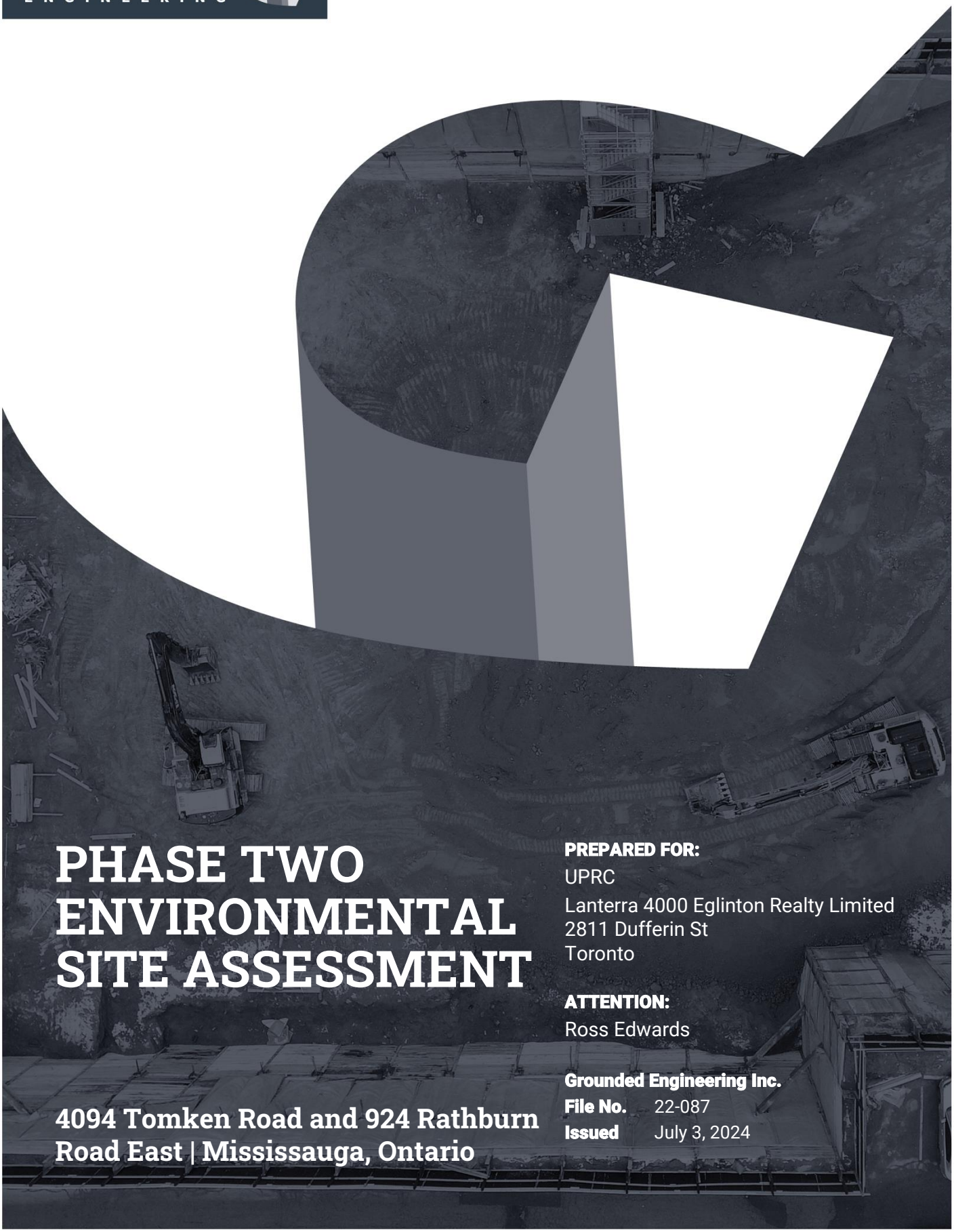

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

PREPARED FOR:
UPRC
Lanterra 4000 Eglinton Realty Limited
2811 Dufferin St
Toronto

ATTENTION:
Ross Edwards

Grounded Engineering Inc.
File No. 22-087
Issued July 3, 2024

4094 Tomken Road and 924 Rathburn Road East | Mississauga, Ontario

1 Banigan Drive, Toronto ON M4H 1G3 | (647) 264-7909 | groundedeng.ca | Grounded Engineering

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

Glossary

ABNs	acid-base neutral compounds
APEC	area(s) of potential environmental concern, as defined in O. Reg. 153/04, “the area on, in or under a phase one property where one or more contaminants are potentially present, as determined through the phase one environmental site assessment, including through (a) identification of past or present uses on, in or under the phase one property, and (b) identification of potentially contaminating activity”
As	arsenic
AST	above ground storage tank
B-HWS	boron (hot water soluble)
BTEX	benzene, toluene, ethylbenzene, and xylenes
CN^-	cyanide
COPC	contaminant(s) of potential concern
CPs	chlorophenols
Cr	chromium
Cr (VI)	hexavalent chromium
CSM	conceptual site model
EC	electrical conductivity
ECA	Environmental Compliance Approval
ERIS	Environmental Risk Information Services
ESA	environmental site assessment
FIP	fire insurance plan
FOI	freedom of information
ha	hectare(s)
Hg	mercury
km	kilometre(s)
L	litre(s)
m	metre(s)
Metals	O. Reg. 153/04 regulated metals as per Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the *Environmental Protection Act*
mASL	metres above sea level
mBGS	metres below ground surface
MND	Ministry of Northern Development
MoM	Ministry of Mines
MNRF	Ministry of Natural Resources and Forestry
MECP	Ministry of the Environment, Conservation and Parks
NPRI	National Pollutant Release Inventory
N/S	not specified in Table 2, Schedule D, of O. Reg. 153/04
Na	sodium
OCs	organochlorine pesticides

O. Reg. 153/04	Ontario Regulation 153/04 Records of Site Condition, as amended
O. Reg. 347	R.R.O. 1990, Regulation 347 General – Waste Management, as amended
ORP	other regulated parameter(s) per Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the *Environmental Protection Act*
PAH	polycyclic aromatic hydrocarbon
PCA	potentially contaminating activity, as defined in O. Reg. 153/04, "a use or activity set out in Column A of Table 2 of Schedule D that is occurring or has occurred in a Phase One study area"
PCB	polychlorinated biphenyl
PHC	petroleum hydrocarbon
PIN	property identification number
QA	quality assurance
QC	quality control
QP_{ESA}	Qualified Person for ESAs per O. Reg. 153/04
RA	risk assessment
RSC	Record of Site Condition
SAR	sodium adsorption ratio
Sb	antimony
SCS	Site Condition Standard
Se	selenium
THM	trihalomethane
TSSA	Technical Standards and Safety Authority
UST	underground storage tank
VOC	volatile organic compound(s)

1 Executive Summary

UPRC retained Grounded Engineering Inc. to complete a Phase Two Environmental Site Assessment (ESA) of the property located at 4094 Tomken Road and 924 Rathburn Road East4094 Tomken Road and 924 Rathburn Road East, Mississauga, Ontario (Property). The Phase Two ESA was conducted to investigate the Areas of Potential Environmental Concern (APECs) that have been identified on the Property.

The results of the Phase Two ESA are summarized below:

Applicable Site Condition Standards	O. Reg. 153/04 Table 3 RPI CT
Soil Contaminants of Potential Concern (CoPCs) Investigated	• Metals (M) • Hydride-forming metals: As, Se, Sb • ORPs: B-HWS, CN-, EC, SAR, Cr(VI), Hg • PAHs • Volatile Organic Compounds I (VOCs) • OCs
Ground Water CoPCs Investigated	• Metals • Hydride-forming Metals: As, Se, Sb • ORPs: Cr(VI), CN-, Hg, Cl- • Sodium (Na) • PAHs • VOCs
Applicable Site Condition Standards Met for Soil? (Yes/No)	Yes
Applicable Site Condition Standards Met for Ground Water? (Yes/No)	Yes

This Phase Two ESA was completed to investigate soil and ground water quality in the APECs identified in the Phase I ESA (Grounded, 2024). Soil and ground water quality met the applicable site condition standards. A Record of Site Condition (RSC) may be filed for the Property once an O. Reg. 153/04 Phase One ESA is satisfactorily completed.

2 Introduction

UPRC retained Grounded Engineering Inc. to complete a Phase Two Environmental Site Assessment (ESA) of the property located at 4094 Tomken Road and 924 Rathburn Road East, Mississauga, Ontario (Property). The Phase Two ESA was conducted to investigate the Areas of Potential Environmental Concern (APECs) that have been identified on the Property. The site location is presented in Figure 1.

2.1 Site Description

The Property generally is rectangular in shape, with an approximate area of 1.35 ha. The Property is bounded by Tomken Road (on the northeast) and Rathburn Road East (on the northwest). The site is currently developed with two buildings on the Property with an underground parking lot and surficial parking lot and landscaping. The Phase Two ESA has been prepared for due diligence and in accordance with Ontario Regulation (O. Reg.) 153/04.

2.2 Property Ownership

The Property information is provided below:

Municipal Address	4094 Tomken Road and 924 Rathburn Road East, Mississauga, Ontario
Legal Description	**4094 Tomken Road** Part 0002 - Part Block 100 Plan M361 Part 0003 - Part Lot 9 Con NDS **924 Rathburn Rd E** PIN to be confirmed by client
PIN(s)	**4094 Tomken Road** Part 0002 - 13310-0002 (LT) Part 0003 - 13310-0003 (LT) **924 Rathburn Rd E** PIN to be confirmed by client
Current Property Use	Institutional and residential
Property Owner Information	Trustees of the Westminster Congregation of The United Church of Canada
Person who has engaged the Qualified Person to conduct the Phase One ESA	Ross Edwards, Kindred Works

2.3 Current and Proposed Uses

The current property use is institutional and residential, as defined by O. Reg. 153/04.

We understand that the Phase Two Property will be developed with two high-rise residential structures with three levels of underground parking . The property use will remain residential and institutional, as defined by the O. Reg. 153/04.

2.4 Applicable Site Condition Standard

The applicable site condition standard for the Phase Two Property is determined to be Table 3 Full-Depth Generic Site Condition Standard for Use in Non-Potable Ground Water Condition with coarse-textured soil for a residential/parkland/institutional use due to the following reasons:

Current Property Use	Residential and Institutional
Future Property Use	Residential and Institutional
Soil Texture	Coarse, based on grain size analysis performed on the soil (see Appendix D)
Potable Water Source	Municipal service obtained from Lake Ontario (surface water-based)
Bedrock Depth	Bedrock is located at a depth of greater than 2 m.
Property located within 30 m of a surface water body (Yes/No)	No
Property located in or adjacent to a provincial park or an Area of Natural Significance (Yes/No)	No

Grounded Engineering Inc. did not notify Peel Region of the intention to use non-potable ground water standards for the investigation as the Phase Two has been prepared for due diligence purposes.

3 Background Information

3.1 Physical Setting

The Ministry of Natural Resources and Forestry (MNRF) and Land Information Ontario (LIO) database were searched to obtain topographic and geological maps of Ontario for review. The information obtained are summarized below:

Records	Information
Topographic Maps	The approximate elevation of the Property was 139 m above sea level (mASL) and is relatively flat.
Hydrology	Surface water flow was expected infiltrate the soil within the greenspace at Property. Groundwater is expected to flow locally to little Etobicoke Creek, which is present to the northeast of the site and regionally southeast to Lake Ontario.
Geological Maps	Overburden: Till - Clay to silt-textured till (derived from glaciolacustrine deposits or shale) Bedrock: Georgian Bay Formation comprised of shale, limestone, dolostone and siltstone.

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

Water Bodies	There are no water bodies located on the Phase One Property or within the Phase One Study Area. The nearest water body is little Etobicoke Creek located approximately 540 m to the northeast.
Wetlands	There are no Provincially Significant, Non-Provincially Significant, or unevaluated wetlands on the Phase One Property nor within the Phase One Study Area.
ANSIs	There are no Provincially Significant Life Science and Earth Science ANSIs located on the Phase One Property nor within the Phase One Study Area.

The Areas of Natural Significances (ANSIs) and water bodies on or adjacent to the Property is shown in Figure 2, if present.

3.2 Past Investigations

Title and File No.	Baseline Environmental Soil Quality Letter, Westminster United Church 4094 Tomken Rd, Mississauga, Ontario File No. 22-087
Report Date	July 19, 2022
Prepared By	Grounded Engineering

Prepared for	UPRC
Description of Data, Analysis or Findings	• The purpose of the study was to complete soil characterization for the property to determine the need for off-site disposal purposes • At the time of the investigation the Property was occupied by a church • Three boreholes were advanced with soil samples being collected from each of them for chemical analysis • The results were compared against Table 2 Agricultural or other use Coarse and Medium fine texture. • All samples submitted met the applicable SCS.

Title	Phase I Environmental Site Assessment, Westminster United Church – 4094 Tomken Rd and 924 Rathburn Rd E, Mississauga, Ontario
Report Date	April 26, 2024
Prepared By	Grounded Engineering
Prepared for	UPRC
Description of Data, Analysis or Findings	• The Phase I was completed for due diligence for refinancing the Property. • The Phase I ESA was completed in general accordance with Reg. 153/04. • At the time of the site inspection complete on September 1, 2023, the Property was occupied by a church and a residential building with underground and surficial parking as well as landscaped areas. The Property was reportedly heated by a natural gas-fired boilers and HVAC units. • The report identified the following APEC causing PCAs: • Importation of fill of an unknown quality for grading and backfilling purposes. Metals, ORPs, and PAHs were not detected in soil samples obtained during Baseline Soil Quality analysis. • Application of salt on the walkways and parking areas for de-icing purposes. • Historical application of pesticides for historical agricultural purposes identified on the southwest portion of the Property. Pesticides were not detected in soil samples obtained during Baseline Soil Quality analysis. • Operational same day dry cleaner located off site to the northwest of the Property. The APEC table was updated in consideration of the soil quality observed from the Baseline Soil Quality Report.

The PCAs and APEC locations are provided in Figure 2.

4 Scope of the Investigation

4.1 Overview of Site Investigation

The scope of the Phase Two ESA is as follow:

Boreholes and Monitoring Wells	• Advancing of 7 boreholes to depths of 3.4 to 16.5 m below ground surface (mBGS) • Installation of 4 monitoring wells Grounded 2022 Soils Letter Investigation: • Advanced 3 boreholes to depths of 5.5 to 10.1 m below ground surface (mBGS) • Installed 3 monitoring wells
Parameters Investigated for Soil	• Metals (M) • Hydride-forming metals: As, Se, Sb • ORPs: B-HWS, CN-, EC, SAR, Cr(VI), Hg • PAHs • Volatile Organic Compounds I (VOCs) • OCs
Parameters Investigated for Ground Water	• Metals • Hydride-forming Metals: As, Se, Sb • ORPs: Cr(VI), CN-, Hg, Cl- • Sodium (Na) • PAHs • VOCs
• Six (6) soil samples were submitted for grain size analysis and soil classification. • Boreholes and monitoring wells were surveyed to a geodetic benchmark. • Monitoring wells were developed prior to sampling. • Ground water level measurements were conducted in the accessible monitoring wells to determine ground water elevation on the Property	

4.2 Media Investigated

4.2.1 Rationale for Exclusion and Inclusion of Media

Media	Included/Excluded	Rationale
Soil	Included	Based on the Phase One ESA, soil sampling was required to investigate the CoPCs related to the identified APECs.
Sediment	Excluded	Surface water bodies were not presented on the Property. No sediment sampling was conducted during the Phase Two ESA.
Ground Water	Included	Based on the Phase One ESA, ground water sampling was required to investigate the CoPCs related to the identified APECs.

Media	Included/Excluded	Rationale
Surface Water	Excluded	Surface water bodies were not presented on the Property. No surface water sampling was conducted during the Phase Two ESA.

4.2.2 Overview of Field Investigation of Media

Soil sampling was conducted during the 2022 and 2024 drilling investigations. Groundwater sampling was conducted from the new monitoring wells installed on the Property.

4.3 Phase One Conceptual Site Model

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

4.4 Deviations From Sampling and Analysis Plan

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

4.5 Impediments

There were no impediments encountered during the execution of the Phase Two ESA.

5 Investigation Method

5.1 General

The Phase Two ESA followed Grounded's standard operating procedures, which are consistent with the methods outlined in the Ontario Ministry of the Environment, Conservation, and Parks "**Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario**" (December 1996).

Grounded's relevant SOPs are provided in Appendix B.

5.2 Drilling

The Phase Two ESA drilling information is provided below:

Boreholes	**2022:** BH1 to BH3 **2024:** BH201 to BH208
Date of Work	**2022:** June 8 and 10 2022 **2024:** April 2 -5 2024
Name of the Contractor(s)	**2022:** Profile Drilling Inc. **2024:** 3D Drilling Inc.
Equipment Used	**2022:** B37 Hollow Stem Augers **2024:** CME-55 Hollow Stem Augers
Measures for Cross-contamination Prevention	The split spoon sampling device was washed between each sample to prevent potential cross-contamination
Sampling Frequency	Please refer to the borehole logs in Appendix C for the sampling frequency

The borehole locations are provided in Figure 4.

5.3 Soil – Sampling

5.3.1 Equipment Used

Below is the equipment used during the soil sampling.

- Sampling containers supplied by the laboratories
- Nitrile gloves
- Cooler with ice

- RKI EAGLE 2 gas monitor

5.3.2 Geological Description

The borehole logs in Appendix C provide an overall geological description of each soil sample collected during the 2022 and 2024 environmental subsurface investigations.

5.4 Soil – Field Screening Measurements

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

Based on field screening measurements and visual and olfactory examination of soil samples, selected samples were submitted for petroleum hydrocarbon (PHCs) and volatile organic compounds (VOCs) laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix C.

5.5 Ground Water

5.5.1 Monitoring Well Installation

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

Monitoring Wells	**2022:** BH1 to BH3 **2024:** BH201, 205, 207 and 208.
Date of Work	**2022:** June 8 and 10 2022 **2024:** April 2 -5 2024
Name of the Contractor(s)	**2022:** Profile Drilling Inc. **2024:** 3D Drilling Inc.
Equipment Used	**2022:** B37 Hollow Stem Augers **2024:** CME-55 Hollow Stem Augers
Measures for Cross-contamination Prevention	The split spoon sampling device was washed between each sample to prevent potential cross-contamination
Sampling Frequency	No ground water samples were collected during drilling event.

Well Construction	The wells were constructed with 50 mm (2 in.) ID PVC screens and risers. Filter sand was placed around the well screen to approximately 0.6 m above the top of the screen. The wells were then backfilled with bentonite to approximately 0.3 m below ground surface (mBGS). The wells were finished with flush mounts or stick ups depending on the location on the Property.
Well Development	The monitoring wells were developed on June 9 2022 and April 9 2024. Well development was conducted with an inertial pump. A total volume of 140 L of water was removed during the well development. Stabilization of parameters (pH, conductivity, temperature, etc.) of the purged water was monitored before a sample to ensure the samples are representative of the formation water.

The monitoring well locations are provided in Figure 4.

5.5.2 Field Measurement of Water Quality Parameters

Water quality parameters including temperature, pH, specific conductivity, total dissolved solids were measured using a Hanna Instruments portable meter prior to sampling.

5.5.3 Sampling

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

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

5.6 Sediment

There was no sediment sampling conducted as part of this investigation.

5.7 Analytical Testing

Analytical Testing of soil and ground water samples was conducted by ALS Environmental.

5.8 Residue Management Procedures

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

Residues	Management Procedures
Soil Cuttings	Soil cuttings generated during the drilling activities were placed in drums and removed offsite by a licensed waste management contractor.
Ground Water	The purged water generated during the well development and ground water sampling events was disposed of in the drums which were removed from the Property.
Fluids from Equipment Cleaning	The fluids from cleaning were removed from the Property and disposed by the drilling contractor.

5.9 Elevation Surveying

The elevations of the boreholes on the Property were surveyed to a catch basin at Elev. 137.35. The elevation of each borehole on the Property is presented on the borehole logs in Appendix C.

5.10 Quality Assurance and Quality Control Measures

5.10.1 Quality Assurance

5.10.1.1 Containers, Preservation, Labelling, Handling and Chain-of-Custody

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

Parameter/Group	Containers	
	Soil	Ground Water
Other Regulated Parameters: Chromium hexavalent (CrVI), cyanide (CN-), pH, electrical conductivity (EC) Soil only: boron, hot water soluble (B-HWS), sodium adsorption ratio (SAR) Water only: chloride	250 g soil jar	500 mL PET 60 mL plastic (CrVI) 120 mL plastic (CN-)
Metals		250 mL HDPE (Metals)
Mercury (Hg)		60 mL amber glass (Hg)
Volatile Organic Compounds I (VOCs)	2 x 40 mL pre-weighed methanol 5 g soil plug	2 x 40 mL amber vial (zero headspace)
Polycyclic aromatic hydrocarbons (PAHs)	100 g soil jar	2 x 100 mL bottles fill to top of label

Parameter/Group	Containers	
	Soil	Ground Water
Toxicity characteristic leaching procedure (TCLP)	250 g soil jar	-

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

- Sample ID
- Company name
- Date
- Project number

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

5.10.1.2 Equipment Cleaning Procedures

Equipment	Cleaning Procedures
Soil sampling	Split spoon sampling device was washed between samples to prevent potential cross-contamination.
Ground water sampling	Water level meter/ water quality monitoring meter was cleaned between monitoring wells.

Non-dedicated equipment (nitrile gloves, Terra Core® samplers, tubing) were changed between each sample to avoid cross-contamination.

5.10.1.3 Calibration of Field Instruments

Field instruments are calibrated daily prior to sampling. Records of field calibrations are maintained in the project file.

5.10.2 Quality Control

For quality control purpose, the following actions were taken:

- At least one (1) duplicate sample is submitted for laboratory analysis for every ten (10) samples submitted for laboratory analysis for each sampled medium.
- Groundwater trip blanks are used to identify cross-contamination or false positive results.

6 Review and Evaluation

6.1 Geology

Detailed geological information for the Property is presented on the borehole logs in Appendix C. The geology at the Property is summarized below. The bottom depth and elevation presented in the tables below are the extents reached during the drilling events. The bottom of the bedrock formation was not reached.

6.1.1 Geological Units

Geological Units	Elevation Range (mASL)	Description	Hydrogeological Function
Pavement Structure/ Topsoil	139.3 to 136.4	BH2, BH3, BH201, BH202, BH203 and BH208 encountered a pavement structure consisting of 75 to 150 mm asphaltic concrete underlain by 75 mm of aggregate. BH1, BH204, 205, 206 and BH207 encountered 50 mm to 600 mm of topsoil.	
Earth Fill	138.7 to 136.3	Earth fill was encountered at the borehole locations and underlying the pavement structure in BH2, BH3, BH201, BH202, BH203 and BH208. The Earth Fill extended to a depth of 0.8 to 2.3 mBGS (Elev. 137.3 to 135.1mASL). The Earth Fill generally consisted of clayey silt with varying amounts of sand and gravel. The earth fill likely drains into the catch basins onsite or storm water systems adjacent to the Property.	Unconfined surficial aquifer
Native Glacial Till	137.3 to 135.1	Underlying the fill materials, glacial till was encountered in the borehole locations. The glacial till extended to a depth of 3.0 to 4.6 mBGS (Elev. 135.8 to 133.3 mASL) and consisted of clayey silt with trace to some sand and trace to some gravel in the borehole locations except for BH207, where the composition of the glacial till consisted of silt with some clay, some gravel, and some sand.	Aquitard
Bedrock	135.8 to 133.3	Bedrock was encountered at the boreholes. The depth of the bedrock ranged between 3.0 to 4.6 mBGS (Elev. 135.8 to 133.3 mASL). Bedrock cores were recovered at BH1, BH201, BH205 and BH208. The bedrock beneath the site is the Georgian Bay Formation, which comprises thin to medium bedded grey shale and limestone of Ordovician age.	Confined bedrock aquifer

6.1.2 Rationale for Choice of Aquifers and Aquitards Investigated

The Georgian bay shale strata was chosen for investigation. This stratum was chosen for investigation because:

- Possibility of free ground water present
- The possible location of mobile contamination within the native overburden and lower units
- The likelihood of horizontal migration of ground water across the site

6.2 Hydrogeology

6.2.1 Elevations and Flow Direction

Seven (7) monitoring wells have been installed by Grounded. The monitoring wells were located within the APECs identified in the Phase I ESA (Grounded, March 2022) for the Property. Screened intervals of the monitoring wells were selected for the collection of ground water samples within the desired stratum.

Eight (8) ground water level measurement events were conducted by Grounded using a Solinst interface probe on the following dates:

- June 14, 2022
- June 27, 2022
- July 29, 2022
- August 18, 2022
- April 9, 2024
- April 10, 2024
- April 16, 2024
- April 26, 2024

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

- *Geodetic Ground Elevation (mASL) – Measured Depth to Water Table (m) + Stick up of Well (m) = Ground Water Elevation (mASL)*

The ground water levels/elevations are presented in Table 1 and Figure 5. The shallowest ground water depth was measured at 2.2 mBGS (136.5 mASL) and was observed at BH207 located on the northeastern portion of the Property on April 26, 2024.

Based on the ground water measurements, ground water is encountered at a depth of approximately 2.2 to 7.0 mBGS (136.5 to 131.2 mASL) and is interpreted to flow locally to the northwest. Regional ground water flow is expected to flow to the northwest towards Little Etobicoke creek and regionally southeast to Lake Ontario. Ground water contours are presented in Figure 5.

Additional ground water data may be required to assess seasonal variability in ground water elevation and flow direction.

6.2.2 Hydraulic Gradients

Horizontal Hydraulic Gradients	The average horizontal hydraulic gradient at the Property was determined to be approximately 0.04.
Vertical Hydraulic Gradients	Based on the location and depths of the installed monitoring wells, the vertical gradient could not be calculated.
Hydraulic Conductivity (K)	• Fill: 1.0 x 10^{-5} m/s • Clayey Silt Till: 5.0 x 10^{-9} m/s • Bedrock: 1.0 x 10^{-6} m/s

6.3 Soil

6.3.1 Soil Texture

Grain size analysis was completed for selected soil samples from the boreholes at the Property. The grain size analysis is provided in Appendix C.

The predominant soil texture was determined to be coarse; the results of soil quality analyses were compared to the coarse-textured standards.

6.3.2 Field Screening

Based on field screening measurements and visual and olfactory examination of the soil samples, selected samples were submitted for petroleum hydrocarbon (PHCs) and volatile organic compounds (VOCs) laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix C. Screening values for combustible vapour/organic vapour did not indicate the presence of any combustible or volatile contaminants.

6.4 Soil Quality

The relevant analytical information from the 2022 Baseline Soil Chemistry letter completed by Grounded Engineering has been relied upon and incorporated into this Phase Two ESA report.

