L	ND	99.9	60-130			
1,1-Dichloroethylene	32.9	0.5	ug/L	ND	82.3	60-130			
cis-1,2-Dichloroethylene	33.0	0.5	ug/L	ND	82.6	60-130			
trans-1,2-Dichloroethylene	32.6	0.5	ug/L	ND	81.6	60-130			
1,2-Dichloropropane	33.8	0.5	ug/L	ND	84.4	60-130			
cis-1,3-Dichloropropylene	41.9	0.5	ug/L	ND	105	60-130			
trans-1,3-Dichloropropylene	31.6	0.5	ug/L	ND	79.0	60-130			
Ethylbenzene	39.5	0.5	ug/L	ND	98.8	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Ethylene dibromide (dibromoethane, 1,2-	35.7	0.2	ug/L	ND	89.2	60-130			
Hexane	35.8	1.0	ug/L	ND	89.4	60-130			
Methyl Ethyl Ketone (2-Butanone)	85.1	5.0	ug/L	ND	85.1	50-140			
Methyl Isobutyl Ketone	71.7	5.0	ug/L	ND	71.7	50-140			
Methyl tert-butyl ether	84.6	2.0	ug/L	ND	84.6	50-140			
Methylene Chloride	33.0	5.0	ug/L	ND	82.4	60-130			
Styrene	40.7	0.5	ug/L	ND	102	60-130			
1,1,1,2-Tetrachloroethane	36.2	0.5	ug/L	ND	90.6	60-130			
1,1,2,2-Tetrachloroethane	35.5	0.5	ug/L	ND	88.7	60-130			
Tetrachloroethylene	39.3	0.5	ug/L	ND	98.3	60-130			
Toluene	41.6	0.5	ug/L	ND	104	60-130			
1,1,1-Trichloroethane	29.6	0.5	ug/L	ND	74.0	60-130			
1,1,2-Trichloroethane	31.0	0.5	ug/L	ND	77.6	60-130			
Trichloroethylene	33.1	0.5	ug/L	ND	82.8	60-130			
Trichlorofluoromethane	34.2	1.0	ug/L	ND	85.6	60-130			
Vinyl chloride	37.8	0.5	ug/L	ND	94.4	50-140			
m,p-Xylenes	88.9	0.5	ug/L	ND	111	60-130			
o-Xylene	43.7	0.5	ug/L	ND	109	60-130			
Surrogate: 4-Bromofluorobenzene	*78.9*		*ug/L*		*98.6*	*50-140*			
Surrogate: Dibromofluoromethane	*72.3*		*ug/L*		*90.4*	*50-140*			
Surrogate: Toluene-d8	*83.4*		*ug/L*		*104*	*50-140*			

Qualifier Notes:

Login Qualifiers :

Container and COC sample IDs don't match - Containers labelled as 100441.001, chain of custody reads MW21-1

Applies to samples: MW21-1

Sample - Received with >5% sediment, instructed to perform whole bottle extraction (analyze with sediment)

Applies to samples: MW21-6

Sample Qualifiers :

4 : Water sample included significant amount of sediment which was included in extraction process. The inclusion of sediment in the extraction is expected to reduce accuracy and results may be biased high.

5 : Submitted VOC vials were decanted into a single vial prior to analysis due to the presence of sediments.

- VOC07 (s.03)

QC Qualifiers :

QS-02 : Spike level outside of control limits. Analysis batch accepted based on other QC included in the batch.

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.

PARACE LABORATORIES I

Paracel ID: 2112364

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paracellabs.com

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2112364	

Client Name: GEMTEC	Project Ref: 100441.001	Page 1 of 1
Contact Name: Nicole Soucy	Quote #: 21-113	Turnaround Time
Address: 32 Steacie Drive	PO #:	☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
	E-mail: nicole.soucy@gemtec.ca	Date Required:
Telephone: 613-836-1422		

Regulation 153/04	Other Regulation
☒ 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:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

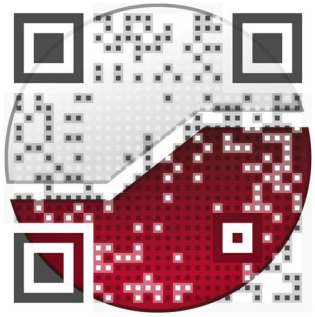
	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PAHs	M&I	PHC/BTEX	OCP
1	MW21-1	GW			March 17/2021		✓	✓	✓	✓
2	MW21-4	GW			March 17/2021		✓	✓	✓	✓
3	MW21-6	GW			March 17/2021		✓	✓	✓	✓
4	MW21-104	GW			March 17/2021		✓	✓	✓	✓
5										
6	Trip Blank	GW			March 17/2021 12				✓	
7										
8										
9										
10										

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Connor Shaw	Date/Time: Mar 17/20 1356	Date/Time: Mar 17 2021 16:11	Date/Time: Mar 17 2021 16:22
Date/Time: 17-Mar-21 2PM	Temperature: 14.8 °C	Temperature: 6.9	pH Verified: ☐ By:

experience • knowledge • integrity



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

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