6.4.1 Location and Depth of Samples

Sample ID	Depth		Stratum	APEC	Metals, H-Metals & ORPs	PAHs	VOCs	OCs
	mBGS	mASL						
BH201 SS2	0.8 - 1.4	137.4 - 136.8	Fill	1, 2 & 3	✓	✓	✓	

Sample ID	Depth		Stratum	APEC	Metals, H-Metals & ORPs	PAHs	VOCs	OCs
	mBGS	mASL						
BH204 SS1B	0.3 - 0.6	136.3 - 136.0	Fill	1 & 2	✓	✓		
BH204 SS2	0.8 - 1.4	135.8 - 135.2	Fill	1 & 2			✓	
BH205 SS2	0.8 - 1.4	137.4 - 136.8	Fill	1 & 2	✓	✓	✓	
BH205 SS4	2.3 - 2.9	135.9 - 135.2	Glacial Till	1 & 2			✓	
BH206 SS1B	0.3 - 0.6	136.8 - 136.5	Fill	1 & 2	✓	✓	✓	
BH207 SS2	0.8 - 1.4	136.0 - 135.4	Fill	1 & 2	✓	✓	✓	
BH208 SS2	0.8 - 1.4	138.0 - 137.4	Fill	1 & 2	✓	✓		
BH208 SS3	1.5 - 2.1	137.3 - 136.7	Glacial Till	1 & 2			✓	
Grounded Engineering Baseline Soil Quality Investigation (2022)								
BH1 1B	0.2 - 0.6	137.7 - 137.3	Fill	1, 2 & 3	✓	✓		
BH1 SS2	0.8 - 1.4	137.1 - 136.5	Glacial Till	1, 2 & 3		✓	✓	✓
BH1 SS3	1.5 - 2.1	136.4 - 135.8	Glacial Till	1, 2 & 3	✓			
BH1 4B	2.4 - 2.7	135.5 - 135.2	Glacial Till	1, 2 & 3			✓	✓
BH2 2B	0.8 - 1.3	137.2 - 136.7	Glacial Till	1, 2 & 3		✓	✓	
BH2 SS3	1.5 - 2.1	136.5 - 135.9	Glacial Till	1, 2 & 3	✓			
BH2 4B	2.5 - 2.9	135.5 - 135.2	Glacial Till	1, 2 & 3	✓			
BH2 SS5	3.0 - 3.3	135.0 - 134.7	Glacial Till	1, 2 & 3		✓	✓	
BH3 SS2	0.8 - 1.4	137.4 - 136.8	Fill	1, 2 & 3			✓	
BH3 SS3	1.5 - 2.1	136.6 - 136.0	Glacial Till	1, 2 & 3	✓	✓		
BH3 SS4	2.3 - 2.9	135.9 - 135.3	Glacial Till	1, 2 & 3	✓	✓		✓
BH3 SS5	3.0 - 3.7	135.1 - 134.5	Glacial Till	1, 2 & 3			✓	

Laboratory reports may include results of additional analyses obtained to support excess soil management.

6.4.2 Comparison to Applicable Standards

The results of the soil quality analyses are summarized in Tables 2 - 5 and presented on Figure 6, maximum analyte concentrations are also provided in the tables. The analyte concentrations in the soil samples generally met the respective applicable Site Condition Standards, apart from:

- EC/SAR in shallow soil samples from BH 201 and BH208, located in on-site parking areas.

The Property is bound by municipal roadways to the north (Rathburn Road East) and to the east (Tomken Road) withpublic sidewalks between the road and the Property boundary. On-Site improvements include internal roadways, parking areas, and sidewalks. The on-Site and adjacent roadways, sidewalks, and parking areas are salted during the winter months for safety purposes.

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

The applicable site condition standards are exceeded at the Property solely because of the reason as stated above (application of salt for safety purposes during winter months). As per O. Reg. 153/04 49.1 the applicable site condition standards for analytes related to the application of de-icing agent(s) are deemed to meet the standards for the purpose of Part XV.1 of the Act.

Copies of the laboratory certificates of analysis are provided in Appendix E.

6.4.3 Contaminants of Concern

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

6.4.4 Chemical or Biological Transformations

As there were no Contaminants of Concern identified, chemical/biological transformations are not applicable.

6.4.5 Contamination Impact on Other Media

As there were no Contaminants of Concern identified this is not applicable.

6.4.6 Presence of Light or Dense Non-Aqueous Phase Liquids

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

6.5 Ground Water Quality

6.5.1 Location and Depth of Samples

Sample ID	Screen Interval		Screened Stratum	APEC Assessed	Metals, H-Metals	ORPs + Na	PAHs	VOCs
	mBGS	mASL						
BH201	13.5 - 16.5	124.7 - 121.7	Shale	1 and 2	✓	✓	✓	✓

Sample ID	Screen Interval		Screened Stratum	APEC Assessed	Metals, H-Metals	ORPs + Na	PAHs	VOCs
	mBGS	mASL						
BH205	12.5 - 15.6	125.6 - 122.5	Shale	1 and 2				✓
BH208	5.7 - 7.2	133.1 - 131.6	Bedrock	1, 2 and 4				✓

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

6.5.2 Comparison to Applicable Standards

The results of ground water quality analyses are summarized in Tables 6- 8 and presented on Figures 7. The analyte concentrations measured in the ground water samples met the respective applicable Site Condition Standard f. Copies of the laboratory certificates of analysis are provided in Appendix E..

6.5.3 Contaminants of Concern

No Contaminants of Concern were identified in the ground water on the Property.

6.5.4 Chemical or Biological Transformations

As there were no Contaminants of Concern identified in ground water, assessment of chemical/biological transformation productss is not applicable.

6.5.5 Presence of Light or Dense Non-Aqueous Phase Liquids

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

6.6 Sediment – Quality

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

7 Quality Assurance and Quality Control Results

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

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

Duplicated samples were submitted at a rate of 10% for both soil and groundwater samples. Additionally, one trip blank was also submitted; VOCs were not found to be detected in the trip blank. Chemical results indicated an acceptable correlation of Relative Percent Differences (RPD, as per O.Reg.153/04 MECP Analytical Protocol document) between the original samples and the duplicate samples for groundwater parameters. Due to possible variation and heterogeneity within the soil, RPDs outside of the acceptable range were observed for select analytes of the following parameters:

- Copper
- Molybdenum

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

7.1 Subsection 47 (3) of the Regulation

All certificates of analysis or analytical reports received pursuant to clause 47 (2) (b) of the regulation comply with subsection 47 (3). A certificate of analysis or analytical report has been received for each sample submitted for analysis. The certificates of analysis or analytical reports received have been included in full in Appendix E.

7.2 Laboratory Qualification of Results

The laboratory did not make any qualifications or remarks that changed the outcome of the analytical results regarding the soil or ground water samples.

7.3 Overall Quality of Field Data

Decision-making related to the quality of field data of the Property was not affected. The overall quality of the field data was considered by the Qualified Person to meet the objectives of the investigation and assessment.

7.4 Phase Two Conceptual Site Model

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

8 Conclusions

Based on the findings and analytical results of the Phase Two ESA, the following conclusions are presented:

Land	Concentrations of the COPCs in the soil samples analysed met the respective applicable site condition standards.
Ground Water	Concentrations of the COPCs in the ground water samples analysed met the respective applicable site condition standards.

This Phase Two ESA was completed to investigate soil and ground water quality in the APECs identified in the Phase I ESA (Grounded, 2024). Soil and ground water quality met the applicable site condition standards. A Record of Site Condition (RSC) may be filed for the Property once an O. Reg. 153/04 Phase One ESA is satisfactorily completed.

9 Closure

The Phase Two ESA has been completed in accordance with O. Reg. 153/04 by, Emma Leet, EIT under the direction and supervision of Bailey Walters, MSc PGeo $QP_{ESA|RA}$. The findings and conclusions presented in this report have been determined based on the information that was obtained and reviewed from previous investigations provided and on the current investigation for the Phase Two Property.

We trust that this report meets your requirements at present.

For and on behalf of our team,

GROUNDED ENGINEERING

Emma Leet, EIT
Project Coordinator

Bailey Walters, MSc PGeo $QP_{ESA|RA}$
Senior Geoscientist

David MacGillivary, MASc PGeo PEng $QP_{ESA|RA}$
Associate

10 References

Grounded Engineering Inc. Baseline Soil Quality Report: UPRC - Westminster, Mississauga, Ontario. File No. 22-087, July 19, 2022.

Grounded Engineering. *Phase I ESA, UPRC - Westminster, Mississauga, Ontario.* File No. 22-087. May 27, 2024

Ontario Ministry of the Environment, December 1996. *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario.*

Ontario Ministry of the Environment, April 2011. Soil, Ground Water and Sediment Standards for use under Part XV. 1 of the *Environmental Protection Act*

Ontario Ministry of the Environment, June 2011. *Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04.*

Ontario Ministry of the Environment, February 2021. *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV. 1 of the Environmental Protection Act.*

11 Limitations and Restrictions

The Phase Two ESA report was prepared for the purpose of identifying potential environmental concerns, including an assessment of the likelihood that the environmental quality of the soil and ground water at the Property may have been adversely affected by past or present practices at the Property, and/or those of the adjacent properties prior to development of the Property. Any use of which a third party makes of this report, or any reliance on or decision to be made based on it, are the responsibility of such third parties. Grounded Engineering Inc. does not assume any responsibility for errors, omissions, damages or other limitation pertaining to third parties.

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

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

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

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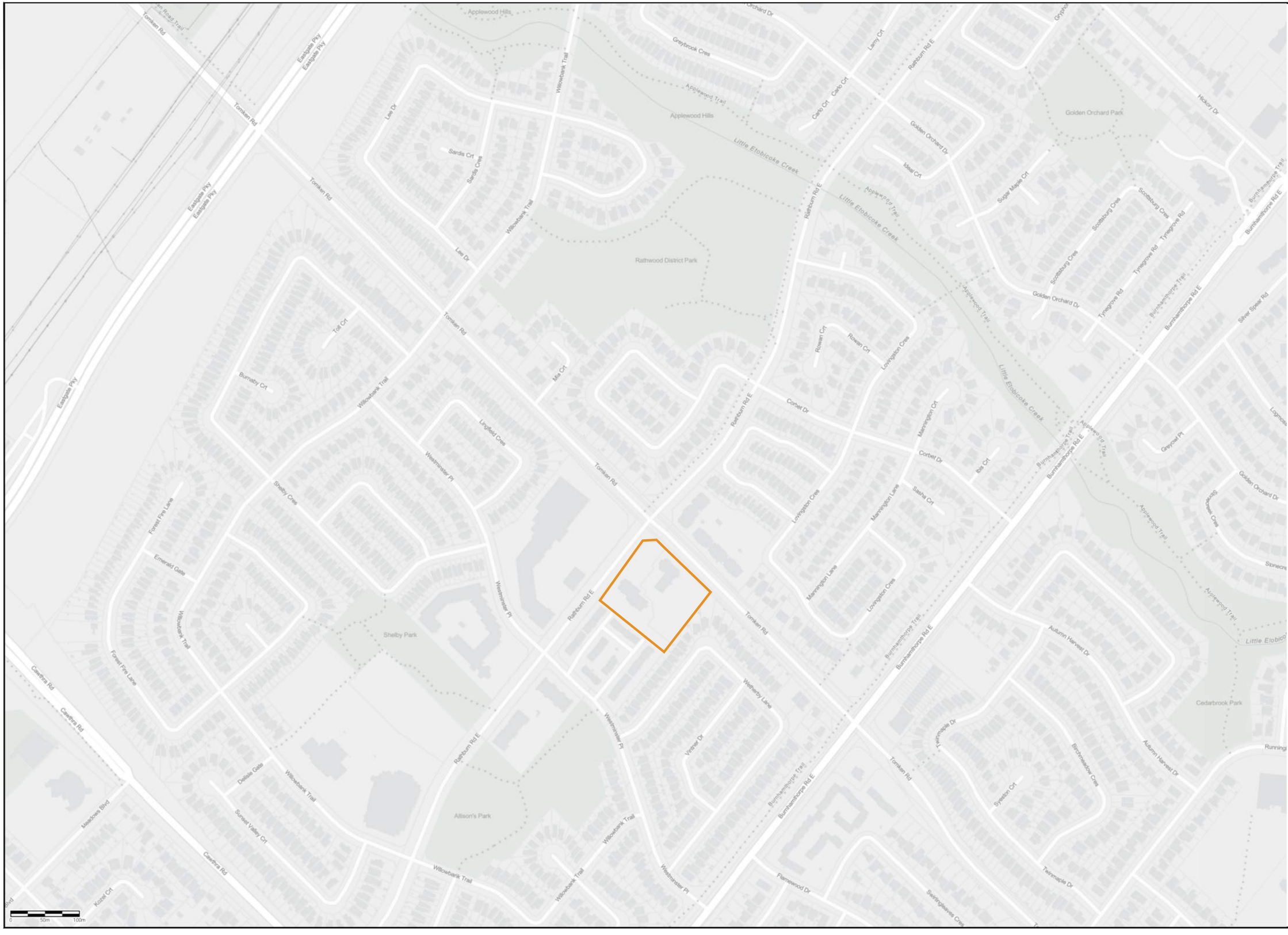
FIGURES



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LEGEND

APPROXIMATE PROPERTY BOUNDARY

Note

Reference

ArcGIS Map 2022

Project

UPRC - WESTMINSTER, MISSISSAUGA, ONTARIO

Figure Title

SITE LOCATION MAP

North

TRUE

PROJECT

Date

MAY 2024

Scale

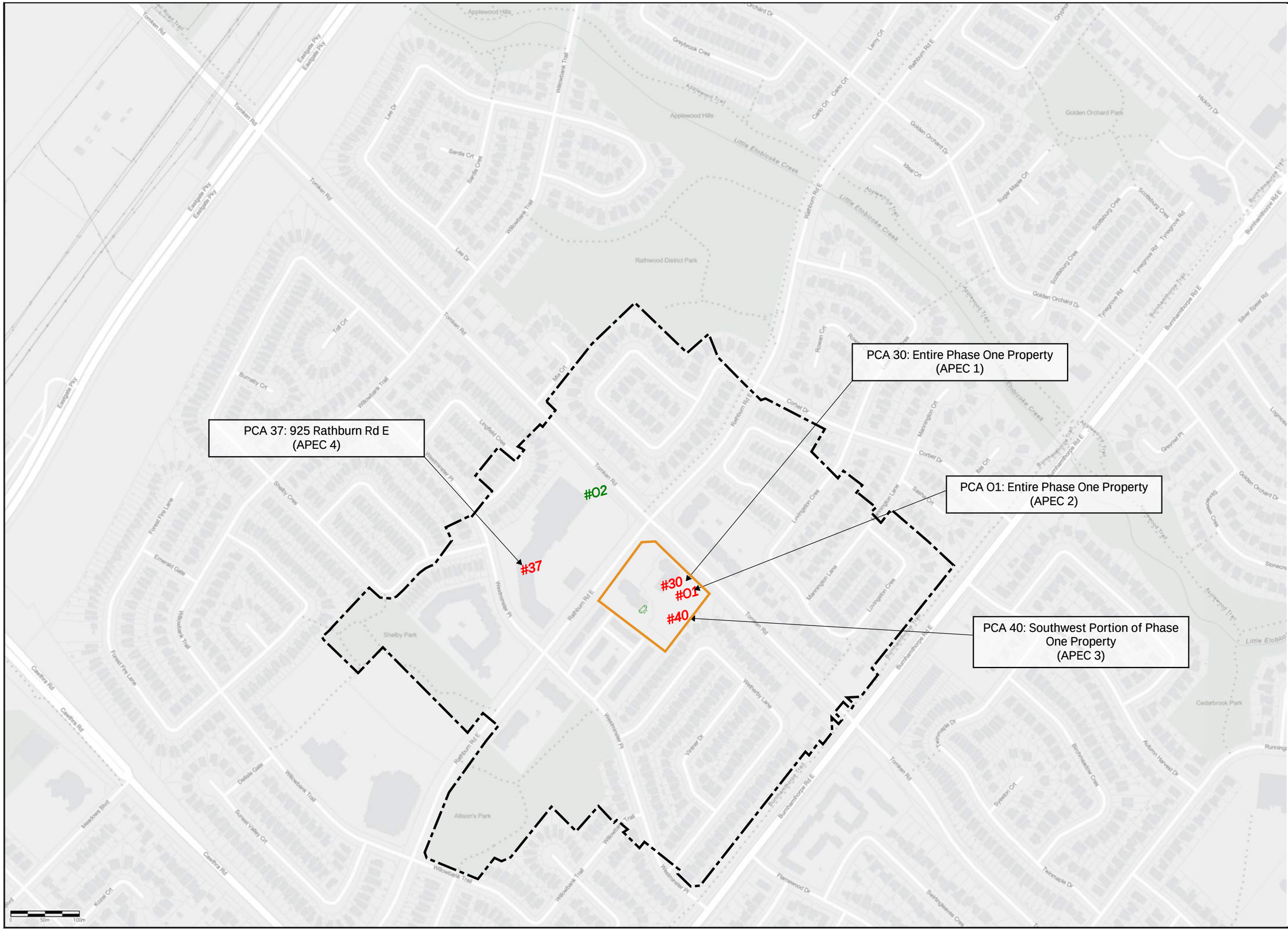
AS INDICATED

Job No

22-087

Figure No

FIGURE 1



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LEGEND

APPROXIMATE PROPERTY BOUNDARY

STUDY AREA (250 m RADIUS)

#30 – Importation of Fill Material of Unknown Quality
#37 – Operation of Dry Cleaning Equipment (where chemicals are used)
#40 – Pesticides (including Herbicides, Fungicides, and anti-fouling Agents) Manufacturing, Processing, Bulk Storage and Large -Scale Applications
#O1 – De-icing Activities
#O2 – Ontario Spills

Note

GREEN - PCA NOT CAUSING APEC
RED - PCA CAUSING APEC

Reference

ArcGIS Map 2022

Project

UPRC - WESTMINSTER, MISSISSAUGA, ONTARIO

Figure Title

PCA LOCATIONS

North

TRUE
PROJECT

Date

MAY 2024

Scale

AS INDICATED

Job No

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Figure No

FIGURE 2

APEC 1, 2

APEC 3, 4

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LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- APEC 1 & 2
- APEC 3
- APEC 4
- ABOVEGROUND FUEL STORAGE TANK
- F/V FILL AND VENT PIPES

Note

Reference

Survey Drawing Job no. 201-0277
Completed Dated: December 3, 2021.
Prepared by Speight, Van Nostrand & Gibson Limited
Received on June 6 2022.

Project

UPRC - WESTMINSTER, MISSISSAUGA, ONTARIO

Figure Title

APEC LOCATIONS

North

TRUE
PROJECT

Date

MAY 2024

Scale

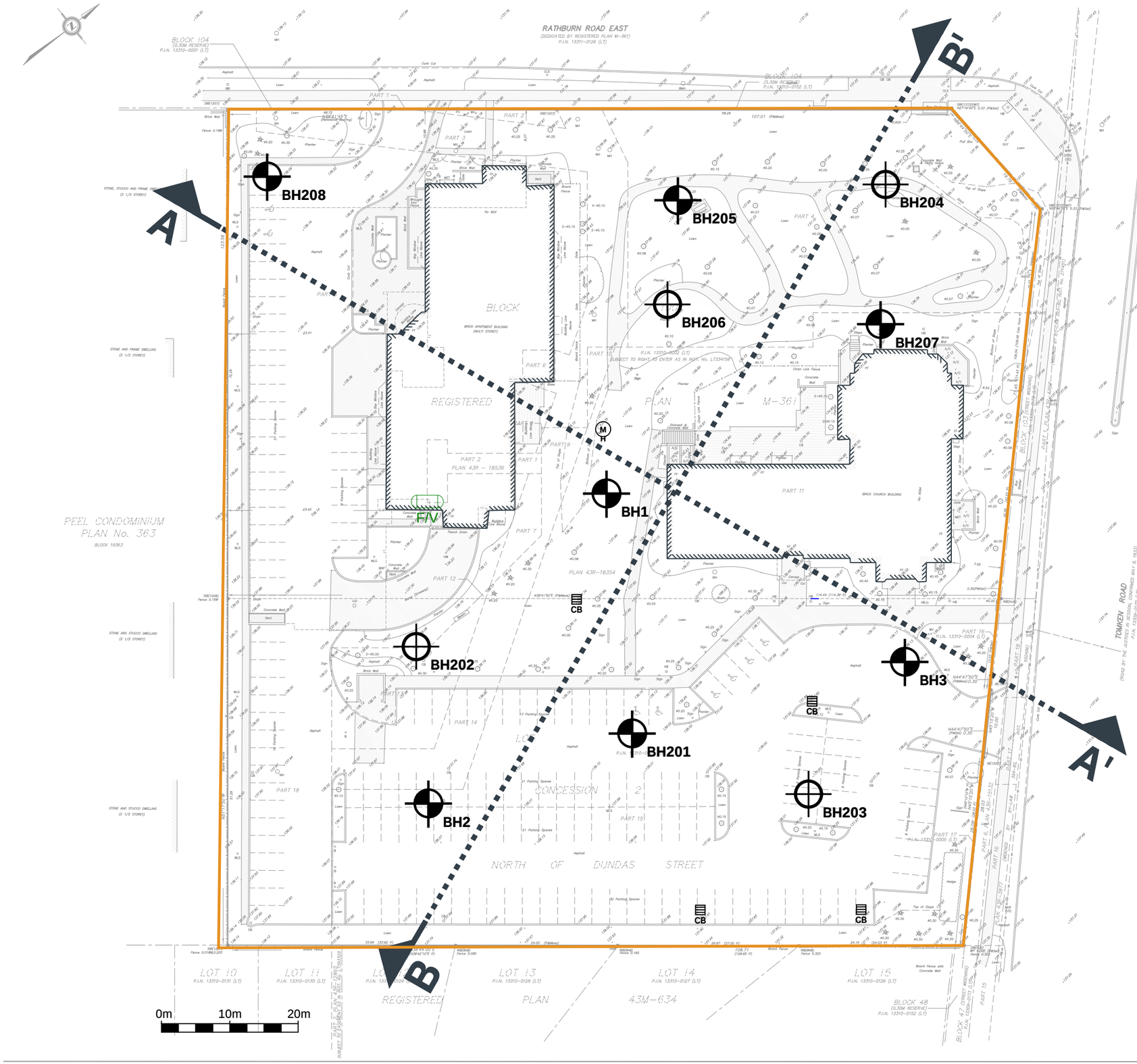
AS INDICATED

Job No

22-087

Figure No

FIGURE 3



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LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- MH MANHOLE
- CB CATCH BASIN
- ABOVEGROUND FUEL STORAGE TANK
- F/V FILL AND VENT PIPES
- CROSS SECTION LINE

Note

Reference

Survey Drawing Job no. 201-0277
Completed Dated: December 3, 2021.
Prepared by Speight, Van Nostrand & Gibson Limited
Received on June 6 2022.

Project

UPRC - WESTMINSTER, MISSISSAUGA, ONTARIO

Figure Title

SITE PLAN

North

TRUE
PROJECT

Date

MAY 2024

Scale

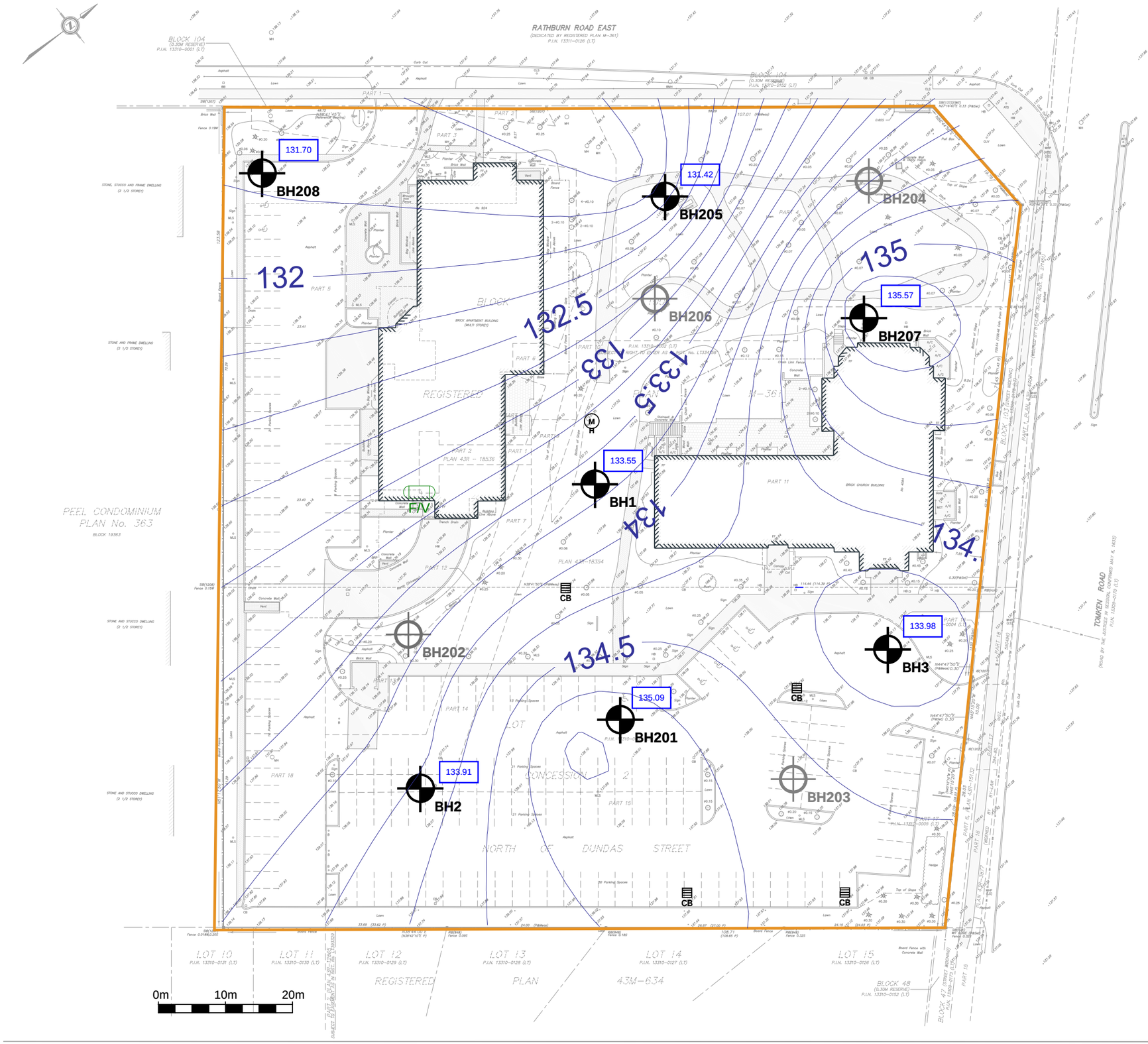
AS INDICATED

Job No

22-087

Figure No

FIGURE 4



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LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- MH — MANHOLE
- CB — CATCH BASIN
- 119.45 — GROUNDWATER ELEVATIONS (masl)
- 119.4 — GROUNDWATER CONTOURS (masl)
- APPROXIMATE GROUNDWATER FLOW DIRECTION

Note

Groundwater elevation data used was collected during the January 29, 2021 monitoring event.

Reference

Survey Drawing Job no. 201-0277
Completed Dated: December 3, 2021.
Prepared by Speight, Van Nostrand & Gibson Limited
Received on June 6 2022.

Project

UPRC - WESTMINSTER, MISSISSAUGA, ONTARIO

Figure Title

GROUNDWATER ELEVATIONS AND CONTOURS

North

TRUE
PROJECT

Date

MAY 2024

Scale

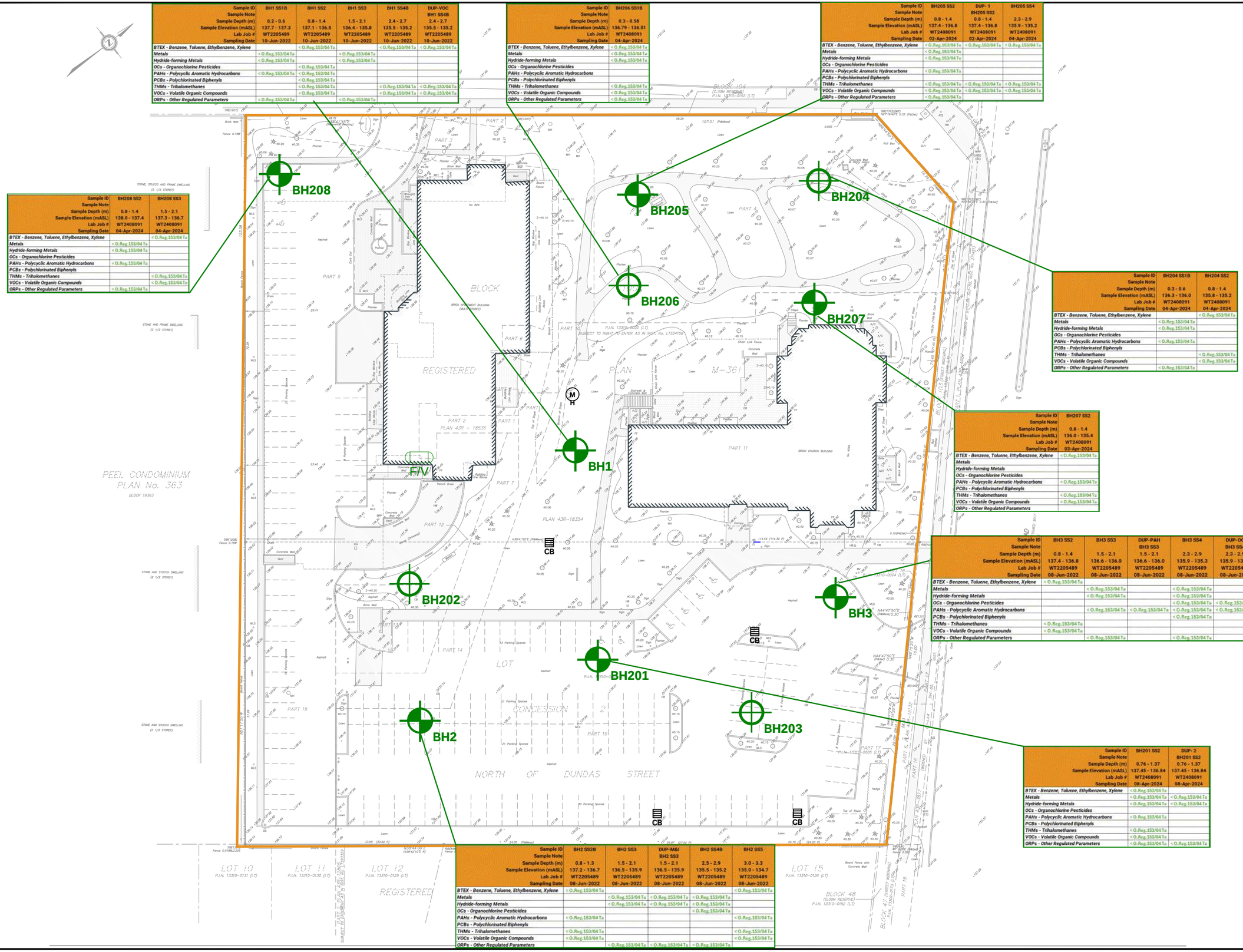
AS INDICATED

Job No

22-087

Figure No

FIGURE 5



Sample ID	BH1 SS1B	BH1 SS2	BH1 SS3	BH1 SS4B	DUP-VOC BH1 SS4B
Sample Note					
Sample Depth (m)	0.2 - 0.6	0.8 - 1.4	1.5 - 2.1	2.4 - 2.7	2.4 - 2.7
Sample Elevation (mASL)	137.7 - 137.3	137.1 - 136.5	136.4 - 135.8	135.5 - 135.2	135.5 - 135.2
Lab Job #	WT2205489	WT2205489	WT2205489	WT2205489	WT2205489
Sampling Date	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022
BTEX - Benzene, Toluene, Ethylbenzene, Xylene		< O.Reg.153/04 Ta		< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
Metals	< O.Reg.153/04 Ta		< O.Reg.153/04 Ta		
Hydride-forming Metals	< O.Reg.153/04 Ta		< O.Reg.153/04 Ta		
OCs - Organochlorine Pesticides		< O.Reg.153/04 Ta			
PAHs - Polycyclic Aromatic Hydrocarbons	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta			
PCBs - Polychlorinated Biphenyls		< O.Reg.153/04 Ta			
THMs - Trihalomethanes		< O.Reg.153/04 Ta		< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
VOCs - Volatile Organic Compounds		< O.Reg.153/04 Ta		< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
ORPs - Other Regulated Parameters	< O.Reg.153/04 Ta		< O.Reg.153/04 Ta		

Sample ID	BH206 SS1B
Sample Note	
Sample Depth (m)	0.3 - 0.58
Sample Elevation (mASL)	136.79 - 136.51
Lab Job #	WT2408091
Sampling Date	04-Apr-2024
BTEX - Benzene, Toluene, Ethylbenzene, Xylene	< O.Reg.153/04 Ta
Metals	< O.Reg.153/04 Ta
Hydride-forming Metals	< O.Reg.153/04 Ta
OCs - Organochlorine Pesticides	
PAHs - Polycyclic Aromatic Hydrocarbons	
PCBs - Polychlorinated Biphenyls	
THMs - Trihalomethanes	< O.Reg.153/04 Ta
VOCs - Volatile Organic Compounds	< O.Reg.153/04 Ta
ORPs - Other Regulated Parameters	< O.Reg.153/04 Ta

Sample ID	BH205 SS2	DUP- 1 BH205 SS2	BH205 SS4
Sample Note			
Sample Depth (m)	0.8 - 1.4	0.8 - 1.4	2.3 - 2.9
Sample Elevation (mASL)	137.4 - 136.8	137.4 - 136.8	135.9 - 135.2
Lab Job #	WT2408091	WT2408091	WT2408091
Sampling Date	02-Apr-2024	02-Apr-2024	04-Apr-2024
BTEX - Benzene, Toluene, Ethylbenzene, Xylene	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
Metals	< O.Reg.153/04 Ta		
Hydride-forming Metals	< O.Reg.153/04 Ta		
OCs - Organochlorine Pesticides			
PAHs - Polycyclic Aromatic Hydrocarbons	< O.Reg.153/04 Ta		
PCBs - Polychlorinated Biphenyls			
THMs - Trihalomethanes	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
VOCs - Volatile Organic Compounds	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
ORPs - Other Regulated Parameters	< O.Reg.153/04 Ta		

Sample ID	BH208 SS2	BH206 SS3
Sample Note		
Sample Depth (m)	0.8 - 1.4	1.5 - 2.1
Sample Elevation (mASL)	138.0 - 137.4	137.3 - 136.7
Lab Job #	WT2408091	WT2408091
Sampling Date	04-Apr-2024	04-Apr-2024
BTEX - Benzene, Toluene, Ethylbenzene, Xylene		< O.Reg.153/04 Ta
Metals	< O.Reg.153/04 Ta	
Hydride-forming Metals	< O.Reg.153/04 Ta	
OCs - Organochlorine Pesticides		
PAHs - Polycyclic Aromatic Hydrocarbons	< O.Reg.153/04 Ta	
PCBs - Polychlorinated Biphenyls		
THMs - Trihalomethanes		< O.Reg.153/04 Ta
VOCs - Volatile Organic Compounds		< O.Reg.153/04 Ta
ORPs - Other Regulated Parameters	< O.Reg.153/04 Ta	

Sample ID	BH204 SS1B	BH204 SS2
Sample Note		
Sample Depth (m)	0.3 - 0.6	0.8 - 1.4
Sample Elevation (mASL)	136.3 - 136.0	135.8 - 135.2
Lab Job #	WT2408091	WT2408091
Sampling Date	04-Apr-2024	04-Apr-2024
BTEX - Benzene, Toluene, Ethylbenzene, Xylene		< O.Reg.153/04 Ta
Metals	< O.Reg.153/04 Ta	
Hydride-forming Metals	< O.Reg.153/04 Ta	
OCs - Organochlorine Pesticides		
PAHs - Polycyclic Aromatic Hydrocarbons	< O.Reg.153/04 Ta	
PCBs - Polychlorinated Biphenyls		
THMs - Trihalomethanes		< O.Reg.153/04 Ta
VOCs - Volatile Organic Compounds		< O.Reg.153/04 Ta
ORPs - Other Regulated Parameters	< O.Reg.153/04 Ta	

Sample ID	BH207 SS2
Sample Note	
Sample Depth (m)	0.8 - 1.4
Sample Elevation (mASL)	136.0 - 135.4
Lab Job #	WT2408091
Sampling Date	03-Apr-2024
BTEX - Benzene, Toluene, Ethylbenzene, Xylene	< O.Reg.153/04 Ta
Metals	
Hydride-forming Metals	
OCs - Organochlorine Pesticides	
PAHs - Polycyclic Aromatic Hydrocarbons	< O.Reg.153/04 Ta
PCBs - Polychlorinated Biphenyls	
THMs - Trihalomethanes	< O.Reg.153/04 Ta
VOCs - Volatile Organic Compounds	< O.Reg.153/04 Ta
ORPs - Other Regulated Parameters	

Sample ID	BH3 SS2	BH3 SS3	DUP-PAH BH3 SS3	BH3 SS4	DUP-QC BH3 SS4	BH3 SS5
Sample Note						
Sample Depth (m)	0.8 - 1.4	1.5 - 2.1	1.5 - 2.1	2.3 - 2.9	2.3 - 2.9	3.0 - 3.7
Sample Elevation (mASL)	137.4 - 136.8	136.6 - 136.0	136.6 - 136.0	135.9 - 135.3	135.9 - 135.3	135.1 - 134.5
Lab Job #	WT2205489	WT2205489	WT2205489	WT2205489	WT2205489	WT2205489
Sampling Date	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022
BTEX - Benzene, Toluene, Ethylbenzene, Xylene	< O.Reg.153/04 Ta					
Metals		< O.Reg.153/04 Ta		< O.Reg.153/04 Ta		
Hydride-forming Metals		< O.Reg.153/04 Ta		< O.Reg.153/04 Ta		
OCs - Organochlorine Pesticides				< O.Reg.153/04 Ta		
PAHs - Polycyclic Aromatic Hydrocarbons		< O.Reg.153/04 Ta	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta	
PCBs - Polychlorinated Biphenyls				< O.Reg.153/04 Ta		
THMs - Trihalomethanes	< O.Reg.153/04 Ta					< O.Reg.153/04 Ta
VOCs - Volatile Organic Compounds	< O.Reg.153/04 Ta					< O.Reg.153/04 Ta
ORPs - Other Regulated Parameters		< O.Reg.153/04 Ta		< O.Reg.153/04 Ta		

Sample ID	BH201 SS2	DUP- 2 BH201 SS2
Sample Note		
Sample Depth (m)	0.76 - 1.37	0.76 - 1.37
Sample Elevation (mASL)	137.45 - 136.84	137.45 - 136.84
Lab Job #	WT2408091	WT2408091
Sampling Date	08-Apr-2024	08-Apr-2024
BTEX - Benzene, Toluene, Ethylbenzene, Xylene	< O.Reg.153/04 Ta	
Metals	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
Hydride-forming Metals	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
OCs - Organochlorine Pesticides		
PAHs - Polycyclic Aromatic Hydrocarbons	< O.Reg.153/04 Ta	
PCBs - Polychlorinated Biphenyls		
THMs - Trihalomethanes	< O.Reg.153/04 Ta	
VOCs - Volatile Organic Compounds	< O.Reg.153/04 Ta	
ORPs - Other Regulated Parameters	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta

Sample ID	BH2 SS2B	BH2 SS3	DUP-M&I BH2 SS3	BH2 SS4B	BH2 SS5
Sample Note					
Sample Depth (m)	0.8 - 1.3	1.5 - 2.1	1.5 - 2.1	2.5 - 2.9	3.0 - 3.3
Sample Elevation (mASL)	137.2 - 136.7	136.5 - 135.9	136.5 - 135.9	135.5 - 135.2	135.0 - 134.7
Lab Job #	WT2205489	WT2205489	WT2205489	WT2205489	WT2205489
Sampling Date	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022
BTEX - Benzene, Toluene, Ethylbenzene, Xylene	< O.Reg.153/04 Ta				< O.Reg.153/04 Ta
Metals		< O.Reg.153/04 Ta	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta	
Hydride-forming Metals		< O.Reg.153/04 Ta	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta	
OCs - Organochlorine Pesticides				< O.Reg.153/04 Ta	
PAHs - Polycyclic Aromatic Hydrocarbons	< O.Reg.153/04 Ta				< O.Reg.153/04 Ta
PCBs - Polychlorinated Biphenyls					
THMs - Trihalomethanes	< O.Reg.153/04 Ta				< O.Reg.153/04 Ta
VOCs - Volatile Organic Compounds	< O.Reg.153/04 Ta				< O.Reg.153/04 Ta
ORPs - Other Regulated Parameters		< O.Reg.153/04 Ta	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta	

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LEGEND

- PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- CROSS SECTION LINE
- MONITORING WELL/BOREHOLE BY GROUNDED
- MONITORING WELL/BOREHOLE BY OTHERS
- SAMPLE MEETS STANDARDS
- SAMPLE EXCEEDS STANDARDS
- LOCATION NOT TESTED
- MH — MANHOLE
- CB — CATCH BASIN
- ABOVEGROUND FUEL STORAGE TANK
- F/V — FILL AND VENT PIPES

Note

Utilities shown on this figure are shown for informational purposes only for the Phase One ESA, as outlined by O.Reg. 153/04. This is not an official locate and the information presented should not be relied upon.

Reference

Survey Drawing Job no. 201-0277
Completed Dated: December 3, 2021.
Prepared by Speight, Van Nostrand & Gibson Limited
Received on June 6 2022.

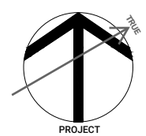
Project

UPRC - WESTMINSTER, MISSISSAUGA, ONTARIO

Figure Title

SOIL CHEMISTRY SUMMARY

North



Date

MAY 2024

Scale

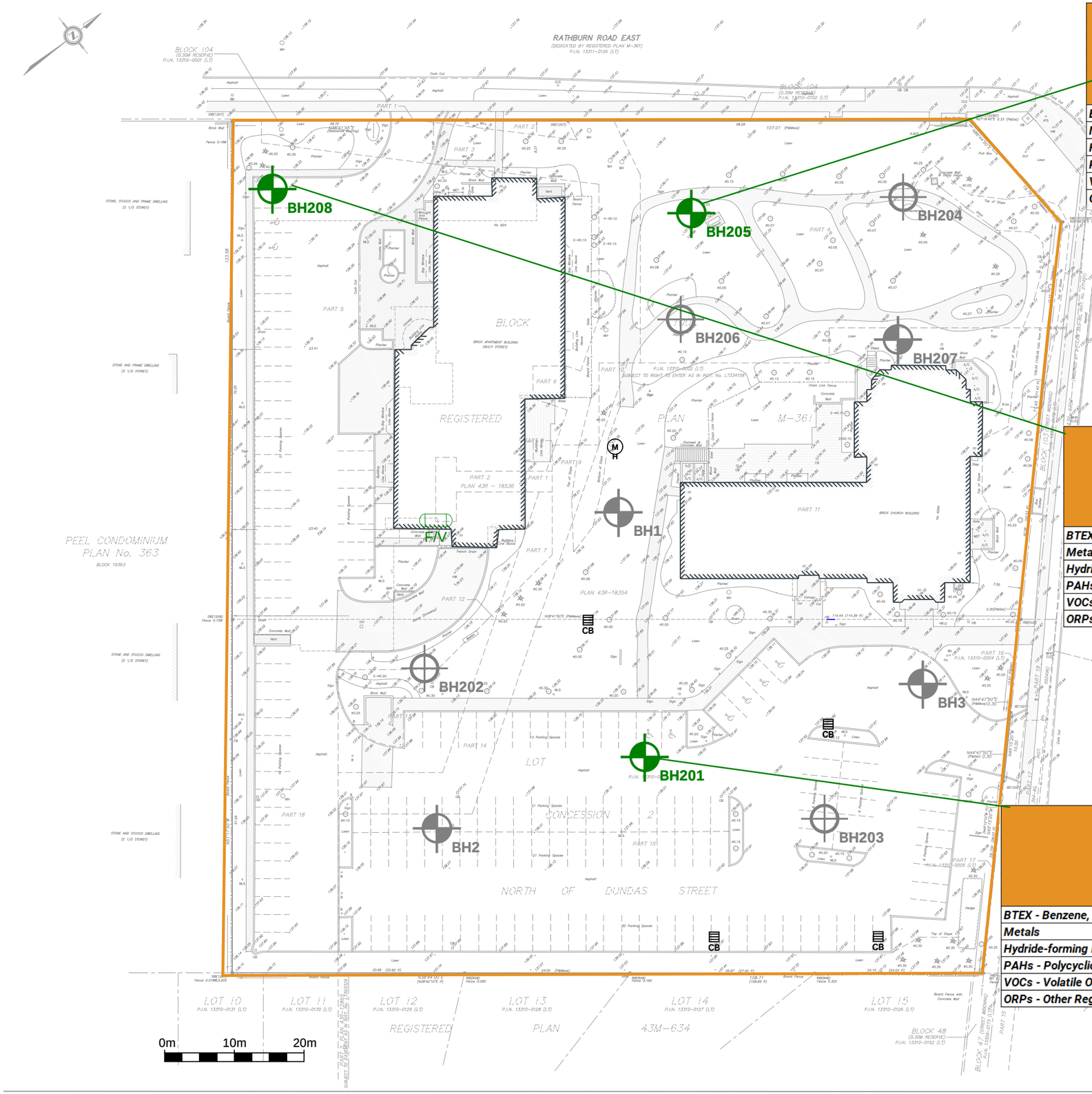
0m 10m 20m

Job No

22-087

Figure No

FIGURE 6



Sample ID	BH205
Sample Note	
Sample Depth (m)	12.5 - 15.6
Sample Elevation (mASL)	125.6 - 122.5
Lab Job #	WT2409014
Sampling Date	2020-04-09
BTEX - Benzene, Toluene, Ethylbenzene, Xylene	< O.Reg.153/04 Ta
Metals	
Hydride-forming Metals	
PAHs - Polycyclic Aromatic Hydrocarbons	
VOCs - Volatile Organic Compounds	< O.Reg.153/04 Ta
ORPs - Other Regulated Parameters	

Sample ID	BH208
Sample Note	
Sample Depth (m)	5.7 - 7.2
Sample Elevation (mASL)	133.1 - 131.6
Lab Job #	WT2409014
Sampling Date	2020-04-15
BTEX - Benzene, Toluene, Ethylbenzene, Xylene	< O.Reg.153/04 Ta
Metals	
Hydride-forming Metals	
PAHs - Polycyclic Aromatic Hydrocarbons	
VOCs - Volatile Organic Compounds	< O.Reg.153/04 Ta
ORPs - Other Regulated Parameters	

Sample ID	BH201	DUP-1
Sample Note		BH201
Sample Depth (m)	13.5 - 16.5	13.5 - 16.5
Sample Elevation (mASL)	124.7 - 121.7	124.7 - 121.7
Lab Job #	WT2409014	WT2409014
Sampling Date	2020-04-10	2020-04-10
BTEX - Benzene, Toluene, Ethylbenzene, Xylene	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
Metals	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
Hydride-forming Metals	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
PAHs - Polycyclic Aromatic Hydrocarbons	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
VOCs - Volatile Organic Compounds	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta
ORPs - Other Regulated Parameters	< O.Reg.153/04 Ta	< O.Reg.153/04 Ta

GROUNDED ENGINEERING

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LEGEND

- PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE
- CROSS SECTION LINE
- MONITORING WELL/BOREHOLE BY GROUNDED
- MONITORING WELL/BOREHOLE BY OTHERS
- SAMPLE MEETS STANDARDS
- SAMPLE EXCEEDS STANDARDS
- LOCATION NOT TESTED
- MH MANHOLE
- CB CATCH BASIN
- ABOVEGROUND FUEL STORAGE TANK
- F/V FILL AND VENT PIPES

Note

Reference

Survey Drawing Job no. 201-0277
Completed Dated: December 3, 2021.
Prepared by Speight, Van Nostrand & Gibson Limited
Received on June 6 2022.

4VSNIGX

UPRC - WESTMINSTER, MISSISSAUGA, ONTARIO

*MKYVI 8MXPI

GROUNDWATER CHEMISTRY SUMMARY

2SVXL

PROJECT

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MAY 2024

7GEPI

AS INDICATED

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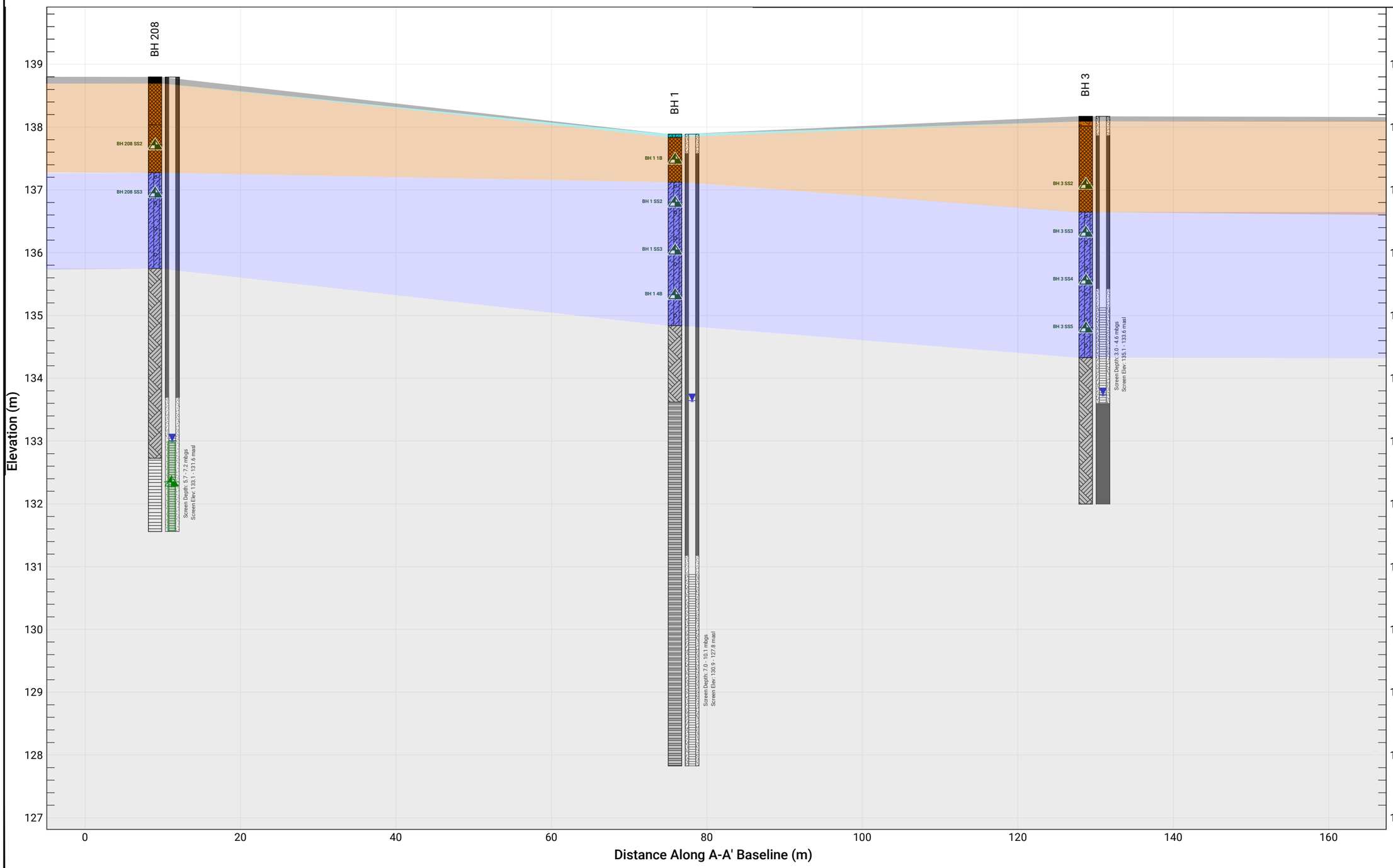
22-087

*MKYVI 2S

FIGURE 7



GROUNDED ENGINEERING

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LEGEND

- SURFICIAL MATERIALS
- TOPSOIL
- EARTH FILL
- SANDS
- GRAVELS
- COHESIONLES TILL
- COHESIVE TILL
- GEORGIAN BAY BEDROCK
- SS1 SOIL SAMPLE LOCATION MEETS STANDARD
- water level, stabilized

Note

Reference

Project

UPRC - WESTMINSTER, MISSISSAUGA, ONTARIO

Figure Title

All PARAMETERS CROSS SECTION A-A'

North

Date

MAY 2024

Scale

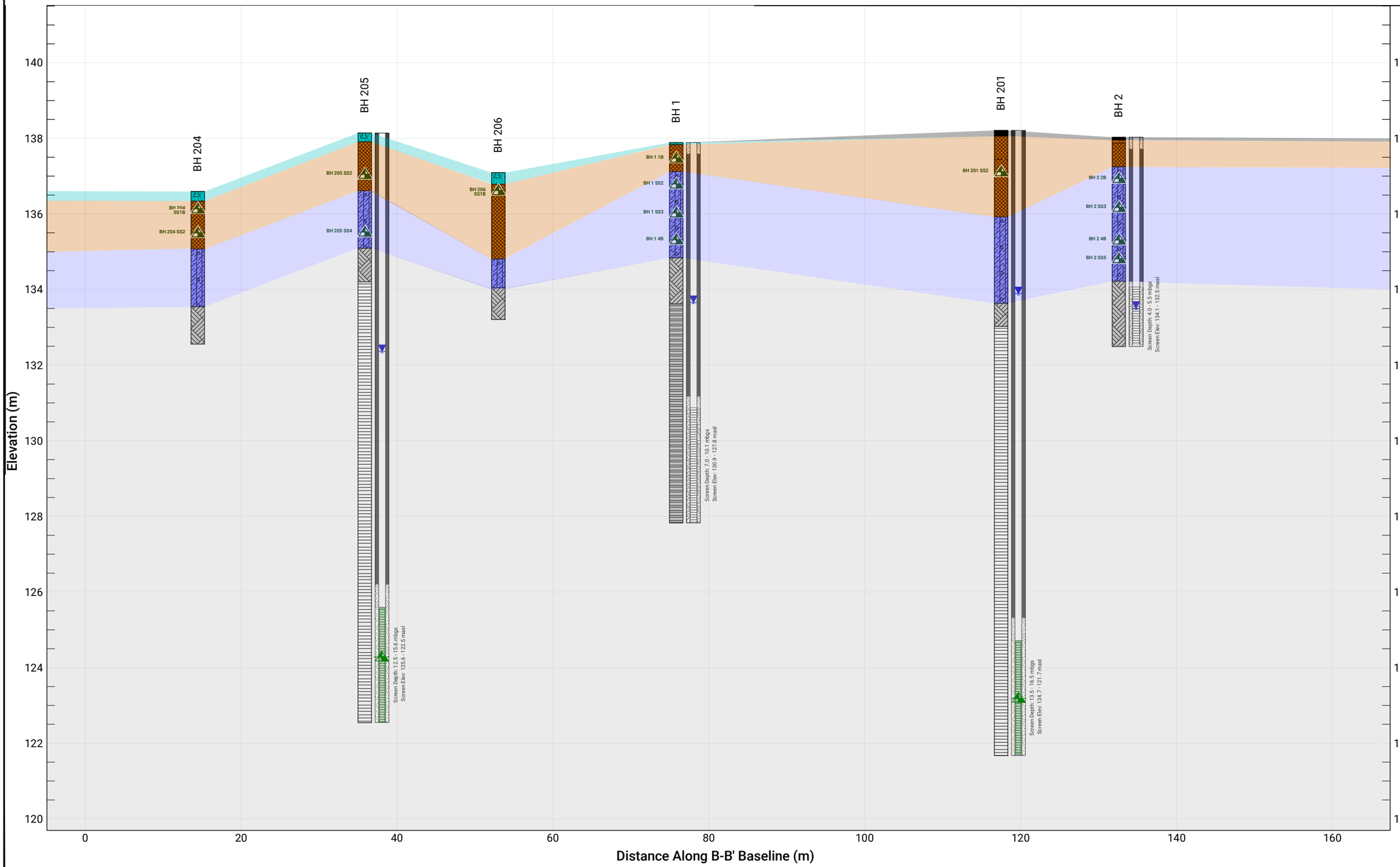
AS INDICATED

Job No

22-087

Figure No

FIGURE 8



GROUNDED ENGINEERING

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LEGEND

- SURFICIAL MATERIALS
- TOPSOIL
- EARTH FILL
- SANDS
- GRAVELS
- COHESIONLES TILL
- COHESIVE TILL
- GEORGIAN BAY BEDROCK
- SS1 SOIL SAMPLE LOCATION MEETS STANDARD
- water level, stabilized

Note

Reference

Project

UPRC - WESTMINSTER, MISSISSAUGA, ONTARIO

Figure Title

All PARAMETERS CROSS SECTION B-B'

North

Date

MAY 2024

Scale

AS INDICATED

Job No

22-087

Figure No

FIGURE 9

TABLES

TABLE 1
GROUNDWATER LEVEL MONITORING SUMMARY
4094 TOMKEN RD
MISSISSAUGA, ON
PROJECT # 22-087

Well ID	Ground Surface Elevation (masl)	Screen Interval (mbgs)	Screen Interval (masl)	Soil Strata	Grounded Engineering														Minimum Elev. (Lowest)		Maximum Elev. (Highest)		Seasonal Fluctuation
					June 14, 2022		June 27, 2022		July 29, 2022		August 18, 2022		April 9, 2024		April 10, 2024		April 16, 2024		April 26, 2024						
					(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(mbgs)	(masl)	(±m)
BH1	137.89	7.0 - 10.1	130.9 - 127.8	SHALE	3.04	134.85	4.11	133.78	4.20	133.69	4.37	133.52	-	-	-	-	4.34	133.55	4.26	133.63	4.4	133.5	3.0	134.8	0.7
BH2	138.03	4.0 - 5.5	134.1 - 132.5	BEDROCK	4.08	133.95	4.52	133.51	4.51	133.52	4.56	133.47	-	-	-	-	4.12	133.91	3.97	134.06	4.6	133.5	4.0	134.1	0.3
BH3	138.17	3.0 - 4.6	135.1 - 133.6	BEDROCK	dry	-	4.29	133.88	4.45	133.72	4.58	133.59	-	-	-	-	4.19	133.98	NA	-	4.6	133.6	4.2	134.0	0.2
BH201	138.21	13.5 - 16.5	124.7 -121.7	SHALE	-	-	-	-	-	-	-	-	2.82	135.39	4.35	133.86	3.12	135.09	4.35	133.86	4.4	133.9	2.8	135.4	0.8
BH205	138.14	12.5 - 15.6	125.6 -122.5	SHALE	-	-	-	-	-	-	-	-	4.72	133.42	6.68	131.46	6.72	131.42	5.81	132.33	6.7	131.4	4.7	133.4	1.0
BH207	138.73	1.5 - 3.0	135.2 - 133.7	BEDROCK	-	-	-	-	-	-	-	-	3.10	135.63	3.50	135.23	3.16	135.57	2.20	136.53	3.5	135.2	2.2	136.5	0.7
BH208	138.20	5.7 - 7.2	133.1 -131.6	BEDROCK	-	-	-	-	-	-	-	-	4.78	133.42	7.01	131.19	6.50	131.70	4.58	133.62	7.0	131.2	4.6	133.6	1.2

mbgs = metres below existing ground surface
masl = metres above sea level
* = unstabilized groundwater level
NA = not available: unable to access monitoring well

Table 2: Summary of Soil Quality Results
Metals and Other Regulated Parameters
UPRC Westminster 4094 Tomken Rd and 924 Rathburn Rd E

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	O.Reg.153/04 Table 3 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH1 SS1B 0.2 - 0.6 137.7 - 137.3 WT2205489 10-Jun-2022	BH1 SS3 1.5 - 2.1 136.4 - 135.8 WT2205489 10-Jun-2022	BH2 SS3 1.5 - 2.1 136.5 - 135.9 WT2205489 08-Jun-2022	DUP-M&I BH2 SS3 1.5 - 2.1 136.5 - 135.9 WT2205489 08-Jun-2022	BH2 SS4B 2.5 - 2.9 135.5 - 135.2 WT2205489 08-Jun-2022	BH3 SS3 1.5 - 2.1 136.6 - 136.0 WT2205489 08-Jun-2022	BH3 SS4 2.3 - 2.9 135.9 - 135.3 WT2205489 08-Jun-2022	BH201 SS2 0.76 - 1.37 137.45 - 136.84 WT2408091 08-Apr-2024
Site Sensitivity (pH)												
pH (surface soil, <1.5m)	5 to 9	unitless	7-8	Multiple								**8**
pH (subsurface soil, >1.5m)	5 to 11	unitless	8-8	BH1 SS1B/BH1 SS3	**8**	**8**	**8**	**8**	**8**	**8**	**8**	
Metals												
Barium	390	µg/g	102	BH204 SS1B	66.6	41.6	41.5	39.7	34.1	75.3	41.2	86.2
Beryllium	5	µg/g	1.28	BH2 SS4B	0.71	1.08	1.1	1.24	1.28	0.85	0.79	0.91
Boron (total)	120	µg/g	17.3	BH2 SS4B	<5	14.7	13.6	15.8	17.3	9.3	10.8	13.9
Cadmium	1.2	µg/g	0.189	BH1 SS1B	0.189	0.031	0.035	0.03	0.031	0.133	0.044	0.092
Chromium (total)	160	µg/g	35.1	BH207 SS2	23.4	32.7	29	30.4	32.6	24.4	21.6	27.1
Cobalt	22	µg/g	21.5	BH2 SS4B	12.8	20.1	19.2	19.7	21.5	12.9	13.6	15.2
Copper	180	µg/g	83.8	BH1 SS3	18.7	83.8	65.2	39.6	19.7	29.3	40.4	30.4
Lead	120	µg/g	14.9	BH3 SS4	12.8	4.01	5.56	5.02	4.73	11.2	14.9	9.31
Molybdenum	6.9	µg/g	0.54	BH208 SS2	0.36	0.11	0.27	0.15	0.23	0.34	0.27	0.3
Nickel	130	µg/g	42.9	BH207 SS2	21.8	40.6	37.4	39.3	41.5	29.3	26.3	31.9
Silver	25	µg/g	<0.1	Multiple	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Thallium	1	µg/g	0.181	BH204 SS1B	0.12	0.149	0.134	0.13	0.139	0.144	0.11	0.16
Uranium	23	µg/g	0.789	BH204 SS1B	0.547	0.69	0.756	0.71	0.596	0.577	0.656	0.566
Vanadium	86	µg/g	47.7	BH207 SS2	35.1	41.2	37.6	39.3	40	34	30.9	38
Zinc	340	µg/g	89.5	BH207 SS2	62.7	81.8	75.2	75.9	82.2	66	63	67.7
Hydride-forming Metals												
Antimony	7.5	µg/g	0.23	BH207 SS2	0.19	0.18	0.22	0.19	0.21	0.16	0.15	0.18
Arsenic	18	µg/g	18	BH206 SS1B	5.78	7.15	7.52	7.9	7.19	5.77	6.99	6.69
Selenium	2.4	µg/g	0.31	BH208 SS2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ORPs - Other Regulated Parameters												
Boron (Hot Water Soluble)*	1.5	µg/g	0.91	BH206 SS1B	0.36	0.17	0.16	0.15	0.35	0.16	0.21	0.33
Chromium VI	10	µg/g	0.36	BH207 SS2	0.35	<0.1	<0.25	<0.1	<0.1	0.22	0.17	<0.1
Cyanide (CN-)	0.051	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Electrical Conductivity (EC)	**0.7**	mS/cm	1.2	DUP- 2	0.256	0.157	0.405	0.402	0.23	0.447	0.416	1.2
Mercury	1.8	µg/g	0.0279	BH1 SS1B	0.0279	0.0089	0.0096	0.0092	0.0065	0.0201	0.0095	0.0195
Sodium Adsorption Ratio (SAR)	**5**	unitless	10	BH201 SS2	0.33	0.33	0.44	0.4	0.35	1.31	1.22	10

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
O.Reg.153/04 Table 3 SCS RPI Med/Fine means Table 3: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded light red fill, bold)	Maximum analyte concentration exceeds the highlighted criterion
100 (shaded fill)	Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine

Table 2: Summary of Soil Quality Results
Metals and Other Regulated Parameters
UPRC Westminster 4094 Tomken Rd and 924 Rathburn Rd E

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	O.Reg.153/04 Table 3 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	DUP- 2 BH201 SS2 0.76 - 1.37 137.45 - 136.84 WT2408091 08-Apr-2024	BH204 SS1B 0.3 - 0.6 136.3 - 136.0 WT2408091 04-Apr-2024	BH205 SS2 0.8 - 1.4 137.4 - 136.8 WT2408091 02-Apr-2024	BH206 SS1B 0.3 - 0.58 136.79 - 136.51 WT2408091 04-Apr-2024	BH207 SS2 0.8 - 1.4 136.0 - 135.4 WT2408091 03-Apr-2024	BH208 SS2 0.8 - 1.4 138.0 - 137.4 WT2408091 04-Apr-2024
Site Sensitivity (pH)										
pH (surface soil, <1.5m)	5 to 9	unitless	7-8	Multiple	**7**	**8**	**7**	**8**	**8**	**7**
pH (subsurface soil, >1.5m)	5 to 11	unitless	8-8	BH1 SS1B/BH1 SS3						
Metals										
Barium	390	µg/g	102	BH204 SS1B	100	102	79.6	85.1	52.3	97.7
Beryllium	5	µg/g	1.28	BH2 SS4B	0.97	0.95	0.77	1.2	1.26	0.95
Boron (total)	120	µg/g	17.3	BH2 SS4B	14.2	11.7	9.6	14.3	15.3	10
Cadmium	1.2	µg/g	0.189	BH1 SS1B	0.099	0.09	0.108	0.072	0.052	0.155
Chromium (total)	160	µg/g	35.1	BH207 SS2	29.2	30.9	23.6	32.8	35.1	27.9
Cobalt	22	µg/g	21.5	BH2 SS4B	15.5	14.6	12.3	19.2	20.7	16.8
Copper	180	µg/g	83.8	BH1 SS3	33.4	36.6	30	64.2	43.6	22.6
Lead	120	µg/g	14.9	BH3 SS4	9.5	8.7	9.48	5.75	5.69	8.52
Molybdenum	6.9	µg/g	0.54	BH208 SS2	0.29	0.31	0.36	0.26	0.22	0.54
Nickel	130	µg/g	42.9	BH207 SS2	34	32.6	27.1	39.4	42.9	30.1
Silver	25	µg/g	<0.1	Multiple	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Thallium	1	µg/g	0.181	BH204 SS1B	0.162	0.181	0.161	0.154	0.151	0.137
Uranium	23	µg/g	0.789	BH204 SS1B	0.593	0.789	0.491	0.699	0.499	0.694
Vanadium	86	µg/g	47.7	BH207 SS2	40.8	44.9	35.8	44.9	47.7	40.5
Zinc	340	µg/g	89.5	BH207 SS2	74	69.2	58	82.6	89.5	80
Hydride-forming Metals										
Antimony	7.5	µg/g	0.23	BH207 SS2	0.17	0.17	0.16	0.19	0.23	0.15
Arsenic	18	µg/g	18	BH206 SS1B	7.22	7.34	6.24	18	7.26	6.82
Selenium	2.4	µg/g	0.31	BH208 SS2	<0.2	0.27	<0.2	0.2	<0.2	0.31
ORPs - Other Regulated Parameters										
Boron (Hot Water Soluble)*	1.5	µg/g	0.91	BH206 SS1B	0.36	0.47	0.17	0.91	0.22	0.21
Chromium VI	10	µg/g	0.36	BH207 SS2	0.2	0.3	0.28	0.18	0.36	0.15
Cyanide (CN-)	0.051	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Electrical Conductivity (EC)	**0.7**	mS/cm	1.2	DUP- 2	1.2	0.418	0.216	0.517	0.222	0.8
Mercury	1.8	µg/g	0.0279	BH1 SS1B	0.0213	0.0242	0.0249	0.0175	0.0134	0.0258
Sodium Adsorption Ratio (SAR)	**5**	unitless	10	BH201 SS2	10	1.66	1.52	2.58	1.42	3.4

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
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Table 3: Summary of Soil Quality Results
Acid/Base/Neutral Compounds, Polycyclic Aromatic Hydrocarbons, and Chlorophenols
UPRC Westminster 4094 Tomken Rd and 924 Rathburn Rd E

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	O.Reg.153/04 Table 3 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH1 SS1B 0.2 - 0.6 137.7 - 137.3 WT2205489 10-Jun-2022	BH1 SS2 0.8 - 1.4 137.1 - 136.5 WT2205489 10-Jun-2022	BH2 SS2B 0.8 - 1.3 137.2 - 136.7 WT2205489 08-Jun-2022	BH2 SS5 3.0 - 3.3 135.0 - 134.7 WT2205489 08-Jun-2022	BH3 SS3 1.5 - 2.1 136.6 - 136.0 WT2205489 08-Jun-2022	DUP-PAH BH3 SS3 1.5 - 2.1 136.6 - 136.0 WT2205489 08-Jun-2022	BH3 SS4 2.3 - 2.9 135.9 - 135.3 WT2205489 08-Jun-2022
PAHs - Polycyclic Aromatic Hydrocarbons											
Acenaphthene	58	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.17	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	0.74	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benz[a]anthracene	0.63	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[a]pyrene	0.3	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[b]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[ghi]perylene	7.8	µg/g	0.051	BH2 SS5	<0.05	<0.05	<0.05	0.051	<0.05	<0.05	<0.05
Benzo[k]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	7.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz[a,h]anthracene	0.1	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.69	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	69	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno[1,2,3-cd]pyrene	0.48	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methlynaphthalene, 2-(1-)	3.4	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylnaphthalene, 1-	NV	µg/g	<0.04	BH2 SS5	<0.03	<0.03	<0.03	<0.04	<0.03	<0.03	<0.03
Methylnaphthalene, 2-	NV	µg/g	<0.04	BH2 SS5	<0.03	<0.03	<0.03	<0.04	<0.03	<0.03	<0.03
Naphthalene	0.75	µg/g	<0.04	BH2 SS5	<0.01	<0.01	<0.01	<0.04	<0.01	<0.01	<0.01
Phenanthrene	7.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
O.Reg.153/04 Table 3 SCS RPI Med/Fine means Table 3: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100	Maximum concentration exceeds the highlighted criterion
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100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine

Table 3: Summary of Soil Quality Results
Acid/Base/Neutral Compounds, Polycyclic Aromatic Hydrocarbons, and Chlorophenols
UPRC Westminster 4094 Tomken Rd and 924 Rathburn Rd E

Sample ID Sample Note Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	O.Reg.153/04 Table 3 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH201 SS2 0.76 - 1.37 137.45 - 136.84 WT2408091 08-Apr-2024	DUP- 2 BH201 SS2 0.76 - 1.37 137.45 - 136.84 WT2408091 08-Apr-2024	BH204 SS1B 0.3 - 0.6 136.3 - 136.0 WT2408091 04-Apr-2024	BH205 SS2 0.8 - 1.4 137.4 - 136.8 WT2408091 02-Apr-2024	BH206 SS1B 0.3 - 0.58 136.79 - 136.51 WT2408091 04-Apr-2024	BH207 SS2 0.8 - 1.4 136.0 - 135.4 WT2408091 03-Apr-2024	BH208 SS2 0.8 - 1.4 138.0 - 137.4 WT2408091 04-Apr-2024
PAHs - Polycyclic Aromatic Hydrocarbons											
Acenaphthene	58	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.17	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	0.74	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benz[a]anthracene	0.63	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[a]pyrene	0.3	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[b]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[ghi]perylene	7.8	µg/g	0.051	BH2 SS5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[k]fluoranthene	0.78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	7.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz[a,h]anthracene	0.1	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.69	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	69	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno[1,2,3-cd]pyrene	0.48	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methlynaphthalene, 2-(1-)	3.4	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylnaphthalene, 1-	NV	µg/g	<0.04	BH2 SS5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Methylnaphthalene, 2-	NV	µg/g	<0.04	BH2 SS5	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Naphthalene	0.75	µg/g	<0.04	BH2 SS5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	7.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	78	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:

Blanks indicate not analysed.

'NV ' : No Standard established

mASL means metres above mean sea level

O.Reg.153/04 Table 3 SCS RPI Med/Fine means Table 3: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100	Maximum concentration exceeds the highlighted criterion
100 (shaded fill)	Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine

Table 4: Summary of Soil Quality Results
Petroleum Hydrocarbons and BTEX
UPRC Westminster 4094 Tomken Rd and 924 Rathburn Rd E

Sample ID Sample Note Remediated Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	O.Reg.153/04 Table 3 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH1 SS2 0.8 - 1.4 137.1 - 136.5 WT2205489 10-Jun-2022	BH1 SS4B 2.4 - 2.7 135.5 - 135.2 WT2205489 10-Jun-2022	DUP-VOC BH1 SS4B 2.4 - 2.7 135.5 - 135.2 WT2205489 10-Jun-2022	BH2 SS2B 0.8 - 1.3 137.2 - 136.7 WT2205489 08-Jun-2022	BH2 SS5 3.0 - 3.3 135.0 - 134.7 WT2205489 08-Jun-2022
BTEX - Benzene, Toluene, Ethylbenzene, Xylene									
Benzene	0.17	µg/g	<0.1	Multiple	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	15	µg/g	<0.015	Multiple	<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	25	µg/g	<0.075	Multiple	<0.075	<0.075	<0.075	<0.075	<0.075
Xylene, m- & p-	NV	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene, o-	NV	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
O.Reg.153/04 Table 3 SCS RPI Med/Fine means Table 3: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental

100	Maximum concentration exceeds the highlighted criterion
100 (shaded fill)	Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine

Table 4: Summary of Soil Quality Results
Petroleum Hydrocarbons and BTEX
UPRC Westminster 4094 Tomken Rd and 924 Rathburn Rd E

Sample ID Sample Note Remediated Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	O.Reg.153/04 Table 3 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH3 SS2 0.8 - 1.4 137.4 - 136.8 WT2205489 08-Jun-2022	BH3 SS5 3.0 - 3.7 135.1 - 134.5 WT2205489 08-Jun-2022	BH201 SS2 0.76 - 1.37 137.45 - 136.84 WT2408091 08-Apr-2024	BH204 SS2 0.8 - 1.4 135.8 - 135.2 WT2408091 04-Apr-2024	BH205 SS2 0.8 - 1.4 137.4 - 136.8 WT2408091 02-Apr-2024
BTEX - Benzene, Toluene, Ethylbenzene, Xylene									
Benzene	0.17	µg/g	<0.1	Multiple	<0.1	<0.1	<0.005	<0.005	<0.005
Ethylbenzene	15	µg/g	<0.015	Multiple	<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	25	µg/g	<0.075	Multiple	<0.075	<0.075	<0.05	<0.05	<0.05
Xylene, m- & p-	NV	µg/g	<0.05	Multiple	<0.05	<0.05	<0.03	<0.03	<0.03
Xylene, o-	NV	µg/g	<0.05	Multiple	<0.05	<0.05	<0.03	<0.03	<0.03

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
O.Reg.153/04 Table 3 SCS RPI Med/Fine means Table 3: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental

100	Maximum concentration exceeds the highlighted criterion
100 (shaded fill)	Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine

Table 4: Summary of Soil Quality Results
Petroleum Hydrocarbons and BTEX
UPRC Westminster 4094 Tomken Rd and 924 Rathburn Rd E

Sample ID Sample Note Remediated Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	O.Reg.153/04 Table 3 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	DUP- 1 BH205 SS2 0.8 - 1.4 137.4 - 136.8 WT2408091 02-Apr-2024	BH205 SS4 2.3 - 2.9 135.9 - 135.2 WT2408091 04-Apr-2024	BH206 SS1B 0.3 - 0.58 136.79 - 136.51 WT2408091 04-Apr-2024	BH207 SS2 0.8 - 1.4 136.0 - 135.4 WT2408091 03-Apr-2024	BH208 SS3 1.5 - 2.1 137.3 - 136.7 WT2408091 04-Apr-2024
BTEX - Benzene, Toluene, Ethylbenzene, Xylene									
Benzene	0.17	µg/g	<0.1	Multiple	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	15	µg/g	<0.015	Multiple	<0.015	<0.015	<0.015	<0.015	<0.015
Toluene	6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	25	µg/g	<0.075	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene, m- & p-	NV	µg/g	<0.05	Multiple	<0.03	<0.03	<0.03	<0.03	<0.03
Xylene, o-	NV	µg/g	<0.05	Multiple	<0.03	<0.03	<0.03	<0.03	<0.03

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
O.Reg.153/04 Table 3 SCS RPI Med/Fine means Table 3: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental

100	Maximum concentration exceeds the highlighted criterion
100 (shaded fill)	Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine

Table 5: Summary of Soil Quality Results
Volatile Organic Compounds and Trihalomethanes
UPRC Westminster 4094 Tomken Rd and 924 Rathburn Rd E

Sample ID Sample Note Remediated Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	O.Reg.153/04 Table 3 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH1 SS2 0.8 - 1.4 137.1 - 136.5 WT2205489 10-Jun-2022	BH1 SS4B 2.4 - 2.7 135.5 - 135.2 WT2205489 10-Jun-2022	DUP-VOC BH1 SS4B 2.4 - 2.7 135.5 - 135.2 WT2205489 10-Jun-2022	BH2 SS2B 0.8 - 1.3 137.2 - 136.7 WT2205489 08-Jun-2022	BH2 SS5 3.0 - 3.3 135.0 - 134.7 WT2205489 08-Jun-2022	BH3 SS2 0.8 - 1.4 137.4 - 136.8 WT2205489 08-Jun-2022	BH3 SS5 3.0 - 3.7 135.1 - 134.5 WT2205489 08-Jun-2022	BH201 SS2 0.76 - 1.37 137.45 - 136.84 WT2408091 08-Apr-2024	BH204 SS2 0.8 - 1.4 135.8 - 135.2 WT2408091 04-Apr-2024	BH205 SS2 0.8 - 1.4 137.4 - 136.8 WT2408091 02-Apr-2024
THMs - Trihalomethanes														
Bromodichloromethane	13	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Bromoform	0.26	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Chloroform	0.18	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Dibromochloromethane	9.4	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
VOCs - Volatile Organic Compounds														
Acetone	28	µg/g	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	0.12	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	2.7	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,2-	4.3	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,3-	6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,4-	0.097	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	25	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,1-	11	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,1-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-cis-	30	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-trans-	0.75	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropane, 1,2-	0.085	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropene, 1,3-	0.083	µg/g	<0.075	Multiple	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.075	<0.05	<0.05	<0.05
Dichloropropylene, cis-1,3-	NV	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.03	<0.03	<0.03
Dichloropropylene, trans-1,3-	NV	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.03	<0.03	<0.03
Ethylene dibromide	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexane (n)	34	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	44	µg/g	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5
Methyl Isobutyl Ketone	4.3	µg/g	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		<0.5	<0.5	<0.5
Methyl tert-Butyl Ether (MTBE)	1.4	µg/g	<0.04	Multiple	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04		<0.04	<0.04	<0.04
Methylene Chloride	0.96	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
Styrene	2.2	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,1,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,2,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	2.3	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethane, 1,1,1-	3.4	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethane, 1,1,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.52	µg/g	<0.01	Multiple	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trichlorofluoromethane	5.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	0.022	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromomethane														
Bromomethane	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			

Notes:
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100	Maximum concentration exceeds the highlighted criterion
100 (shaded fill)	Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine

Table 5: Summary of Soil Quality Results
Volatile Organic Compounds and Trihalomethanes
UPRC Westminster 4094 Tomken Rd and 924 Rathburn Rd E

Sample ID Sample Note Remediated Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	O.Reg.153/04 Table 3 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	DUP- 1 BH205 SS2 0.8 - 1.4 137.4 - 136.8 WT2408091 02-Apr-2024	BH205 SS4 2.3 - 2.9 135.9 - 135.2 WT2408091 04-Apr-2024	BH206 SS1B 0.3 - 0.58 136.79 - 136.51 WT2408091 04-Apr-2024	BH207 SS2 0.8 - 1.4 136.0 - 135.4 WT2408091 03-Apr-2024	BH208 SS3 1.5 - 2.1 137.3 - 136.7 WT2408091 04-Apr-2024
THMs - Trihalomethanes									
Bromodichloromethane	13	µg/g	<0.05	Multiple					
Bromoform	0.26	µg/g	<0.05	Multiple					
Chloroform	0.18	µg/g	<0.05	Multiple					
Dibromochloromethane	9.4	µg/g	<0.05	Multiple					
VOCs - Volatile Organic Compounds									
Acetone	28	µg/g	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	0.12	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	2.7	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,2-	4.3	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,3-	6	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,4-	0.097	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	25	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,1-	11	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,1-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-cis-	30	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-trans-	0.75	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropane, 1,2-	0.085	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropene, 1,3-	0.083	µg/g	<0.075	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropylene, cis-1,3-	NV	µg/g	<0.05	Multiple	<0.03	<0.03	<0.03	<0.03	<0.03
Dichloropropylene, trans-1,3-	NV	µg/g	<0.05	Multiple	<0.03	<0.03	<0.03	<0.03	<0.03
Ethylene dibromide	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Hexane (n)	34	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	44	µg/g	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl Isobutyl Ketone	4.3	µg/g	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl tert-Butyl Ether (MTBE)	1.4	µg/g	<0.04	Multiple	<0.04	<0.04	<0.04	<0.04	<0.04
Methylene Chloride	0.96	µg/g	<0.05	Multiple					
Styrene	2.2	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,1,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,2,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	2.3	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethane, 1,1,1-	3.4	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethane, 1,1,2-	0.05	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	0.52	µg/g	<0.01	Multiple	<0.01	<0.01	<0.01	<0.01	<0.01
Trichlorofluoromethane	5.8	µg/g	<0.05	Multiple	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	0.022	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.02	<0.02
Bromomethane									
Bromomethane	0.05	µg/g	<0.05	Multiple					

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
O.Reg.153/04 Table 3 SCS RPI Med/Fine means Table 3: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100	Maximum concentration exceeds the highlighted criterion
100 (shaded fill)	Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine

Table 6: Summary of Soil Quality Results
Polychlorinated Biphenyls, Organochlorine Pesticides, and Dioxins and Furans
UPRC Westminster 4094 Tomken Rd and 924 Rathburn Rd E

Sample ID Sample Note Remediated Sample Depth (m) Sample Elevation (mASL) Lab Job # Sampling Date	O.Reg.153/04 Table 3 SCS RPI Med/Fine	Units	Max. Conc.	Max. Conc. Sample ID	BH1 SS2 0.8 - 1.4 137.1 - 136.5 WT2205489 10-Jun-2022	BH2 SS4B 2.5 - 2.9 135.5 - 135.2 WT2205489 08-Jun-2022	BH3 SS4 2.3 - 2.9 135.9 - 135.3 WT2205489 08-Jun-2022	DUP-OC BH3 SS4 2.3 - 2.9 135.9 - 135.3 WT2205489 08-Jun-2022
OCs - Organochlorine Pesticides								
Aldrin	0.05	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.02
Chlordane	0.05	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03
Chlordane, a-	NV	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.02
Chlordane, g-	NV	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.02
DDD	3.3	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03
DDE	0.33	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03
DDT	1.4	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03
Dieldrin	0.05	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.02
Endosulfan	0.04	µg/g	<0.03	Multiple	<0.03	<0.03	<0.03	<0.03
Endrin	0.04	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.02
Heptachlor	0.15	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.02
Heptachlor Epoxide	0.05	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.02
Hexachlorobenzene	0.52	µg/g	<0.01	Multiple	<0.01	<0.01	<0.01	<0.01
Hexachlorobutadiene	0.014	µg/g	<0.01	Multiple	<0.01	<0.01	<0.01	<0.01
Hexachlorocyclohexane, gamma-	0.063	µg/g	<0.01	Multiple	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	0.071	µg/g	<0.01	Multiple	<0.01	<0.01	<0.01	<0.01
Methoxychlor	0.13	µg/g	<0.02	Multiple	<0.02	<0.02	<0.02	<0.02
PCBs - Polychlorinated Biphenyls								
Polychlorinated Biphenyls	0.35	µg/g	<0.3	#N/A	<0.03		<0.03	

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
mASL means metres above mean sea level
O.Reg.153/04 Table 3 SCS RPI Med/Fine means Table 3: Full Depth Generic Site Condition Standards for Soil for Residential/ Parkland/ Institutional Property Uses. Medium to fine soil texture. Per Ontario Ministry of the Environment document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. (O.Reg.153/04).

100 (shaded light red fill, bold)	Maximum analyte concentration exceeds the highlighted criterion
100 (shaded fill)	Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine
100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3 SCS RPI Med/Fine

Table 7: Summary of Ground Water Quality Results
Metals and Other Regulated Parameters
4094 Tomken Rd

Sample ID Sample Note Screened Depth (m) Screened Interval (mASL/mAAD) Lab Job # Sampling Date	O.Reg.153/04 Table 3	UNITS	Max. Sample Conc.	Max. Conc. Sample ID	BH201 13.5 - 16.5 124.7 - 121.7 WT2409014 2024-04-11	DUP-1 201 13.5 - 16.5 124.7 - 121.7 WT2409014 2024-04-11
Metals						
Barium (Ba)	29000	µg/L	370	BH201	370	362
Beryllium (Be)	67	µg/L	<0.2	Multiple	<0.2	<0.2
Boron (B)	45000	µg/L	852	DUP-1	813	852
Cadmium (Cd)	2.7	µg/L	0.197	DUP-1	0.181	0.197
Chromium (Cr)	810	µg/L	<5	Multiple	<5	<5
Cobalt (Co)	66	µg/L	5.44	BH201	5.44	5.01
Copper (Cu)	87	µg/L	<2	Multiple	<2	<2
Lead (Pb)	25	µg/L	<0.5	Multiple	<0.5	<0.5
Mercury (Hg)	0.29	µg/L	<0.005	Multiple	<0.005	<0.005
Molybdenum (Mo)	9200	µg/L	19	DUP-1	18.3	19
Nickel (Ni)	490	µg/L	13.2	BH201	13.2	12.7
Silver (Ag)	1.5	µg/L	<0.1	Multiple	<0.1	<0.1
Thallium (Tl)	510	µg/L	<0.1	Multiple	<0.1	<0.1
Uranium (U)	420	µg/L	1.3	DUP-1	1.24	1.3
Vanadium (V)	250	µg/L	<5	Multiple	<5	<5
Zinc (Zn)	1100	µg/L	<10	Multiple	<10	<10
Hydride-forming Metals						
Antimony (Sb)	20000	µg/L	1.74	DUP-1	1.71	1.74
Arsenic (As)	1900	µg/L	1.34	DUP-1	1.33	1.34
Selenium (Se)	63	µg/L	<0.5	Multiple	<0.5	<0.5
ORPs - Other Regulated Parameters						
Chloride (Cl-)	2300000	µg/L	1010	BH201	1010	772
Chromium VI	140	µg/L	<0.5	Multiple	<0.5	<0.5
Cyanide (CN-)	66	µg/L	<2	Multiple	<2	<2
Electrical Conductivity (EC)	NV	mS/cm	3.62	BH201	3.62	3

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
O.Reg.153/04 Table 3 means O.Reg.153/04 Table 3 means: Table 3 Full Depth Generic Site Condition Standards for Ground Water for All Types of Property Uses. Coarse-textured soil. Per Ontario Ministry of the Environment, Conservation and Parks document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, as amended. (O.Reg.153/04).

100 (shaded fill)	Exceeds O.Reg.153/04 Table 3
<100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3

Table 8: Summary of Ground Water Quality Results
Acid/Base/Neutral Compounds, Polycyclic Aromatic Hydrocarbons, and Chlorophenols
4094 Tomken Rd

Sample ID Sample Note Screened Depth (m) Screened Interval (mASL/mAAD) Lab Job # Sampling Date	O.Reg.153/04 Table 3	UNITS	Max. Sample Conc.	Max. Conc. Sample ID	BH201 13.5 - 16.5 124.7 - 121.7 WT2409014 2024-04-11	DUP-1 201 13.5 - 16.5 124.7 - 121.7 WT2409014 2024-04-11
PAHs - Polycyclic Aromatic Hydrocarbons						
Acenaphthene	600	µg/L	<0.016	Multiple	<0.016	<0.016
Acenaphthylene	1.8	µg/L	<0.01	Multiple	<0.01	<0.01
Anthracene	2.4	µg/L	<0.01	Multiple	<0.01	<0.01
Benz[a]anthracene	4.7	µg/L	<0.01	Multiple	<0.01	<0.01
Benzo[a]pyrene	0.81	µg/L	<0.005	Multiple	<0.005	<0.005
Benzo[b]fluoranthene	0.75	µg/L	<0.01	Multiple	<0.01	<0.01
Benzo[ghi]perylene	0.2	µg/L	<0.01	Multiple	<0.01	<0.01
Benzo[k]fluoranthene	0.4	µg/L	<0.01	Multiple	<0.01	<0.01
Chrysene	1	µg/L	<0.01	Multiple	<0.01	<0.01
Dibenz[a,h]anthracene	0.52	µg/L	<0.005	Multiple	<0.005	<0.005
Fluoranthene	130	µg/L	<0.01	Multiple	<0.01	<0.01
Fluorene	400	µg/L	<0.01	Multiple	<0.01	<0.01
Indeno[1,2,3-cd]pyrene	0.2	µg/L	<0.01	Multiple	<0.01	<0.01
Methlynaphthalene, 2-(1-)	1800	µg/L	<0.015	Multiple	<0.015	<0.015
Methylnaphthalene, 1-	NV	µg/L	<0.01	Multiple	<0.01	<0.01
Methylnaphthalene, 2-	NV	µg/L	<0.01	Multiple	<0.01	<0.01
Naphthalene	1400	µg/L	<0.05	Multiple	<0.05	<0.05
Phenanthrene	580	µg/L	<0.02	Multiple	<0.02	<0.02
Pyrene	68	µg/L	<0.01	Multiple	<0.01	<0.01

Notes:

Blanks indicate not analysed.
'NV ' : No Standard established
O.Reg.153/04 Table 3 means O.Reg.153/04 Table 3 means: Table 3 Full Depth Generic Site Condition Standards for Ground Water for All Types of Property Uses. Coarse-textured soil. Per Ontario Ministry of the Environment, Conservation and Parks document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, as amended. (O.Reg.153/04).

100 (shaded fill)	Exceeds O.Reg.153/04 Table 3
<100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3

Table 10: Summary of Ground Water Quality Results
Volatile Organic Compounds and Trihalomethanes
4094 Tomken Rd

Sample ID Sample Note Screened Depth (m) Screened Interval (mASL/mAAD) Lab Job # Sampling Date	O.Reg.153/04 Table 3	UNITS	Max. Sample Conc.	Max. Conc. Sample ID	BH201 13.5 - 16.5 124.7 - 121.7 WT2409014 2024-04-11	DUP-1 201 13.5 - 16.5 124.7 - 121.7 WT2409014 2024-04-11	BH205 12.5 - 15.6 125.6 - 122.5 WT2409014 2024-04-10	BH208 5.7 - 7.2 133.1 - 131.6 WT2409014 2024-04-16
VOCs - Volatile Organic Compounds								
Bromodichloromethane	85000	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Bromoform	380	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Bromomethane	5.6	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	0.79	µg/L	<0.2	Multiple	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	630	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Chloroform	2.4	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	82000	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Ethylene dibromide	0.25	µg/L	<0.2	Multiple	<0.2	<0.2	<0.2	<0.2
Dichlorobenzene, 1,2-	4600	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Dichlorobenzene, 1,3-	9600	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Dichlorobenzene, 1,4-	8	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	4400	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Dichloroethane, 1,1-	320	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Dichloroethane, 1,2-	1.6	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Dichloroethylene, 1,1-	1.6	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Dichloroethylene, 1,2-cis-	1.6	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Dichloroethylene, 1,2-trans-	1.6	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Dichloropropane, 1,2-	16	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Dichloropropylene, cis-1,3-	NV	µg/L	<0.3	Multiple	<0.3	<0.3	<0.3	<0.3
Dichloropropylene, trans-1,3-	NV	µg/L	<0.3	Multiple	<0.3	<0.3	<0.3	<0.3
Hexane (n)	51	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Hexanone, 2-	NV	µg/L	<20	Multiple	<20	<20	<20	<20
Methyl Ethyl Ketone	470000	µg/L	<20	Multiple	<20	<20	<20	<20
Methyl Isobutyl Ketone	140000	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Styrene	1300	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Tetrachloroethane, 1,1,1,2-	3.3	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Tetrachloroethane, 1,1,2,2-	3.2	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	1.6	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Trichloroethane, 1,1,1-	640	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Trichloroethane, 1,1,2-	4.7	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	1.6	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	2500	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Vinyl Chloride	0.5	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5

Notes:

Blanks indicate not analysed.

'NV ' : No Standard established

O.Reg.153/04 Table 3 means O.Reg.153/04 Table 3 means: Table 3 Full Depth Generic Site Condition Standards for Ground Water for All Types of Property Uses. Coarse-textured soil. Per Ontario Ministry of the Environment, Conservation and Parks document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, as amended. (O.Reg.153/04).

100 (shaded fill)	Exceeds O.Reg.153/04 Table 3
<100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3

Table 9: Summary of Ground Water Quality Results
Petroleum Hydrocarbons and BTEX
4094 Tomken Rd

Sample ID Sample Note Screened Depth (m) Screened Interval (mASL/mAAD) Lab Job # Sampling Date	O.Reg.153/04 Table 3	UNITS	Max. Sample Conc.	Max. Conc. Sample ID	BH201 13.5 - 16.5 124.7 - 121.7 WT2409014 2024-04-11	DUP-1 201 13.5 - 16.5 124.7 - 121.7 WT2409014 2024-04-11	BH205 12.5 - 15.6 125.6 - 122.5 WT2409014 2024-04-10	BH208 5.7 - 7.2 133.1 - 131.6 WT2409014 2024-04-16
BTEX - Benzene, Toluene, Ethylbenzene, Xy								
Benzene	44	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	2300	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Toluene	18000	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Xylene Mixture	4200	µg/L	<0.5	Multiple	<0.5	<0.5	<0.5	<0.5
Xylene, m- & p-	NV	µg/L	<0.4	Multiple	<0.4	<0.4	<0.4	<0.4
Xylene, o-	NV	µg/L	<0.3	Multiple	<0.3	<0.3	<0.3	<0.3

Notes:
Blanks indicate not analysed.
'NV ' : No Standard established
O.Reg.153/04 Table 3 means O.Reg.153/04 Table 3 means: Table 3 Full Depth Generic Site Condition Standards for Ground Water for All Types of Property Uses. Coarse-textured soil. Per Ontario Ministry of the Environment, Conservation and Parks document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, as amended. (O.Reg.153/04).

100 (shaded fill)	Exceeds O.Reg.153/04 Table 3
<100 (underlined)	Detection Limit Exceeds O.Reg.153/04 Table 3

APPENDIX

APPENDIX A

File No. 22-087
June 2024

Phase One Environmental Conceptual Site Model
Westminister United Church
4094 Tomken Rd, Mississauga, Ontario

Phase One ESA including Figures of the Phase One Study Area, which identify the following:	**Phase One ESA Information:**
Existing buildings and structures	Existing building and structures are presented in Figure 2.
Water bodies located in whole or in part on the Phase One Study Area	All water bodies on the Phase One Property and Phase One Study Area are shown on Figure 3.
Areas of Natural Significance located in whole or in part on the Phase One Study Area	No Life Science ANSIs were identified on the property or within the study area. No Earth Science ANSIs were identified on the property or within the study area.
Roads (including names) within the Phase One Study Area	All roads within the Phase One Study Area are shown on Figure 3.
Use of properties adjacent to the Phase One Property	The land use of properties adjacent to the Phase One Property is shown on Figure 3.
Location of drinking water wells on the Phase One Property	No drinking water wells were present on the Phase One Property.
Areas where any PCA has occurred, and locations of tanks in the Phase One Study Area	The location of PCAs and tanks, if any, is shown on Figure 4.
APECs on the Phase One Property	The location of APECs on the Phase One Property is shown on Figure 5.
Narrative Description and Assessments	
Any areas where Potentially Contaminating Activity (PCAs) on, or potentially affecting, the Phase One Property have occurred	<u>On-site PCAs Associated with **APEC 1**</u>: • #30 – Importation of Fill Material of Unknown Quality <u>On-site PCAs Associated with **APEC 2**</u>: • Other 1 – De-icing Activities <u>On-site PCAs Associated with **APEC 3**</u>:

	• #40 – Pesticides (including Herbicides, Fungicides, and anti-fouling Agents) Manufacturing, Processing, Bulk Storage and Large – Scale Applications On-site PCAs Associated with **APEC 4**: • #37 – Operation of Dry Cleaning Equipment (where chemicals are used)
Any Contaminants of Potential Concerns (CoPCs)	CoPCs Associated with **APEC 1**: • Metals, As, Sb, Se, B-HWS, CN-, Hg, Cr(VI), PAHs, and VOCs in soil CoPCs Associated with **APEC 2**: • EC and SAR in soil • NA and Cl in groundwater CoPCs Associated with **APEC 3**: • OCs in soil CoPCs Associated with **APEC 4**: • VOCs in groundwater
The potential of underground utilities (if any present) to affect contaminant distribution and transport	Buried hydro, gas, communication, water and electrical all run through the Property. Based on these observations, there is the potential for underground utilities to affect the distribution and transportation of contaminants underneath the Property.
Available regional or site specific geological and hydrogeological information	Topography: • The approximate elevation of the Property was 139 m above sea level (masl) and is relatively flat. Hydrology: • Surface water flow was expected infiltrate into the greenspace at Property. Groundwater is expected to flow locally southeast towards Little Etobicoke Creek, and regionally southeast to Lake Ontario Overburden: • Till - Clay to silt-textured till (derived from glaciolacustrine deposits or shale. Bedrock: • Georgian Bay Formation comprised of shale, limestone, dolostone and siltstone. • MECP well record indicated bedrock observed at a depth of 1.8 mbgs. A map of draft thickness confirmed this depth

Any uncertainty or absence of information obtained in the Phase One ESA that could affect the validity of the CSM	No uncertainty or absence of information obtained in the Phase One ESA is identified to have an affect on the validity of the CSM.

APPENDIX B

Appendix B: Sampling and Analysis Plan

Areas of Potential Environmental Concern (APECs) & Location	Potentially Contaminating Activities (PCAs)	Contaminants of Potential Concern (CoPCs)	Media Potentially Impacted (Groundwater, soil and/or sediment)	Borehole or Monitoring Well Associated	Rationale
APEC 1 (Entire Property)	#30 – Importation of Fill Material of Unknown Quality	Metals Sb, As, Se CN- Cr(VI) Hg PAHs VOC	Soil	BH1-3 and 201-208	• To assess if the soil and groundwater within the APEC was impacted due to historical use of fill of unknown quality.
		B-HWS	Shallow Soil		
APEC 2 (Entire Property)	Other 1 – De - icing Activities	EC SAR	Soil	BH1-3 and 201-208	• To assess if the soil and groundwater within the APEC was impacted due to the application of salt for de-icing activities.
		Na Cl	Groundwater		
APEC 3 (South Portion of the Property)	#40 – Pesticides (including Herbicides, Fungicides, and anti-fouling Agents) Manufacturing, Processing, Bulk Storage and Large – Scale Applications	OC	Soil	BH 2 and 3	• To assess if the soil within the APEC was impacted from historical use of pesticides on the Property.
APEC 4 (Northwest Portion of the Property)	#37 – Operation of Dry Cleaning Equipment (where chemicals are used)	VOCs	Groundwater	BH208	• To assess if the groundwater within the APEC was impacted from the off-site dry cleaning operations.

APPENDIX C

GROUNDED ENGINEERING

Date Started : Jun 10, 2022
Position : E: 611693, N: 4830108 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 1

File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

drill method : B-57

elev depth (m)	description	graphic log	samples: number	samples: type	samples: SPT N-value
137.9	**GROUND SURFACE**				
	50mm **TOPSOIL**		1A		
	FILL, sandy silt, clayey, trace gravel, trace rock fragments, compact, brown, moist		1B	SS	10
137.1 / 0.8	**CLAYEY SILT**, trace sand, trace gravel, orange staining, very stiff, brownish grey, moist (GLACIAL TILL)		2	SS	17
			3	SS	25
	...at 2.4 m, some shale and limestone fragments, hard		4A / 4B	SS	74 / 275mm
134.9 / 3.0	**INFERRED BEDROCK**, shale fragments, limestone fragments, grey		5	SS	50 / 50mm
			6	SS	50 / 125mm
133.6 / 4.3	**GEORGIAN BAY FORMATION** (See rock core log for details)		1	RUN	
			2	RUN	
			3	RUN	
			4	RUN	
127.8 / 10.1	**END OF BOREHOLE**				

hollow stem augers OD=215 mm

rock coring (HQ) OD=96 mm

depth scale (m): 0 1 2 3 4 5 6 7 8 9 10

well details

elevation (m): 137 136 135 134 133 132 131 130 129 128

undrained shear strength (kPa)
○ unconfined + field vane
● pocket penetrometer ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene
▣ methane
100 200 300

moisture / plasticity
PL MC LL
10 20 30

LL=43.6

7.5 m (Elev. 130.4 m): transition to sound bedrock

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

1B: H-Ms, Metals, ORPs, PAHs, PCBs

SS2: PAHs, PCBs, OCs, VOCs

6 8 55 31

SS3: H-Ms, Metals, ORPs

4B: VOCs

Borehole was filled with drill water upon completion of drilling.

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

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Jun 27, 2022	4.1	133.8
Jul 29, 2022	4.2	133.7
Aug 18, 2022	4.4	133.5
Apr 16, 2024	4.3	133.6
Apr 26, 2024	4.3	133.6

file: 22-087 gint.gpj

Tech : AJ | **PM** : SB | **Rev** : KB

Ministry of Transportation
Ontario

RECORD OF ROCK CORE No 1

METRIC

G.W.P. 22-087 | LOCATION Coords: E:611693.2 N:4830108.4 | ORIGINATED BY AJ

DIST UPRC | HWY Mississauga, ON | BOREHOLE TYPE | COMPILED BY SB

DATUM | DATE 2022-6-10 | CHECKED BY KB

depth (m)	stratigraphy	Run elev / depth (m)	recovery	elevation (m)	natural fracture frequency	notes and comments	elevation (m)
	Rock coring started at 4.3m below grade	**133.6**					
	GEORGIAN BAY FORMATION **Shale**, grey, very thinly bedded to medium bedded, weak; joints are horizontal, closed, clean, smooth, planar; interbedded with **limestone**, light grey, laminated to thinly bedded, medium strong, occasionally fossiliferous *Overall shale: 90%, limestone: 10%*	4.3 R1 132.4	TCR = **88%** SCR = **56%** RQD = **0%**	133	>10 >10 6 4	**4.3 / 133.6 - 4.6 / 133.3m:** Rubblized Zone **4.7 / 133.2m:** JT T CN	133
5		5.5 R2 130.9	TCR = **97%** SCR = **63%** RQD = **17%**	132	6 >10 5 3 4	**5.6 / 132.3m:** IS clay **5.6 / 132.3m:** JT T CN **5.8 / 132.1m:** Rubblized Zone **5.9 / 132.0m:** IS clay **6.2 / 131.6m:** IS clay **6.5 / 131.4m:** JT T CN **6.7 / 131.2m:** JT T CN	132
6		7.0 R3 129.4	TCR = **83%** SCR = **67%** RQD = **58%**	131	N/A RZ+5 2 3	**7.0 / 130.9 - 7.3 / 130.6m:** No recovery, washed out	131
7	**... at 7.5 m (Elev. 130.4 m), transition to sound rock**	8.5 R4 127.8	TCR = **103%** SCR = **98%** RQD = **43%**	130	2 3 3 1 2 3	**8.5 / 129.4m:** IS clay **9.0 / 128.9m:** Rubblized Zone	130 129 128
8		**10.1m**					
9	**END OF COREHOLE**						
10							

shale weathering zones: Z1 Z2 Z3 Z4

UCS (MPa) 5 25 50 100 250 — estimated strength: R1 R2 R3 R4 R5 R6

laboratory testing

file: 22-087 gint.gpj

GROUNDED ENGINEERING

GROUNDED ENGINEERING

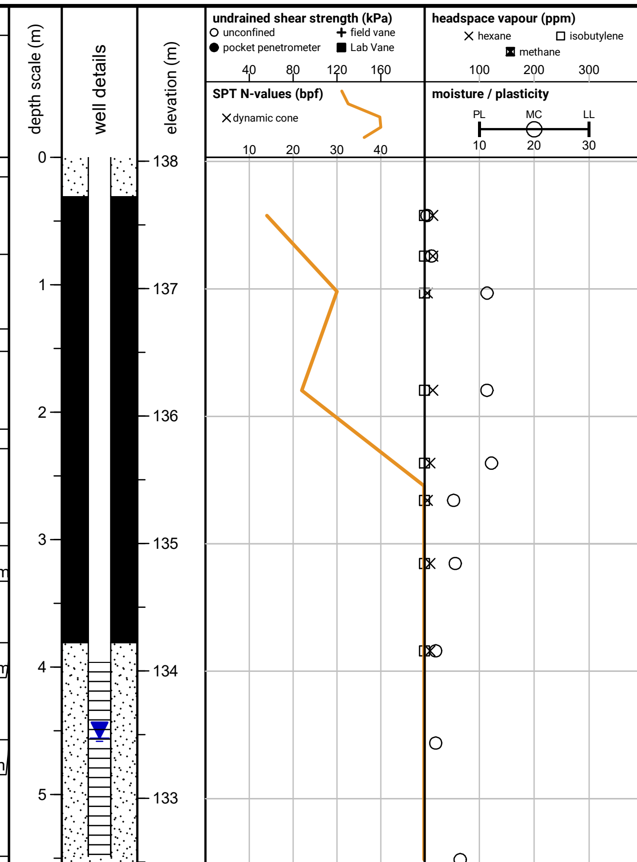
Date Started : Jun 8, 2022
Position : E: 611712, N: 4830055 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 2

File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

drill method : B-57 — hollow stem augers OD=215 mm

elev depth (m)	description	sample number	type	SPT N-value
138.0	**GROUND SURFACE**			
137.8 / 0.2	75mm **ASPHALT**			
	75mm **AGGREGATE**			
	FILL, sand, trace silt, trace gravel, stiff, brown, moist	1	SS	14
137.2 / 0.8	**CLAYEY SILT**, some sand, trace gravel, orange staining, hard, brownish grey, moist (GLACIAL TILL)	2A		
		2B	SS	30
	...at 1.5 m, very stiff	3	SS	22
	...at 2.3 m, trace rock fragments, grey, hard	4A	SS	78
		4B		
		5	SS	50 / 125mm
134.2 / 3.8	**INFERRED BEDROCK**, shale fragments, limestone fragments, grey	6	SS	50 / 125mm
		7	SS	50 / 50mm
132.5 / 5.5	...at 5.5 m, wet	8	SS	50 / 50mm



lab data and comments — grain size distribution (%) (MIT): GR SA SI CL

17 18 40 25

2B: PAHs, PCBs, VOCs

SS3: H-Ms, Metals, ORPs

4B: H-Ms, Metals, ORPs, OCs

SS5: PAHs, PCBs, VOCs

END OF BOREHOLE

Borehole was dry upon completion of drilling.

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

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Jun 14, 2022	4.1	133.9
Jun 27, 2022	4.5	133.5
Jul 29, 2022	4.5	133.5
Aug 17, 2022	4.6	133.4

file: 22-087 gint.gpj

Tech : AJ | **PM** : SB | **Rev** : KB

Ministry of Transportation
Ontario

RECORD OF ROCK CORE No 2

1 of 1

METRIC

G.W.P. 22-087 | LOCATION Coords: E:611712.0 N:4830054.8 | ORIGINATED BY AJ

DIST UPRC | HWY Mississauga, ON | BOREHOLE TYPE | COMPILED BY SB

DATUM | DATE 2022-6-8 | CHECKED BY KB

depth (m)	graphic log	stratigraphy **Rock coring started at m below grade**	Run elev depth (m)	recovery	elevation (m)	shale weathering zones Z1 Z2 Z3 Z4	UCS (MPa) 5 25 50 100 250 / estimated strength R1 R2 R3 R4 R5 R6	natural fracture frequency	laboratory testing	notes and comments	elevation (m)
		75mm **ASPHALT**			138						
		75mm **AGGREGATE**									
		SAND, trace silt, trace gravel, stiff, brown, moist (FILL)									
1		**CLAYEY SILT**, some sand, trace gravel, orange staining, hard, brownish grey, moist (GLACIAL TILL)			137						137
2					136						136
3					135						135
4		**INFERRED BEDROCK**, shale fragments, limestone fragments, grey			134						134
5					133						133
			5.5m								
		END OF COREHOLE									

file: 22-087 gint.gpj

GROUNDED ENGINEERING

BOREHOLE LOG 3

Date Started : Jun 8, 2022
Position : E: 611743, N: 4830128 (UTM 17T)
Elev. Datum : Geodetic

File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

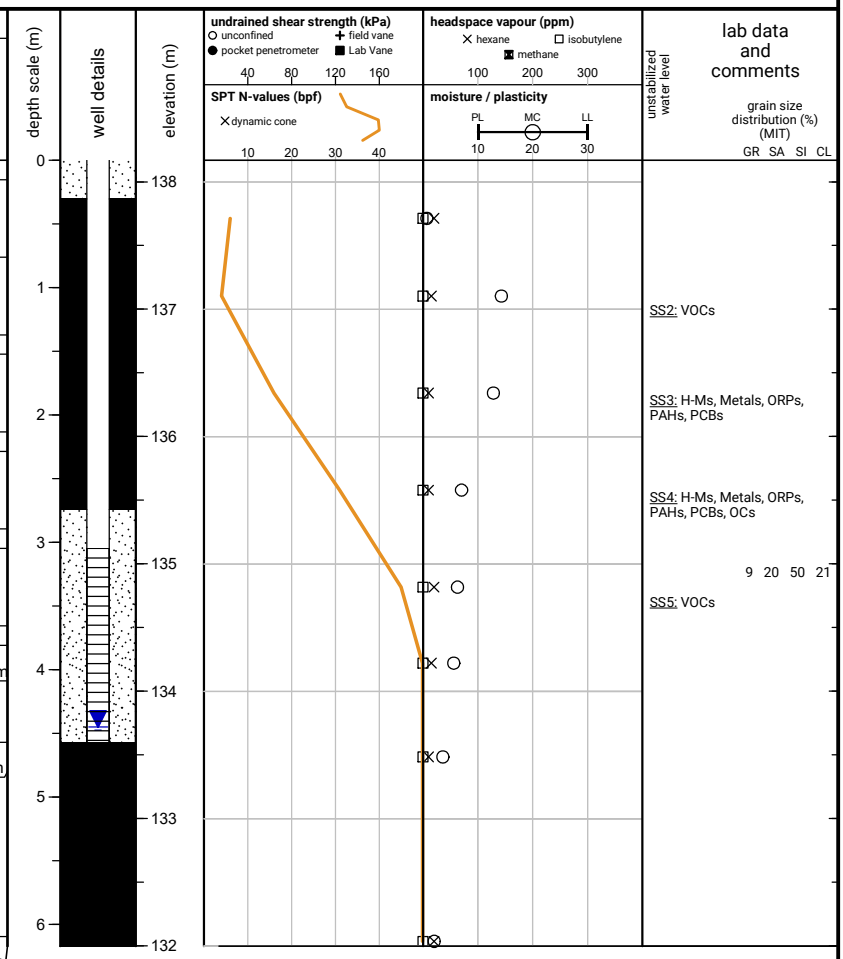
drill method : B-57

hollow stem augers OD=215 mm

elev depth (m)	description	graphic log	number	type	SPT N-value
138.2	**GROUND SURFACE**				
138.0	75mm **ASPHALT**				
0.2	75mm **AGGREGATE**		1	SS	6
	FILL, sand, trace silt, trace gravel, loose, brown, moist				
	...at 0.8 m, clayey silt, some sand, trace black staining, grey, moist, firm		2	SS	4
136.7					
1.5	**CLAYEY SILT**, some sand, trace gravel, orange staining, very stiff, brownish grey, moist		3	SS	16
	(GLACIAL TILL)				
	...at 2.3 m, hard		4	SS	31
	...at 3.0 m, sandy		5	SS	45
134.4					
3.8	**INFERRED BEDROCK**, shale fragments, limestone fragments, grey		6	SS	50 / 125mm
			7	SS	50 / 75mm
132.0			8	SS	50 / 75mm
6.2	**END OF BOREHOLE**				

Borehole was dry upon completion of drilling.

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



GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Jun 14, 2022	dry	n/a
Jun 27, 2022	4.3	133.9
Jul 29, 2022	4.5	133.7

file: 22-087 gint.gpj

Tech : AJ | **PM** : SB | **Rev** : KB

Ministry of Transportation
Ontario

RECORD OF ROCK CORE No 3

1 of 1

METRIC

G.W.P. 22-087 | LOCATION Coords: E:611743.4 N:4830128.1 | ORIGINATED BY AJ

DIST UPRC | HWY Mississauga, ON | BOREHOLE TYPE | COMPILED BY SB

DATUM | DATE 2022-6-8 | CHECKED BY KB

depth (m)	graphic log	stratigraphy **Rock coring started at m below grade**	Run elev depth (m)	recovery	elevation (m)	shale weathering zones Z1 Z2 Z3 Z4	UCS (MPa) 5 25 50 100 250 / estimated strength R1 R2 R3 R4 R5 R6	natural fracture frequency	laboratory testing	notes and comments	elevation (m)
0		75mm **ASPHALT**			138						138
		75mm **AGGREGATE**									
1		**SAND**, trace silt, trace gravel, loose, brown, moist (FILL)			137						137
2		**CLAYEY SILT**, some sand, trace gravel, orange staining, very stiff, brownish grey, moist (GLACIAL TILL)			136						136
3					135						135
4		**INFERRED BEDROCK**, shale fragments, limestone fragments, grey			134						134
5					133						133
6					132						132
			6.2m								

END OF COREHOLE

file: 22-087 gint.gpj

GROUNDED ENGINEERING

Date Started : Apr 3, 2024
Position : E: 611727, N: 4830075 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 201

File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

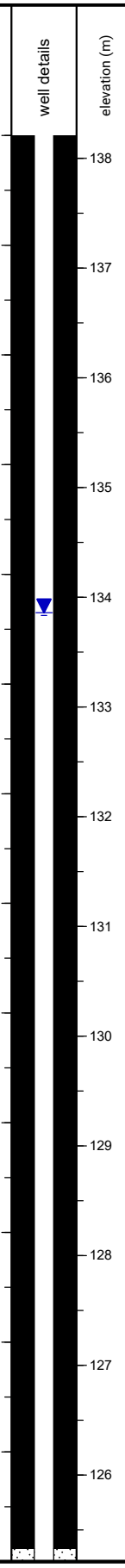
drill method : CME TRACK

elev / depth (m)	description	graphic log	number	type	SPT N-value
138.2	**GROUND SURFACE**				
138.0 / 0.2	150mm **ASPHALT**				
	FILL, sand and gravel, trace silt, trace rock fragments, loose, brown, moist		1A	SS	9
137.4			1B	SS	
0.8	**FILL**, clayey silt, trace to some sand, trace gravel, trace rock fragments, stiff to very stiff, grey with orange, moist		2	SS	12
			3	SS	24
135.9					
2.3	**CLAYEY SILT**, some gravel, trace sand, hard, grey with orange, moist (GLACIAL TILL)		4	SS	30
	...at 3.0 m, trace rock fragments, cobbles (inferred)		5	SS	86
133.6					
4.6	**INFERRED BEDROCK**, shale and limestone fragments, grey, moist		6	SS	50 / 50mm
133.0					
5.2	**GEORGIAN BAY FORMATION** (See rock core log for details)		7	SS	50 / 25mm
			1	RUN	
			2	RUN	
			3	RUN	
			4	RUN	
			5	RUN	
			6	RUN	

hollow stem augers OD=215 mm

rock coring (HQ) OD=96 mm

depth scale (m) / well details / elevation (m)



undrained shear strength (kPa)
○ unconfined + field vane
● pocket penetrometer ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene
⊠ methane
100 200 300

moisture / plasticity
PL MC LL
10 20 30

LL=40

5.6 m (Elev. 132.6 m): transition to sound bedrock

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

SS2: BTEX, H-Ms, Metals, ORPs, PAHs, VOCs

1.5m: Auger grinding **to 1.8m**

15 7 50 28

3.4m: Auger grinding

4.6m: Auger grinding **to 5.2m**

5.2m: Auger refusal

file: 22-087 gint.gpj

Tech : LB | **PM** : EL/DL | **Rev** : KB

(continued next page)

GROUNDED ENGINEERING

Date Started : Apr 3, 2024
Position : E: 611727, N: 4830075 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 201

File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

drill method : CME TRACK
rock coring (HQ) OD=96 mm

elev depth (m)	description	graphic log	samples: number	samples: type	samples: SPT N-value
	(continued)				
	GEORGIAN BAY FORMATION (See rock core log for details) *(continued)*		6	RUN	
			7	RUN	
			8	RUN	
121.7 16.5					

depth scale (m): 13, 14, 15, 16
elevation (m): 125, 124, 123, 122

well details

undrained shear strength (kPa)
○ unconfined ● pocket penetrometer + field vane ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene ⊠ methane
100 200 300

moisture / plasticity
PL MC LL
10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

END OF BOREHOLE

Borehole was filled with drill water upon completion of drilling.

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

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Apr 9, 2024	2.8	135.4
Apr 10, 2024	4.4	133.8
Apr 16, 2024	3.1	135.1
Apr 26, 2024	4.4	133.8

file: 22-087 gint.gpj

Tech : LB | **PM** : EL/DL | **Rev** : KB

Ministry of Transportation
Ontario

RECORD OF ROCK CORE No 201

1 of 1

METRIC

G.W.P. 22-087 | LOCATION Coords: E:611726.6 N:4830075.3 | ORIGINATED BY LB

DIST UPRC | HWY Mississauga, ON | BOREHOLE TYPE | COMPILED BY EL/DL

DATUM | DATE 2024-4-3 | CHECKED BY KB

stratigraphy

Rock coring started at 5.2m below grade

133.0

GEORGIAN BAY FORMATION

Shale, grey, thinly bedded to medium bedded, weak; joints are horizontal, gapped, clean, smooth, planar;

interbedded with **limestone**, light grey, very thinly bedded to medium bedded, strong

Overall shale: 82%, limestone: 18%

... at 5.6 m (Elev. 132.6 m), transition to sound rock

Run	elev. depth (m)	recovery
R1	5.2 – 5.8	TCR = **98%** SCR = **96%** RQD = **0%**
R2	5.8 – 130.8	TCR = **93%** SCR = **85%** RQD = **23%**
R3	7.4 – 129.3	TCR = **98%** SCR = **90%** RQD = **58%**
R4	8.9 – 127.8	TCR = **100%** SCR = **100%** RQD = **89%**
R5	10.4 – 126.3	TCR = **100%** SCR = **100%** RQD = **77%**
R6	11.9 – 124.8	TCR = **100%** SCR = **100%** RQD = **98%**
R7	13.4 – 123.2	TCR = **100%** SCR = **100%** RQD = **86%**
R8	15.0 – 121.7	TCR = **100%** SCR = **100%** RQD = **88%**

16.5m

END OF COREHOLE

shale weathering zones: Z1 Z2 Z3 Z4

UCS (MPa) 5 25 50 100 250

estimated strength: R1 R2 R3 R4 R5 R6

natural fracture frequency: 3 5 5 4 6 7 8 8 4 1 1 2 3 3 2 2 1 3 3 2 3 1 1 2 1 1 1 2 3 3 1 1 0 1 1 2

laboratory testing

El. 126.6m:
UCS = 19 MPa
E = 2.10 GPa
γ = 25.6 kN/m³

notes and comments

5.2 / 133.0 - 5.2 / 133.0m: JT SV UN T CN
5.2 / 133.0 - 5.3 / 132.9m: IS clay

6.1 / 132.1 - 6.1 / 132.1m: IS
6.2 / 132.0 - 6.3 / 131.9m: JT SV UN T CN
6.3 / 131.9 - 6.4 / 131.8m: JT SV UN T CN
6.5 / 131.8 - 6.5 / 131.7m: JT SV UN T CN
6.5 / 131.7 - 6.5 / 131.7m: JT SV UN T CN

7.4 / 130.8 - 7.4 / 130.8m: rubblized zone
7.4 / 130.8 - 7.5 / 130.7m: IS clay
7.5 / 130.7m: IS clay

10.5 / 127.7m: IS clay
10.7 / 127.5m: IS clay

11.2 / 127.0m: IS clay
11.4 / 126.8m: IS clay

file: 22-087 gint.gpj

GROUNDED ENGINEERING

GROUNDED ENGINEERING

Date Started : Apr 5, 2024
Position : E: 611697, N: 4830064 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 202

File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

drill method : CME TRACK

elev / depth (m)	description	graphic log	number	type	SPT N-value
137.9	**GROUND SURFACE**				
137.6 / 0.3	75mm **ASPHALT**		1A	SS	7
	FILL, sand and gravel, trace silt, trace clay, loose, brown, moist		1B	SS	
	FILL, clayey silt, trace sand, trace gravel, trace rock fragments, firm, greyish brown with orange, moist ...at 0.8 m, trace brick fragments, very stiff		2	SS	23
136.4 / 1.5	**CLAYEY SILT**, some gravel, trace sand, very stiff to hard (GLACIAL TILL)		3	SS	22
			4	SS	61
	...at 3.0 m, trace rock and shale fragments		5	SS	88 / 200mm
133.3 / 4.6	**INFERRED BEDROCK**, shale and limestone fragments, grey, moist		6	SS	50 / 125mm
132.5 / 5.4			7	SS	50 / 25mm

hollow stem augers OD=215 mm

depth scale (m): 0, 1, 2, 3, 4, 5

well details

elevation (m): 137, 136, 135, 134, 133

undrained shear strength (kPa): unconfined, field vane, pocket penetrometer, Lab Vane; 40, 80, 120, 160

SPT N-values (bpf): dynamic cone; 10, 20, 30, 40

headspace vapour (ppm): hexane, isobutylene, methane; 100, 200, 300

moisture / plasticity: PL, MC, LL; 10, 20, 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT): GR SA SI CL

3.8m: Auger grinding **to 4.6m**

4.6m: Spoon bouncing
4.6m: Auger grinding **to 5.3m**

5.3m: Spoon bouncing

END OF BOREHOLE
Auger refusal on inferred bedrock

Borehole was dry upon completion of drilling.

file: 22-087 gint.gpj

Tech : LB | **PM** : EL/DK | **Rev** : KB

Ministry of Transportation
Ontario

RECORD OF ROCK CORE No 202

METRIC

G.W.P. 22-087 | LOCATION Coords: E:611697.4 N:4830064.2 | ORIGINATED BY LB

DIST UPRC | HWY Mississauga, ON | BOREHOLE TYPE | COMPILED BY EL/DK

DATUM | DATE 2024-4-5 | CHECKED BY KB

depth (m)	graphic log	stratigraphy at m below grade	Run elev / depth (m)	recovery	elevation (m)	shale weathering zones Z1 Z2 Z3 Z4	UCS (MPa) 5 25 50 100 250 / estimated strength R1 R2 R3 R4 R5 R6	natural fracture frequency	laboratory testing	notes and comments	elevation (m)
0		75mm **ASPHALT**									
		SAND AND GRAVEL, trace silt, trace clay, loose, brown, moist (FILL)									
1		**CLAYEY SILT**, trace sand, trace gravel, trace rock fragments, firm, greyish brown with orange, moist (FILL)			137						137
2		**CLAYEY SILT**, some gravel, trace sand, very stiff to hard (GLACIAL TILL)			136						136
3					135						135
4					134						134
5		**INFERRED BEDROCK**, shale and limestone fragments, grey, moist			133						133
			5.4m								

END OF COREHOLE

file: 22-087 gint.gpj

GROUNDED ENGINEERING

GROUNDED ENGINEERING

Date Started : Apr 5, 2024
Position : E: 611758, N: 4830103 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 203

File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

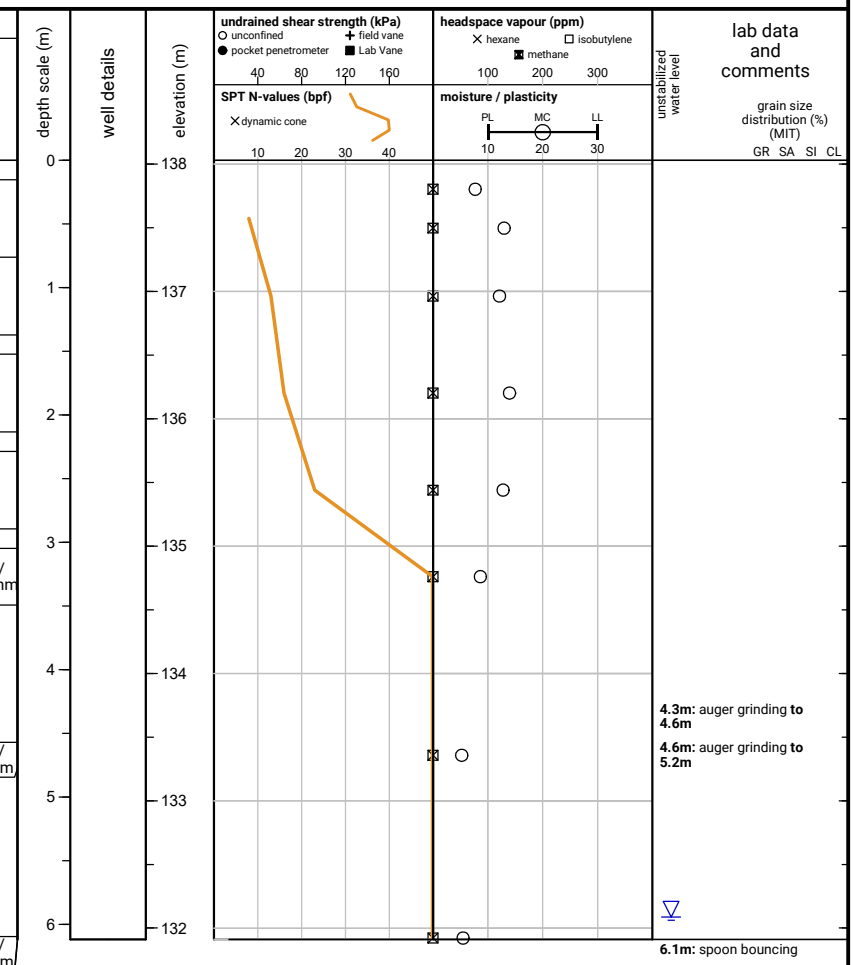
drill method : CME TRACK

elev depth (m)	description	graphic log	number	type	SPT N-value
138.0	**GROUND SURFACE**				
137.7	75mm **ASPHALT**		1A	SS	
0.3	**FILL**, sand and gravel, trace silt, loose, brown, moist		1B	SS	8
	FILL, clayey silt, trace to some sand, trace gravel, firm, dark grey with orange, moist		2	SS	13
136.5					
1.5	**CLAYEY SILT**, trace sand, trace gravel, very stiff, greyish brown to grey, moist (GLACIAL TILL)		3	SS	16
	...at 2.3 m, hard		4	SS	23
	...at 3.0 m, trace rock fragments, grey with orange		5	SS	78 / 290mm
133.4					
4.6	**INFERRED BEDROCK**, shale and limestone fragments, grey, moist		6	SS	50 / 50mm
131.9					
6.1			7	SS	50 / 25mm

hollow stem augers OD=215 mm

END OF BOREHOLE
Auger refusal on inferred bedrock

Unstabilized water level measured at 5.9 m below ground surface upon completion of drilling.



file: 22-087 gint.gpj

Tech : LB | **PM** : EL/DK | **Rev** : KB

Ministry of Transportation
Ontario

RECORD OF ROCK CORE No 203

METRIC

G.W.P. 22-087 | LOCATION Coords: E:611758.4 N:4830102.5 | ORIGINATED BY LB

DIST UPRC | HWY Mississauga, ON | BOREHOLE TYPE | COMPILED BY EL/DK

DATUM | DATE 2024-4-5 | CHECKED BY KB

depth (m)	graphic log	stratigraphy (at m below grade)	Run elev / depth (m)	recovery	elevation (m)	shale weathering zones Z1 Z2 Z3 Z4	UCS (MPa) 5 25 50 100 250 / estimated strength R1 R2 R3 R4 R5 R6	natural fracture frequency	laboratory testing	notes and comments	elevation (m)
0		75mm **ASPHALT**			138						138
		SAND AND GRAVEL, trace silt, loose, brown, moist (FILL)									
1		**CLAYEY SILT**, trace to some sand, trace gravel, firm, dark grey with orange, moist (FILL)			137						137
2		**CLAYEY SILT**, trace sand, trace gravel, very stiff, greyish brown to grey, moist (GLACIAL TILL)			136						136
3					135						135
4					134						134
5		**INFERRED BEDROCK**, shale and limestone fragments, grey, moist			133						133
6					132						132
			6.1m								

END OF COREHOLE

GROUNDED ENGINEERING

Date Started : Apr 4, 2024
Position : E: 611681, N: 4830169 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 204

File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

drill method : *CME TRACK*

elev depth (m)	description	graphic log	number	type	SPT N-value
136.6	**GROUND SURFACE**				
136.3 / 0.3	250mm **TOPSOIL**		1A	SS	7
	FILL, clayey silt, trace to some sand, trace gravel, trace rootlets, firm, dark brown to greyish brown, moist		1B	SS	
	...at 0.8 m, rock fragments, hard		2	SS	34
135.1 / 1.5	**CLAYEY SILT**, some gravel, trace sand, very stiff, grey, moist (GLACIAL TILL)		3	SS	26
	...at 2.3 m, rock fragments, hard		4	SS	98 / 225mm
133.6 / 3.0	**INFERRED BEDROCK**, shale and limestone fragments, grey, moist		5	SS	50 / 50mm
132.6 / 4.0			6	SS	50 / 75mm

hollow stem augers OD=215 mm

depth scale (m): 0, 1, 2, 3, 4

well details

elevation (m): 136, 135, 134, 133

undrained shear strength (kPa): unconfined, field vane, pocket penetrometer, Lab Vane; 40, 80, 120, 160

SPT N-values (bpf): dynamic cone; 10, 20, 30, 40

headspace vapour (ppm): hexane, isobutylene, methane; 100, 200, 300

moisture / plasticity: PL, MC, LL; 10, 20, 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT): GR SA SI CL

SS1B: H-Ms, Metals, ORPs, PAHs

SS2: VOCs

3.8m: Auger refusal

END OF BOREHOLE
Auger refusal on inferred bedrock

Borehole was dry upon completion of drilling.

file: 22-087 gint.gpj

Tech : LB | **PM** : EL/DK | **Rev** : KB

Ministry of Transportation
Ontario

RECORD OF ROCK CORE No 204

METRIC

G.W.P. 22-087 | LOCATION Coords: E:611681.1 N:4830169.0 | ORIGINATED BY LB

DIST UPRC | HWY Mississauga, ON | BOREHOLE TYPE | COMPILED BY EL/DK

DATUM | DATE 2024-4-4 | CHECKED BY KB

depth (m)	graphic log	stratigraphy at m below grade	Run elev / depth (m)	recovery	elevation (m)	shale weathering zones Z1 Z2 Z3 Z4	UCS (MPa) 5 25 50 100 250 / estimated strength R1 R2 R3 R4 R5 R6	natural fracture frequency	laboratory testing	notes and comments	elevation (m)
		250mm **TOPSOIL**									
1		**CLAYEY SILT**, trace to some sand, trace gravel, trace rootlets, firm, dark brown to greyish brown, moist (FILL)			136						136
2		**CLAYEY SILT**, some gravel, trace sand, very stiff, grey, moist (GLACIAL TILL)			135						135
3		**INFERRED BEDROCK**, shale and limestone fragments, grey, moist			134						134
4					133						133
			4.0m								

END OF COREHOLE

file: 22-087 gint.gpj

GROUNDED ENGINEERING

GROUNDED ENGINEERING

Date Started : Apr 2, 2024
Position : E: 611662, N: 4830140 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 205

File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

drill method : CME TRACK

elev depth (m)	description	graphic log	samples: number	type	SPT N-value
138.1	**GROUND SURFACE**				
137.9	225mm **TOPSOIL**		1A	SS	5
0.2	**FILL**, clayey silt, trace to some sand, trace gravel, trace rootlets, firm, dark brown, moist		1B	SS	
	...at 0.8 m, very stiff		2	SS	17
136.6					
1.5	**CLAYEY SILT**, some gravel, trace sand, trace rock fragments, cobbles (inferred), very stiff to hard, grey, moist (GLACIAL TILL)		3	SS	28
			4	SS	55
135.1					
3.0	**INFERRED BEDROCK**, shale and limestone fragments, grey, moist		5	SS	50 / 75mm
134.2			6	SS	50 / 50mm
3.9	**GEORGIAN BAY FORMATION** (See rock core log for details)		1	RUN	
			2	RUN	
			3	RUN	
			4	RUN	
			5	RUN	
			6	RUN	
			7	RUN	

hollow stem augers OD=215 mm

rock coring (HQ) OD=96 mm

depth scale (m) | well details | elevation (m)

0 138 | 1 137 | 2 136 | 3 135 | 4 134 | 5 133 | 6 132 | 7 131 | 8 130 | 9 129 | 10 128 | 11 127 | 12 126

undrained shear strength (kPa)
○ unconfined + field vane
● pocket penetrometer ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene
▣ methane
100 200 300

moisture / plasticity
PL MC LL
10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

SS2: H-Ms, Metals, ORPs, PAHs, VOCs

9 5 53 33

SS4: VOCs

4.6 m (Elev. 133.5 m): transition to sound bedrock

file: 22-087 gint.gpj

Tech : LB | **PM** : EL/DK | **Rev** : KB

(continued next page)

Date Started : Apr 2, 2024
Position : E: 611662, N: 4830140 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 205

File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

drill method : CME TRACK
rock coring (HQ) OD=96 mm

elev depth (m)	description	graphic log	samples: number	samples: type	samples: SPT N-value
	(continued)				
	GEORGIAN BAY FORMATION (See rock core log for details) *(continued)*		7	RUN	
			8	RUN	
122.5 15.6					

depth scale (m): 13, 14, 15
elevation (m): 125, 124, 123

well details

undrained shear strength (kPa)
○ unconfined + field vane
● pocket penetrometer ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene
▣ methane
100 200 300

moisture / plasticity
PL MC LL
10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

END OF BOREHOLE

Borehole was dry upon completion of drilling.

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

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Apr 9, 2024	4.7	133.4
Apr 10, 2024	6.7	131.4
Apr 16, 2024	6.7	131.4
Apr 26, 2024	5.8	132.3

file: 22-087 gint.gpj

Tech : LB | **PM** : EL/DK | **Rev** : KB

Ministry of Transportation
Ontario

RECORD OF ROCK CORE No 205

1 of 1

METRIC

G.W.P. 22-087 | LOCATION Coords: E:611661.7 N:4830140.3 | ORIGINATED BY LB

DIST UPRC | HWY Mississauga, ON | BOREHOLE TYPE | COMPILED BY EL/DK

DATUM | DATE 2024-4-2 | CHECKED BY KB

Rock coring started at 3.9m below grade

GEORGIAN BAY FORMATION

Shale, grey, thinly bedded to medium bedded, weak; joints are horizontal, gapped, clean, smooth, planar;

interbedded with **limestone**, light grey, very thinly bedded to thinly bedded, strong

Overall shale: 82%, limestone: 18%

... at 4.6 m (Elev. 133.5 m), transition to sound rock

Run	elev. depth (m)	recovery
	134.2	
	3.9	
R1		TCR = **100%** SCR = **67%** RQD = **10%**
	133.1	
	5.0	
R2		TCR = **100%** SCR = **98%** RQD = **25%**
	131.6	
	6.5	
R3		TCR = **100%** SCR = **90%** RQD = **49%**
	130.2	
	7.9	
R4		TCR = **100%** SCR = **93%** RQD = **42%**
	128.7	
	9.4	
R5		TCR = **100%** SCR = **100%** RQD = **72%**
	127.1	
	11.0	
R6		TCR = **100%** SCR = **100%** RQD = **85%**
	125.6	
	12.5	
R7		TCR = **100%** SCR = **100%** RQD = **91%**
	124.1	
	14.0	
R8		TCR = **100%** SCR = **100%** RQD = **100%**
	122.5	
	15.6m	

END OF COREHOLE

shale weathering zones: Z1 Z2 Z3 Z4

UCS (MPa) ● 5 25 50 100 250

estimated strength: R1 R2 R3 R4 R5 R6

natural fracture frequency: 2, 7, 6, 4, 4, 7, 5, 7, 4, 4, 10, 3, 4, 0, 3, 3, 3, 4, 5, 4, 5, 2, 4, 2, 4, 1, 2, 0, 1, 0, 1, 2, 1, 1, 1, 1, 0, 2, 1

laboratory testing

El. 125.6m:
UCS = 20.7 MPa
E = 3.40 GPa
γ = 25.8 kN/m³

notes and comments

3.9 / 134.2 - 4.1 / 134.0m: IS clay
4.1 / 134.0 - 4.2 / 133.9m: rubblized zone
4.4 / 133.7 - 4.5 / 133.7m: rubblized zone
4.6 / 133.6 - 4.6 / 133.5m: rubblized zone
5.0 / 133.2 - 5.0 / 133.2m: CS
5.3 / 132.9m: IS T clay
5.4 / 132.7m: IS GA clay
5.5 / 132.7m: IS GA clay
6.7 / 131.4m: IS clay
6.8 / 131.4 - 6.8 / 131.4m: CS
6.9 / 131.3m: IS clay
7.0 / 131.1 - 7.0 / 131.1m: CS
7.1 / 131.1m: IS clay
7.2 / 131.0m: IS clay
7.2 / 131.0 - 7.2 / 131.0m: CS
7.2 / 131.0 - 7.2 / 130.9m: IS clay
8.6 / 129.5 - 8.6 / 129.5m: CS
9.1 / 129.0m: IS clay
9.4 / 128.7 - 9.4 / 128.7m: rubblized zone
9.6 / 128.5m: IS clay
9.6 / 128.5m: IS clay
9.7 / 128.5m: JT D UN T CN
9.8 / 128.4m: IS clay
9.8 / 128.4m: IS clay
10.0 / 128.1m: IS clay
10.1 / 128.0m: JT D UN T CN
10.3 / 127.8m: IS clay
10.3 / 127.8m: JT D UN T CN
10.4 / 127.8m: IS clay
10.5 / 127.7m: IS clay
10.8 / 127.3m: IS clay
11.2 / 127.0m: IS clay
11.2 / 126.9m: IS clay
15.2 / 122.9m: IS clay

file: 22-087 gint.gpj

GROUNDED ENGINEERING

Date Started : Apr 4, 2024
Position : E: 611674, N: 4830126 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 206

File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

drill method : *CME TRACK*

hollow stem augers OD=215 mm

elev depth (m)	description	graphic log	number	type	SPT N-value
137.1	**GROUND SURFACE**				
136.8	300mm **TOPSOIL**		1A	SS	7
0.3	**FILL**, clayey silt, trace to some sand, trace gravel, trace rootlets, firm, dark brown, moist		1B	SS	
	...at 0.8 m, some rootlets, very stiff, light grey with orange		2	SS	17
			3	SS	19
134.8					
2.3	**CLAYEY SILT**, some gravel, trace sand, trace shale fragments, hard, light grey with brown, moist (GLACIAL TILL)		4	SS	50 / 140mm
134.1					
3.0	**INFERRED BEDROCK**, shale and limestone fragments, grey, moist		5	SS	50 / 140mm
133.2					
3.9			6	SS	50 / 50mm

depth scale (m): 0, 1, 2, 3

well details

elevation (m): 137, 136, 135, 134

undrained shear strength (kPa): unconfined, field vane, pocket penetrometer, Lab Vane; 40, 80, 120, 160

SPT N-values (bpf): dynamic cone; 10, 20, 30, 40

headspace vapour (ppm): hexane, isobutylene, methane; 100, 200, 300

moisture / plasticity: PL, MC, LL; 10, 20, 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT): GR SA SI CL

SS1B: H-Ms, Metals, ORPs, PAHs, VOCs

3.8m: Auger grinding and refusal. Spoon bouncing

END OF BOREHOLE
Auger refusal on inferred bedrock

Water level and cave not measured upon completion of drilling.

file: 22-087 gint.gpj

Tech : LB | **PM** : EL/DK | **Rev** : KB

Ministry of Transportation
Ontario

RECORD OF ROCK CORE No 206

METRIC

G.W.P. 22-087 | LOCATION Coords: E:611673.9 N:4830126.2 | ORIGINATED BY LB

DIST UPRC | HWY Mississauga, ON | BOREHOLE TYPE | COMPILED BY EL/DK

DATUM | DATE 2024-4-4 | CHECKED BY KB

depth (m)	graphic log	stratigraphy at m below grade	Run elev / depth (m)	recovery	elevation (m)	shale weathering zones Z1 Z2 Z3 Z4	UCS (MPa) 5 25 50 100 250 / estimated strength R1 R2 R3 R4 R5 R6	natural fracture frequency	laboratory testing	notes and comments	elevation (m)
		300mm **TOPSOIL**			137						137
1		**CLAYEY SILT**, trace to some sand, trace gravel, trace rootlets, firm, dark brown, moist (FILL)			136						136
2		**CLAYEY SILT**, some gravel, trace sand, trace shale fragments, hard, light grey with brown, moist (GLACIAL TILL)			135						135
3		**INFERRED BEDROCK**, shale and limestone fragments, grey, moist			134						134
			3.9m								

END OF COREHOLE

file: 22-087 gint.gpj

GROUNDED ENGINEERING

GROUNDED ENGINEERING

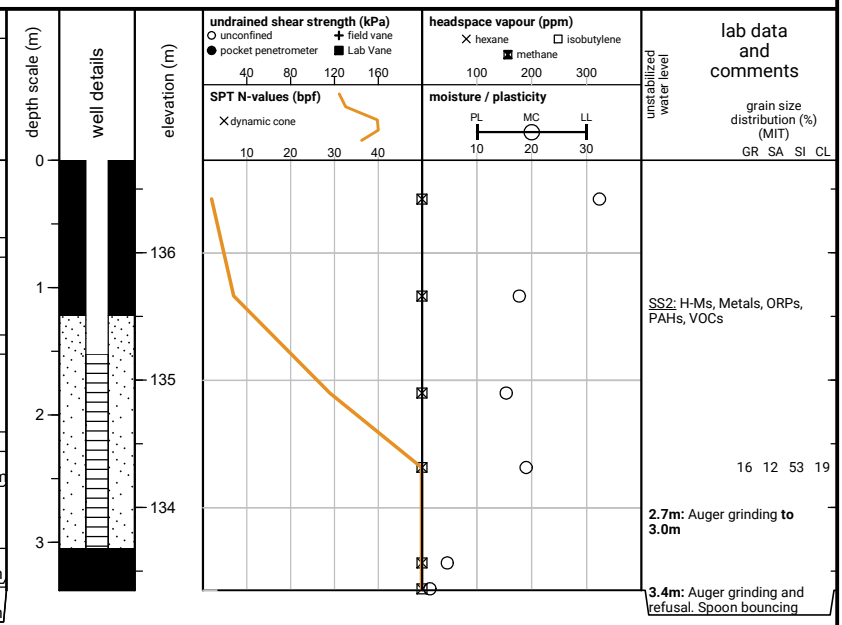
Date Started : Apr 3, 2024
Position : E: 611700, N: 4830155 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 207

File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

drill method : *CME TRACK*

elev depth (m)	description	graphic log	number	type	SPT N-value
136.7	**GROUND SURFACE**				
	600mm **TOPSOIL**		1	SS	2
136.1					
0.6	**FILL**, clayey silt, trace to some sand, trace gravel, trace rock fragments, firm, orangey brown, moist		2	SS	7
	...at 1.5 m, very stiff		3	SS	29
134.4					
2.3	**SILT**, some clay, some gravel, some sand, trace shale fragments, hard, grey, moist (GLACIAL TILL)		4	SS	50 / 100mm
133.7					
3.0	**INFERRED BEDROCK**, shale and limestone fragments, grey, moist		5	SS	50 / 75mm
133.3					
3.4			6	SS	50 / 25mm



END OF BOREHOLE
Auger refusal on inferred bedrock

Borehole was dry upon completion of drilling.

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

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Apr 9, 2024	3.1	133.6
Apr 10, 2024	3.5	133.2
Apr 16, 2024	3.2	133.5
Apr 26, 2024		

file: 22-087 gint.gpj

Tech : LB | **PM** : EL/DK | **Rev** : KB

Ministry of Transportation
Ontario

RECORD OF ROCK CORE No 207

METRIC

G.W.P. 22-087 | LOCATION Coords: E:611700.3 N:4830155.1 | ORIGINATED BY LB

DIST UPRC | HWY Mississauga, ON | BOREHOLE TYPE | COMPILED BY EL/DK

DATUM | DATE 2024-4-3 | CHECKED BY KB

depth (m)	graphic log	stratigraphy at m below grade	Run elev / depth (m)	recovery	elevation (m)	shale weathering zones Z1 Z2 Z3 Z4	UCS (MPa) 5 25 50 100 250 / estimated strength R1 R2 R3 R4 R5 R6	natural fracture frequency	laboratory testing	notes and comments	elevation (m)
		600mm **TOPSOIL**									
1		**CLAYEY SILT**, trace to some sand, trace gravel, trace rock fragments, firm, orangey brown, moist (FILL)			136						136
2					135						135
3		**SILT**, some clay, some gravel, some sand, trace shale fragments, hard, grey, moist (GLACIAL TILL)			134						134
		INFERRED BEDROCK, shale and limestone fragments, grey, moist									
		END OF COREHOLE	**3.4m**								

file: 22-087 gint.gpj

GROUNDED ENGINEERING

BOREHOLE LOG 208

Date Started : Apr 4, 2024
Position : E: 611628, N: 4830095 (UTM 17T)
Elev. Datum : Geodetic

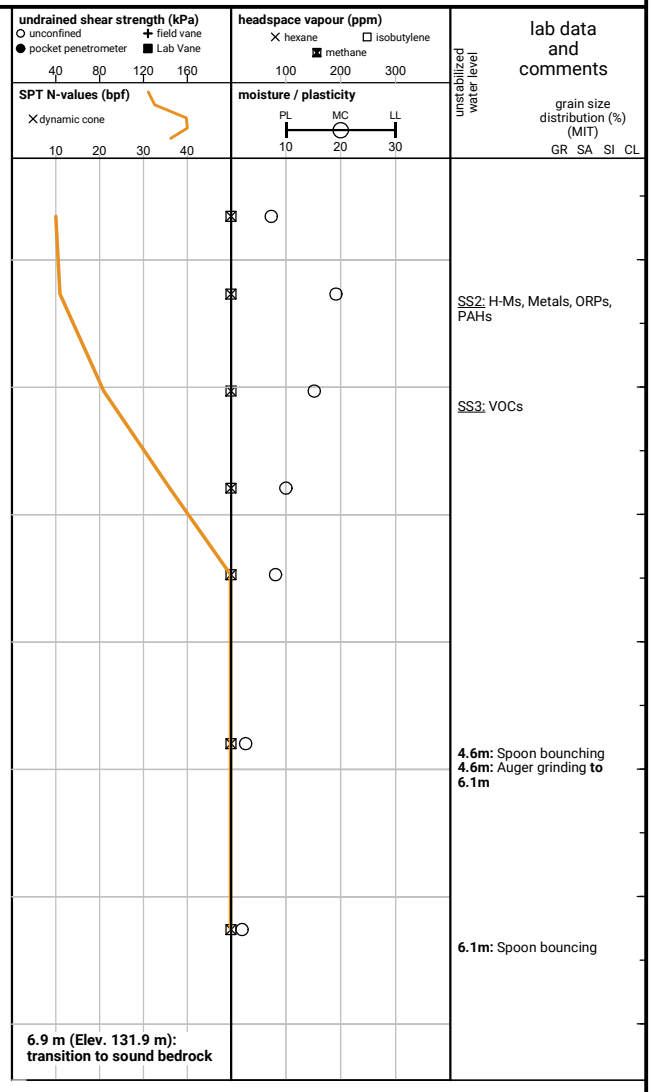
File No. : 22-087 **Project** : UPRC - Westminster - 4094 Tomken Rd., Mississauga, ON **Client** : UPRC

drill method : CME TRACK

elev depth (m)	description	graphic log	number	type	SPT N-value
138.8	**GROUND SURFACE**				
	100mm **ASPHALT**				
138.0 / 0.8	**FILL**, sand and gravel, trace silt, trace rock fragments, trace asphalt, loose to compact, dark brown, moist		1	SS	10
137.3 / 1.5	**FILL**, clayey silt, trace to some sand, trace gravel, trace rock fragments, stiff, orangey brown with grey, moist		2	SS	11
	CLAYEY SILT, some gravel, trace sand, trace rock fragments, very stiff to hard, grey, moist (GLACIAL TILL)		3	SS	21
			4	SS	36
135.8 / 3.0	**INFERRED BEDROCK**, shale and limestone fragments, grey, moist		5	SS	71 / 290mm
			6	SS	50 / 50mm
132.7 / 6.1	**GEORGIAN BAY FORMATION** (See rock core log for details)		7	SS	50 / 25mm
			1	RUN	
131.6 / 7.2	**END OF BOREHOLE**				

hollow stem augers OD=215 mm

rock coring (HQ) OD=96 mm



Borehole was filled with drill water upon completion of drilling.

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

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Apr 9, 2024	4.8	134.0
Apr 10, 2024	6.7	132.1
Apr 16, 2024	6.7	132.1
Apr 26, 2024	5.8	133.0

file: 22-087 gint.gpj

Tech : LB | **PM** : EL/DK | **Rev** : KB

Ministry of Transportation
Ontario

RECORD OF ROCK CORE No 208

METRIC

G.W.P. 22-087 | LOCATION Coords: E:611627.5 N:4830095.4 | ORIGINATED BY LB

DIST UPRC | HWY Mississauga, ON | BOREHOLE TYPE | COMPILED BY EL/DK

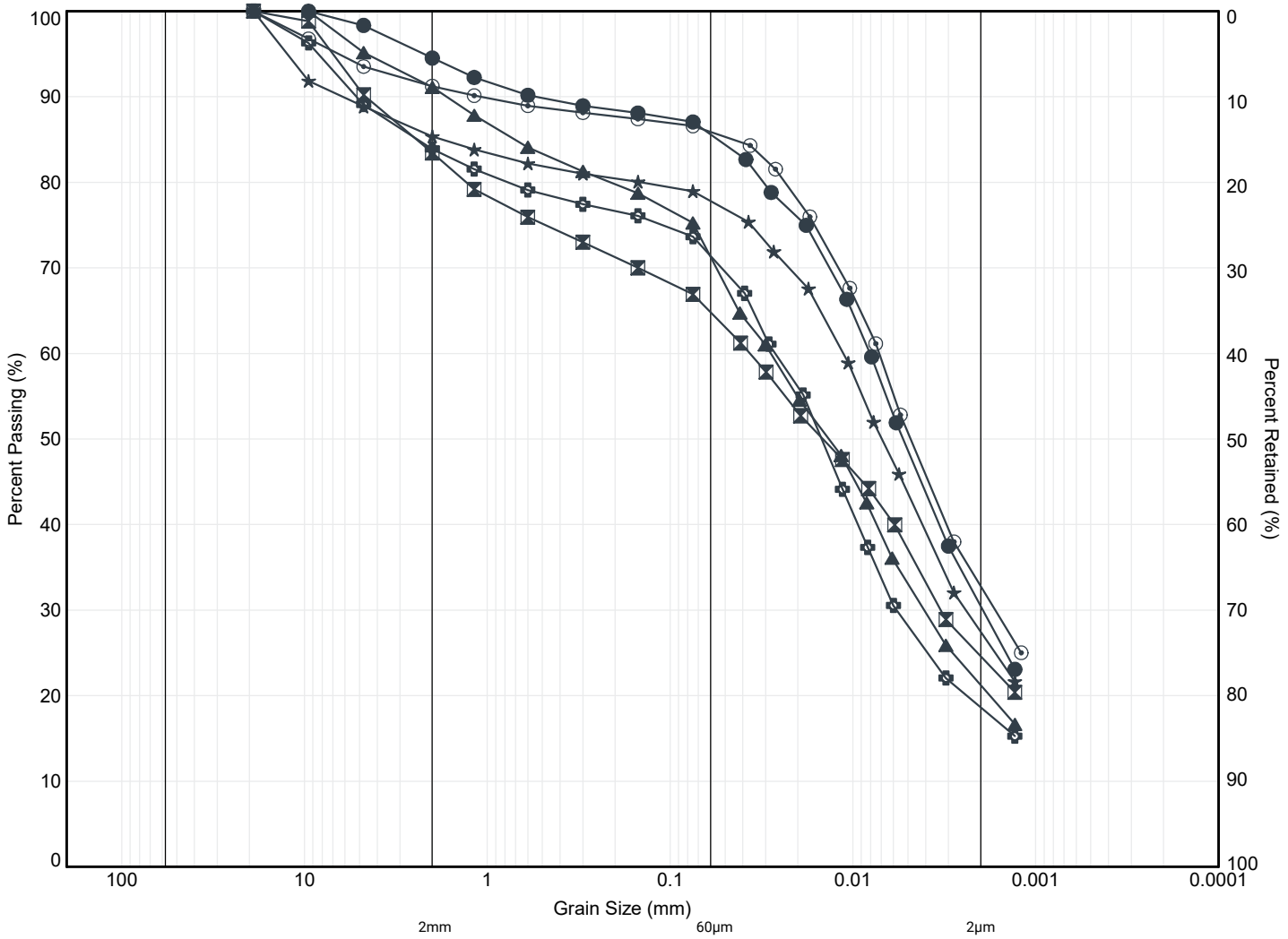
DATUM | DATE 2024-4-4 | CHECKED BY KB

depth (m)	graphic log	stratigraphy	Run elev depth (m)	recovery	elevation (m)	shale weathering zones Z1 Z2 Z3 Z4	UCS (MPa) 5 25 50 100 250 / estimated strength R1 R2 R3 R4 R5 R6	natural fracture frequency	laboratory testing	notes and comments	elevation (m)
		Rock coring started at 6.1m below grade	**132.7**								
		GEORGIAN BAY FORMATION **Shale**, grey, thinly bedded to medium bedded, weak; joints are horizontal, gapped, clean, smooth, planar;	6.1					3		**6.1 / 132.7 - 6.1 / 132.7m:** rubblized and sand seams	
		interbedded with **limestone**, light grey, very thinly bedded to medium bedded, strong	R1	TCR = **99**% SCR = **97**% RQD = **59**%	132			3			
7			131.6					5			132
		Overall shale: 82%, limestone: 18% **... at 6.9 m (Elev. 131.9 m), transition to sound rock**	**7.2m**					3			
		END OF COREHOLE									

file: 22-087 gint.gpj

GROUNDED ENGINEERING

APPENDIX D



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

MIT SYSTEM

	Location	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
●	**BH 1**	SS3	1.8	136.1	6	8	55	31
⊠	**BH 2**	2B	1.1	137.0	17	18	40	25
▲	**BH 3**	SS5	3.4	134.8	9	20	50	21
★	**BH 201**	SS4	2.6	135.6	15	7	50	28
⊙	**BH 205**	SS3	1.8	136.3	9	5	53	33
✿	**BH 207**	SS4	2.4	134.3	16	12	53	19

GROUNDED ENGINEERING

Title: **GRAIN SIZE DISTRIBUTION (CAPTION HERE)**

File No.: **22-087**

file: 22-087 gint.gpj

APPENDIX E

Soil

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2205489**	Page	: 1 of 21
Amendment	: **2**		
Client	: **Grounded Engineering Inc.**	Laboratory	: Waterloo - Environmental
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087	Date Samples Received	: 13-Jun-2022 10:30
PO	: ----	Issue Date	: 15-Jul-2022 12:41
C-O-C number	: 20-951652, 20-951653		
Sampler	: AJ		
Site	: 4094 TOMKEN RD, MISSISSAUGA		
Quote number	: Q88323 - SOA		
No. of samples received	: 17		
No. of samples analysed	: 17		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	acenaphthene	83-32-9	E642F	101 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	anthracene	120-12-7	E642F	83.7 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	benz(a)anthracene	56-55-3	E642F	58.1 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	benzo(k)fluoranthene	207-08-9	E642F	53.7 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	chrysene	218-01-9	E642F	58.6 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	fluoranthene	206-44-0	E642F	67.8 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	fluorene	86-73-7	E642F	95.6 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	phenanthrene	85-01-8	E642F	97.4 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	pyrene	129-00-0	E642F	64.3 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Laboratory Control Sample (LCS) Recoveries								
Metals	QC-MRG2-521762002	----	silver	7440-22-4	E440	70.1 % MES	80.0-120%	Recovery less than lower control limit
Metals	QC-MRG2-523079002	----	silver	7440-22-4	E440	70.6 % MES	80.0-120%	Recovery less than lower control limit

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Recoveries								
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	acenaphthylene	208-96-8	E642F	179 % E	50.0-140%	Recovery greater than upper data quality objective

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries - Continued								
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	anthracene	120-12-7	E642F	185 % E	50.0-140%	Recovery greater than upper data quality objective
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	dibenz(a,h)anthracene	53-70-3	E642F	141 % E	50.0-140%	Recovery greater than upper data quality objective

Result Qualifiers

Qualifier	*Description*
E	*Matrix Spike recovery outside ALS DQO due to heterogeneous analyte background in sample.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E336A	10-Jun-2022	14-Jun-2022	14 days	4 days	✓	14-Jun-2022	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH1 SS3	E336A	10-Jun-2022	14-Jun-2022	14 days	4 days	✓	14-Jun-2022	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH2 SS3	E336A	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	14-Jun-2022	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E336A	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	14-Jun-2022	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH3 SS3	E336A	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	14-Jun-2022	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH3 SS4	E336A	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	14-Jun-2022	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
DUP-M&I	E336A	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	14-Jun-2022	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH2 SS3	E487	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	14-Jun-2022	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E487	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	14-Jun-2022	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH3 SS3	E487	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	14-Jun-2022	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH3 SS4	E487	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	14-Jun-2022	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
DUP-M&I	E487	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	14-Jun-2022	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E487	10-Jun-2022	17-Jun-2022	180 days	7 days	✓	17-Jun-2022	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH1 SS3	E487	10-Jun-2022	17-Jun-2022	180 days	7 days	✓	17-Jun-2022	180 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E510	10-Jun-2022	16-Jun-2022	----	----		16-Jun-2022	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH1 SS3	E510	10-Jun-2022	16-Jun-2022	----	----		16-Jun-2022	28 days	6 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH2 SS3	E510	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E510	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH3 SS3	E510	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH3 SS4	E510	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
DUP-M&I	E510	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	28 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E440	10-Jun-2022	16-Jun-2022	----	----		17-Jun-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH1 SS3	E440	10-Jun-2022	16-Jun-2022	----	----		17-Jun-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH2 SS3	E440	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E440	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	180 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH3 SS3	E440	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH3 SS4	E440	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
DUP-M&I	E440	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	180 days	7 days	✓
Organochlorine Pesticides : OCPs by GC-MS-MS										
Glass soil jar/Teflon lined cap										
BH1 SS2	E660F	10-Jun-2022	14-Jun-2022	14 days	4 days	✓	17-Jun-2022	40 days	3 days	✓
Organochlorine Pesticides : OCPs by GC-MS-MS										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E660F	08-Jun-2022	14-Jun-2022	14 days	6 days	✓	17-Jun-2022	40 days	3 days	✓
Organochlorine Pesticides : OCPs by GC-MS-MS										
Glass soil jar/Teflon lined cap										
BH3 SS4	E660F	08-Jun-2022	14-Jun-2022	14 days	6 days	✓	17-Jun-2022	40 days	3 days	✓
Organochlorine Pesticides : OCPs by GC-MS-MS										
Glass soil jar/Teflon lined cap										
DUP-OC	E660F	08-Jun-2022	14-Jun-2022	14 days	6 days	✓	17-Jun-2022	40 days	3 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E100-L	10-Jun-2022	17-Jun-2022	----	----		20-Jun-2022	30 days	10 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
BH1 SS3	E100-L	10-Jun-2022	17-Jun-2022	----	----		20-Jun-2022	30 days	10 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
BH2 SS3	E100-L	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E100-L	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
BH3 SS3	E100-L	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
BH3 SS4	E100-L	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
DUP-M&I	E100-L	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	30 days	7 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E144	10-Jun-2022	----	----	----		13-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH1 SS2	E144	10-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH1 SS3	E144	10-Jun-2022	----	----	----		13-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH1 SS4B	E144	10-Jun-2022	----	----	----		14-Jun-2022	----	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH2 SS2B	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH2 SS3	E144	08-Jun-2022	----	----	----		13-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E144	08-Jun-2022	----	----	----		13-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH2 SS5	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH3 SS2	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH3 SS3	E144	08-Jun-2022	----	----	----		13-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH3 SS4	E144	08-Jun-2022	----	----	----		13-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH3 SS5	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-M&I	E144	08-Jun-2022	----	----	----		13-Jun-2022	----	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-OC	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-PAH	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-PCB	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-VOC	E144	10-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E108A	10-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	4 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH1 SS3	E108A	10-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	4 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH2 SS3	E108A	08-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	6 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E108A	08-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	6 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH3 SS3	E108A	08-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	6 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH3 SS4	E108A	08-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	6 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
DUP-M&I	E108A	08-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	6 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E687	10-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	40 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
BH1 SS2	E687	10-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	40 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
BH2 SS2B	E687	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	40 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
BH2 SS5	E687	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	40 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
BH3 SS3	E687	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	40 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
BH3 SS4	E687	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	40 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
DUP-PCB	E687	08-Jun-2022	15-Jun-2022	----	----		17-Jun-2022	40 days	2 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E642F	10-Jun-2022	14-Jun-2022	14 days	4 days	✓	15-Jun-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
BH1 SS2	E642F	10-Jun-2022	14-Jun-2022	14 days	4 days	✓	15-Jun-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
BH2 SS2B	E642F	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	15-Jun-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
BH2 SS5	E642F	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	15-Jun-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
BH3 SS3	E642F	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	15-Jun-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
BH3 SS4	E642F	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	15-Jun-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
DUP-PAH	E642F	08-Jun-2022	14-Jun-2022	14 days	6 days	✓	16-Jun-2022	40 days	1 days	✓
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH2 SS3	E484	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	15-Jun-2022	180 days	1 days	✓
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E484	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	15-Jun-2022	180 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH3 SS3	E484	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	15-Jun-2022	180 days	1 days	✓
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH3 SS4	E484	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	15-Jun-2022	180 days	1 days	✓
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
DUP-M&I	E484	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	15-Jun-2022	180 days	1 days	✓
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E484	10-Jun-2022	17-Jun-2022	180 days	7 days	✓	17-Jun-2022	180 days	0 days	✓
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH1 SS3	E484	10-Jun-2022	17-Jun-2022	180 days	7 days	✓	17-Jun-2022	180 days	0 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E532	10-Jun-2022	14-Jun-2022	30 days	4 days	✓	15-Jun-2022	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH1 SS3	E532	10-Jun-2022	14-Jun-2022	30 days	4 days	✓	15-Jun-2022	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH2 SS3	E532	08-Jun-2022	14-Jun-2022	30 days	6 days	✓	15-Jun-2022	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E532	08-Jun-2022	14-Jun-2022	30 days	6 days	✓	15-Jun-2022	7 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH3 SS3	E532	08-Jun-2022	14-Jun-2022	30 days	6 days	✓	15-Jun-2022	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH3 SS4	E532	08-Jun-2022	14-Jun-2022	30 days	6 days	✓	15-Jun-2022	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
DUP-M&I	E532	08-Jun-2022	14-Jun-2022	30 days	6 days	✓	15-Jun-2022	7 days	1 days	✓
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
BH1 SS2	E611D	10-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	5 days	✓
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
BH1 SS4B	E611D	10-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	5 days	✓
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
DUP-VOC	E611D	10-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	5 days	✓
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
BH2 SS2B	E611D	08-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	7 days	✓
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
BH2 SS5	E611D	08-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	7 days	✓
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
BH3 SS2	E611D	08-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
BH3 SS5	E611D	08-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	7 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Boron-Hot Water Extractable by ICPOES	E487	521761	2	26	7.6	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	521766	2	23	8.7	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	522544	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	521763	2	28	7.1	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	521762	2	29	6.9	5.0	✓
Moisture Content by Gravimetry	E144	521769	2	28	7.1	5.0	✓
OCPs by GC-MS-MS	E660F	523604	1	9	11.1	5.0	✓
PAHs by MeOH:Tol GC-MS	E642F	522357	2	17	11.7	5.0	✓
PCB Aroclors by GC-MS	E687	522358	2	12	16.6	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	522524	1	13	7.6	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	521765	2	21	9.5	5.0	✓
VOCs (ON List) by Headspace GC-MS	E611D	524141	1	11	9.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	522364	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Boron-Hot Water Extractable by ICPOES	E487	521761	4	26	15.3	10.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	521766	4	23	17.3	10.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	522544	2	12	16.6	10.0	✓
Mercury in Soil/Solid by CVAAS	E510	521763	4	28	14.2	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	521762	4	29	13.7	10.0	✓
Moisture Content by Gravimetry	E144	521769	2	28	7.1	5.0	✓
OCPs by GC-MS-MS	E660F	523604	1	9	11.1	5.0	✓
PAHs by MeOH:Tol GC-MS	E642F	522357	2	17	11.7	5.0	✓
PCB Aroclors by GC-MS	E687	522358	2	12	16.6	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	522524	1	13	7.6	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	521765	4	21	19.0	10.0	✓
VOCs (ON List) by Headspace GC-MS	E611D	524141	1	11	9.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	522364	1	20	5.0	5.0	✓
Method Blanks (MB)							
Boron-Hot Water Extractable by ICPOES	E487	521761	2	26	7.6	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	521766	2	23	8.7	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	522544	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	521763	2	28	7.1	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	521762	2	29	6.9	5.0	✓
Moisture Content by Gravimetry	E144	521769	2	28	7.1	5.0	✓
OCPs by GC-MS-MS	E660F	523604	1	9	11.1	5.0	✓
PAHs by MeOH:Tol GC-MS	E642F	522357	2	17	11.7	5.0	✓
PCB Aroclors by GC-MS	E687	522358	2	12	16.6	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	521765	2	21	9.5	5.0	✓
VOCs (ON List) by Headspace GC-MS	E611D	524141	1	11	9.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	522364	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
OCPs by GC-MS-MS	E660F	523604	1	9	11.1	5.0	✓
PAHs by MeOH:Tol GC-MS	E642F	522357	2	17	11.7	5.0	✓
PCB Aroclors by GC-MS	E687	522358	2	12	16.6	5.0	✓
VOCs (ON List) by Headspace GC-MS	E611D	524141	1	11	9.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	522364	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L Waterloo - Environmental	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a soil sample that has been added in a defined ratio of soil to deionized water, then shaken well and allowed to settle. Conductance is measured in the fluid that is observed in the upper layer.
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A Waterloo - Environmental	Soil/Solid	MOEE E3137A	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) and is carried out in accordance with procedures described in the Analytical Protocol (prescriptive method). A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling, or decanting and then analyzed using a pH meter and electrode.
Moisture Content by Gravimetry	E144 Waterloo - Environmental	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
WAD Cyanide (0.01M NaOH Extraction)	E336A Waterloo - Environmental	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined after extraction by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Metals in Soil/Solid by CRC ICPMS	E440 Waterloo - Environmental	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484 Waterloo - Environmental	Soil/Solid	SW846 6010C	A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.
Boron-Hot Water Extractable by ICPOES	E487 Waterloo - Environmental	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Mercury in Soil/Solid by CVAAS	E510 Waterloo - Environmental	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
Hexavalent Chromium (Cr VI) by IC	E532 Waterloo - Environmental	Soil/Solid	APHA 3500-CR C	Instrumental analysis is performed by ion chromatography with UV detection.
VOCs (ON List) by Headspace GC-MS	E611D Waterloo - Environmental	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by MeOH:Tol GC-MS	E642F Waterloo - Environmental	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with methanol/toluene and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
OCPs by GC-MS-MS	E660F Waterloo - Environmental	Soil/Solid	EPA 8270E (mod)	OCPs are analyzed by GC-MS-MS.
PCB Aroclors by GC-MS	E687 Waterloo - Environmental	Soil/Solid	EPA 8270E (mod)	PCB Aroclors are analyzed by GC-MS

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 Waterloo - Environmental	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Leach 1:2 Soil : 0.01CaCl2 - As Received for pH	EP108A Waterloo - Environmental	Soil/Solid	MOEE E3137A	A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling or decanting and then analyzed using a pH meter and electrode.
Cyanide Extraction for CFA (0.01M NaOH)	EP333A Waterloo - Environmental	Soil/Solid	ON MECP E3015 (mod)	Extraction for various cyanide analysis is by rotary extraction of the soil with 0.01M Sodium Hydroxide.
Digestion for Metals and Mercury	EP440 Waterloo - Environmental	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Boron-Hot Water Extractable	EP487 Waterloo - Environmental	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with weak calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011)
Preparation of Hexavalent Chromium (Cr VI) for IC	EP532 Waterloo - Environmental	Soil/Solid	EPA 3060A	Field moist samples are digested with a sodium hydroxide/sodium carbonate solution as described in EPA 3060A.
VOCs Methanol Extraction for Headspace Analysis	EP581 Waterloo - Environmental	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
Pesticides, PCB, PAH, and Neutral Extractable Chlorinated Hydrocarbons Extraction	EP660 Waterloo - Environmental	Soil/Solid	EPA 3570 (mod)	A homogenized subsample is extracted with organic solvents using a mechanical shaker.
Pesticides, PCB, PAH, and Neutral Extractable Chlorinated Hydrocarbons Extraction (High Level)	EP660-H Waterloo - Environmental	Soil/Solid	EPA 3570 (mod)	A homogenized subsample is extracted with organic solvents using a mechanical shaker.

QUALITY CONTROL REPORT

Work Order	: **WT2205489**	Page	: 1 of 26
Amendment	: **2**		
Client	: Grounded Engineering Inc.	Laboratory	: Waterloo - Environmental
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087	Date Samples Received	: 13-Jun-2022 10:30
PO	: ----	Date Analysis Commenced	: 13-Jun-2022
C-O-C number	: 20-951652, 20-951653	Issue Date	: 15-Jul-2022 12:41
Sampler	: AJ		
Site	: 4094 TOMKEN RD, MISSISSAUGA		
Quote number	: Q88323 - SOA		
No. of samples received	: 17		
No. of samples analysed	: 17		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Amanda Ganouri-Lumsden	Department Manager - Microbiology and Prep	Waterloo Centralized Prep, Waterloo, Ontario
Greg Pokocky	Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario
Jeremy Gingras	Team Leader - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Jon Fisher	Department Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Jon Fisher	Department Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Sarah Birch	Team Leader - Volatiles	Waterloo Organics, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 521766)											
WT2205475-001	Anonymous	conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	0.933 mS/cm	1110	17.6%	20%	----
Physical Tests (QC Lot: 521769)											
WT2205475-001	Anonymous	moisture	----	E144	0.25	%	9.49	8.31	13.3%	20%	----
Physical Tests (QC Lot: 522524)											
WT2205487-014	Anonymous	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	8.69	8.71	0.02	Diff <2x LOR	----
Physical Tests (QC Lot: 522592)											
WT2205489-005	BH3 SS2	moisture	----	E144	0.25	%	17.5	18.0	3.10%	20%	----
Physical Tests (QC Lot: 525529)											
WT2205566-001	Anonymous	conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	5.49 mS/cm	5680	3.40%	20%	----
Cyanides (QC Lot: 522364)											
WT2205475-001	Anonymous	cyanide, weak acid dissociable	----	E336A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Metals (QC Lot: 521761)											
WT2205475-001	Anonymous	boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.14	0.13	0.01	Diff <2x LOR	----
Metals (QC Lot: 521762)											
WT2205475-001	Anonymous	antimony	7440-36-0	E440	0.10	mg/kg	0.11	0.10	0.006	Diff <2x LOR	----
		arsenic	7440-38-2	E440	0.10	mg/kg	2.32	2.23	4.15%	30%	----
		barium	7440-39-3	E440	0.50	mg/kg	23.4	23.3	0.546%	40%	----
		beryllium	7440-41-7	E440	0.10	mg/kg	0.20	0.21	0.006	Diff <2x LOR	----
		boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		cadmium	7440-43-9	E440	0.020	mg/kg	0.106	0.108	0.003	Diff <2x LOR	----
		chromium	7440-47-3	E440	0.50	mg/kg	9.35	8.91	4.87%	30%	----
		cobalt	7440-48-4	E440	0.10	mg/kg	2.71	2.60	4.06%	30%	----
		copper	7440-50-8	E440	0.50	mg/kg	5.00	4.70	6.16%	30%	----
		lead	7439-92-1	E440	0.50	mg/kg	7.76	7.58	2.39%	40%	----
		molybdenum	7439-98-7	E440	0.10	mg/kg	0.62	0.62	0.775%	40%	----
		nickel	7440-02-0	E440	0.50	mg/kg	5.11	5.02	1.89%	30%	----
		selenium	7782-49-2	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		uranium	7440-61-1	E440	0.050	mg/kg	0.367	0.361	1.58%	30%	----
		vanadium	7440-62-2	E440	0.20	mg/kg	16.1	15.9	1.22%	30%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Metals (QC Lot: 521762) - continued											
WT2205475-001	Anonymous	zinc	7440-66-6	E440	2.0	mg/kg	28.9	28.0	3.24%	30%	----
Metals (QC Lot: 521763)											
WT2205475-001	Anonymous	mercury	7439-97-6	E510	0.0050	mg/kg	0.0185	0.0186	0.0001	Diff <2x LOR	----
Metals (QC Lot: 521765)											
WT2205475-001	Anonymous	calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	9.50	7.47	23.9%	30%	----
		magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	1.27	0.87	0.40	Diff <2x LOR	----
		sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	203	235	14.6%	30%	----
Metals (QC Lot: 523079)											
WT2205489-013	BH1 SS1B	mercury	7439-97-6	E510	0.0050	mg/kg	0.0279	0.0254	9.41%	40%	----
Metals (QC Lot: 523080)											
WT2205489-013	BH1 SS1B	antimony	7440-36-0	E440	0.10	mg/kg	0.19	0.19	0.005	Diff <2x LOR	----
		arsenic	7440-38-2	E440	0.10	mg/kg	5.78	5.46	5.71%	30%	----
		barium	7440-39-3	E440	0.50	mg/kg	66.6	64.1	3.88%	40%	----
		beryllium	7440-41-7	E440	0.10	mg/kg	0.71	0.66	7.36%	30%	----
		boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		cadmium	7440-43-9	E440	0.020	mg/kg	0.189	0.167	12.0%	30%	----
		chromium	7440-47-3	E440	0.50	mg/kg	23.4	22.4	4.20%	30%	----
		cobalt	7440-48-4	E440	0.10	mg/kg	12.8	12.5	2.24%	30%	----
		copper	7440-50-8	E440	0.50	mg/kg	18.7	17.8	5.19%	30%	----
		lead	7439-92-1	E440	0.50	mg/kg	12.8	12.7	0.330%	40%	----
		molybdenum	7439-98-7	E440	0.10	mg/kg	0.36	0.36	0.0002	Diff <2x LOR	----
		nickel	7440-02-0	E440	0.50	mg/kg	21.8	20.8	4.82%	30%	----
		selenium	7782-49-2	E440	0.20	mg/kg	0.30	0.28	0.02	Diff <2x LOR	----
		silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		thallium	7440-28-0	E440	0.050	mg/kg	0.120	0.122	0.002	Diff <2x LOR	----
		uranium	7440-61-1	E440	0.050	mg/kg	0.547	0.555	1.52%	30%	----
		vanadium	7440-62-2	E440	0.20	mg/kg	35.1	34.3	2.52%	30%	----
		zinc	7440-66-6	E440	2.0	mg/kg	62.7	59.9	4.57%	30%	----
Metals (QC Lot: 525530)											
WT2205566-001	Anonymous	calcium, soluble ion content	7440-70-2	E484	10.0	mg/L	<10.0	<10.0	0	Diff <2x LOR	----
		magnesium, soluble ion content	7439-95-4	E484	10.0	mg/L	<10.0	<10.0	0	Diff <2x LOR	----
		sodium, soluble ion content	17341-25-2	E484	10.0	mg/L	1190	1230	3.32%	30%	----
Metals (QC Lot: 525531)											
WT2205489-015	BH1 SS3	boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.17	0.16	0.010	Diff <2x LOR	----
Speciated Metals (QC Lot: 522544)											

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Speciated Metals (QC Lot: 522544) - continued											
WT2204211-003	Anonymous	chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 524141)											
WT2205487-020	Anonymous	acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		toluene	108-88-3	E611D	0.050	mg/kg	0.105	0.098	0.006	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Volatile Organic Compounds (QC Lot: 524141) - continued											
WT2205487-020	Anonymous	trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 522357)											
WT2204211-006	Anonymous	acenaphthene	83-32-9	E642F	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		acenaphthylene	208-96-8	E642F	0.050	mg/kg	0.390	0.330	16.6%	50%	----
		anthracene	120-12-7	E642F	0.050	mg/kg	0.243	0.200	19.4%	50%	----
		benz(a)anthracene	56-55-3	E642F	0.050	mg/kg	1.71	1.32	25.9%	50%	----
		benzo(a)pyrene	50-32-8	E642F	0.050	mg/kg	2.63	2.08	23.2%	50%	----
		benzo(b+j)fluoranthene	n/a	E642F	0.050	mg/kg	2.87	2.28	23.0%	50%	----
		benzo(g,h,i)perylene	191-24-2	E642F	0.050	mg/kg	1.45	1.24	15.5%	50%	----
		benzo(k)fluoranthene	207-08-9	E642F	0.050	mg/kg	1.04	0.796	26.8%	50%	----
		chrysene	218-01-9	E642F	0.050	mg/kg	1.64	1.24	27.8%	50%	----
		dibenz(a,h)anthracene	53-70-3	E642F	0.050	mg/kg	0.340	0.273	22.1%	50%	----
		fluoranthene	206-44-0	E642F	0.050	mg/kg	2.58	1.80	35.3%	50%	----
		fluorene	86-73-7	E642F	0.050	mg/kg	0.062	0.057	0.005	Diff <2x LOR	----
		indeno(1,2,3-c,d)pyrene	193-39-5	E642F	0.050	mg/kg	1.39	1.08	25.2%	50%	----
		methylnaphthalene, 1-	90-12-0	E642F	0.030	mg/kg	0.085	0.058	0.027	Diff <2x LOR	----
		methylnaphthalene, 2-	91-57-6	E642F	0.030	mg/kg	0.110	0.072	0.038	Diff <2x LOR	----
		naphthalene	91-20-3	E642F	0.010	mg/kg	0.122	0.073	49.7%	50%	----
		phenanthrene	85-01-8	E642F	0.050	mg/kg	0.673	0.522	25.3%	50%	----
		pyrene	129-00-0	E642F	0.050	mg/kg	2.48	1.67	38.9%	50%	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 523736)											
WT2204211-003	Anonymous	acenaphthene	83-32-9	E642F	0.050	mg/kg	0.110	0.335	101%	50%	DUP-H
		acenaphthylene	208-96-8	E642F	0.050	mg/kg	0.636	0.796	22.3%	50%	----
		anthracene	120-12-7	E642F	0.050	mg/kg	0.725	1.77	83.7%	50%	DUP-H
		benz(a)anthracene	56-55-3	E642F	0.050	mg/kg	3.66	6.65	58.1%	50%	DUP-H
		benzo(a)pyrene	50-32-8	E642F	0.050	mg/kg	5.09	7.98	44.2%	50%	----
		benzo(b+j)fluoranthene	n/a	E642F	0.050	mg/kg	5.22	8.29	45.4%	50%	----
		benzo(g,h,i)perylene	191-24-2	E642F	0.050	mg/kg	2.93	3.83	26.6%	50%	----
		benzo(k)fluoranthene	207-08-9	E642F	0.050	mg/kg	1.63	2.82	53.7%	50%	DUP-H

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Polycyclic Aromatic Hydrocarbons (QC Lot: 523736) - continued											
WT2204211-003	Anonymous	chrysene	218-01-9	E642F	0.050	mg/kg	3.09	5.65	58.6%	50%	DUP-H
		dibenz(a,h)anthracene	53-70-3	E642F	0.050	mg/kg	0.648	0.876	30.0%	50%	----
		fluoranthene	206-44-0	E642F	0.050	mg/kg	5.87	11.9	67.8%	50%	DUP-H
		fluorene	86-73-7	E642F	0.050	mg/kg	0.137	0.388	95.6%	50%	DUP-H
		indeno(1,2,3-c,d)pyrene	193-39-5	E642F	0.050	mg/kg	2.86	3.83	28.8%	50%	----
		methylnaphthalene, 1-	90-12-0	E642F	0.030	mg/kg	0.058	0.106	0.048	Diff <2x LOR	----
		methylnaphthalene, 2-	91-57-6	E642F	0.030	mg/kg	0.065	0.103	0.038	Diff <2x LOR	----
		naphthalene	91-20-3	E642F	0.020	mg/kg	0.114	0.167	38.1%	50%	----
		phenanthrene	85-01-8	E642F	0.050	mg/kg	1.83	5.31	97.4%	50%	DUP-H
		pyrene	129-00-0	E642F	0.050	mg/kg	5.72	11.1	64.3%	50%	DUP-H
Polychlorinated Biphenyls (QC Lot: 522358)											
WT2204211-006	Anonymous	Aroclor 1016	12674-11-2	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1221	11104-28-2	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1232	11141-16-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1242	53469-21-9	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1248	12672-29-6	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1254	11097-69-1	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1260	11096-82-5	E687	0.010	mg/kg	0.020	0.014	0.007	Diff <2x LOR	----
		Aroclor 1262	37324-23-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1268	11100-14-4	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
Polychlorinated Biphenyls (QC Lot: 525206)											
WT2205488-001	Anonymous	Aroclor 1016	12674-11-2	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1221	11104-28-2	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1232	11141-16-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1242	53469-21-9	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1248	12672-29-6	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1254	11097-69-1	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1260	11096-82-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1262	37324-23-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1268	11100-14-4	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
Organochlorine Pesticides (QC Lot: 523604)											
WT2205489-003	BH2 SS4B	aldrin	309-00-2	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		chlordane, cis- (alpha)	5103-71-9	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		chlordane, trans- (gamma)	5103-74-2	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		DDD, 2,4'-	53-19-0	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Organochlorine Pesticides (QC Lot: 523604) - continued											
WT2205489-003	BH2 SS4B	DDD, 4,4'-	72-54-8	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		DDE, 2,4'-	3424-82-6	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		DDE, 4,4'-	72-55-9	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		DDT, 2,4'-	789-02-6	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		DDT, 4,4'-	50-29-3	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		dieldrin	60-57-1	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		endosulfan, alpha-	959-98-8	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		endosulfan, beta-	33213-65-9	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		endrin	72-20-8	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		heptachlor	76-44-8	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		heptachlor epoxide	1024-57-3	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		hexachlorobenzene	118-74-1	E660F	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		hexachlorobutadiene	87-68-3	E660F	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		hexachlorocyclohexane, gamma-	58-89-9	E660F	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		hexachloroethane	67-72-1	E660F	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		methoxychlor	72-43-5	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 521766)						
conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Physical Tests (QCLot: 521769)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 522592)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 525529)						
conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Cyanides (QCLot: 522364)						
cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Metals (QCLot: 521761)						
boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals (QCLot: 521762)						
antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
boron	7440-42-8	E440	5	mg/kg	<5.0	----
cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Metals (QCLot: 521763)						
mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 521765)						

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 521765) - continued						
calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals (QCLot: 523079)						
mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 523080)						
antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
boron	7440-42-8	E440	5	mg/kg	<5.0	----
cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Metals (QCLot: 525530)						
calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals (QCLot: 525531)						
boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Speciated Metals (QCLot: 522544)						
chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Volatile Organic Compounds (QCLot: 524141)						
acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 524141) - continued						
bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----
styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----
trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 524141) - continued						
xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Polycyclic Aromatic Hydrocarbons (QCLot: 522357)						
acenaphthene	83-32-9	E642F	0.05	mg/kg	<0.050	----
acenaphthylene	208-96-8	E642F	0.05	mg/kg	<0.050	----
anthracene	120-12-7	E642F	0.05	mg/kg	<0.050	----
benz(a)anthracene	56-55-3	E642F	0.05	mg/kg	<0.050	----
benzo(a)pyrene	50-32-8	E642F	0.05	mg/kg	<0.050	----
benzo(b+j)fluoranthene	n/a	E642F	0.05	mg/kg	<0.050	----
benzo(g,h,i)perylene	191-24-2	E642F	0.05	mg/kg	<0.050	----
benzo(k)fluoranthene	207-08-9	E642F	0.05	mg/kg	<0.050	----
chrysene	218-01-9	E642F	0.05	mg/kg	<0.050	----
dibenz(a,h)anthracene	53-70-3	E642F	0.05	mg/kg	<0.050	----
fluoranthene	206-44-0	E642F	0.05	mg/kg	<0.050	----
fluorene	86-73-7	E642F	0.05	mg/kg	<0.050	----
indeno(1,2,3-c,d)pyrene	193-39-5	E642F	0.05	mg/kg	<0.050	----
methylnaphthalene, 1-	90-12-0	E642F	0.03	mg/kg	<0.030	----
methylnaphthalene, 2-	91-57-6	E642F	0.03	mg/kg	<0.030	----
naphthalene	91-20-3	E642F	0.01	mg/kg	<0.010	----
phenanthrene	85-01-8	E642F	0.05	mg/kg	<0.050	----
pyrene	129-00-0	E642F	0.05	mg/kg	<0.050	----
Polycyclic Aromatic Hydrocarbons (QCLot: 523736)						
acenaphthene	83-32-9	E642F	0.05	mg/kg	<0.050	----
acenaphthylene	208-96-8	E642F	0.05	mg/kg	<0.050	----
anthracene	120-12-7	E642F	0.05	mg/kg	<0.050	----
benz(a)anthracene	56-55-3	E642F	0.05	mg/kg	<0.050	----
benzo(a)pyrene	50-32-8	E642F	0.05	mg/kg	<0.050	----
benzo(b+j)fluoranthene	n/a	E642F	0.05	mg/kg	<0.050	----
benzo(g,h,i)perylene	191-24-2	E642F	0.05	mg/kg	<0.050	----
benzo(k)fluoranthene	207-08-9	E642F	0.05	mg/kg	<0.050	----
chrysene	218-01-9	E642F	0.05	mg/kg	<0.050	----
dibenz(a,h)anthracene	53-70-3	E642F	0.05	mg/kg	<0.050	----
fluoranthene	206-44-0	E642F	0.05	mg/kg	<0.050	----
fluorene	86-73-7	E642F	0.05	mg/kg	<0.050	----
indeno(1,2,3-c,d)pyrene	193-39-5	E642F	0.05	mg/kg	<0.050	----
methylnaphthalene, 1-	90-12-0	E642F	0.03	mg/kg	<0.030	----
methylnaphthalene, 2-	91-57-6	E642F	0.03	mg/kg	<0.030	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 523736) - continued						
naphthalene	91-20-3	E642F	0.01	mg/kg	<0.010	----
phenanthrene	85-01-8	E642F	0.05	mg/kg	<0.050	----
pyrene	129-00-0	E642F	0.05	mg/kg	<0.050	----
Polychlorinated Biphenyls (QCLot: 522358)						
Aroclor 1016	12674-11-2	E687	0.01	mg/kg	<0.010	----
Aroclor 1221	11104-28-2	E687	0.01	mg/kg	<0.010	----
Aroclor 1232	11141-16-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1242	53469-21-9	E687	0.01	mg/kg	<0.010	----
Aroclor 1248	12672-29-6	E687	0.01	mg/kg	<0.010	----
Aroclor 1254	11097-69-1	E687	0.01	mg/kg	<0.010	----
Aroclor 1260	11096-82-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1262	37324-23-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1268	11100-14-4	E687	0.01	mg/kg	<0.010	----
Polychlorinated Biphenyls (QCLot: 525206)						
Aroclor 1016	12674-11-2	E687	0.01	mg/kg	<0.010	----
Aroclor 1221	11104-28-2	E687	0.01	mg/kg	<0.010	----
Aroclor 1232	11141-16-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1242	53469-21-9	E687	0.01	mg/kg	<0.010	----
Aroclor 1248	12672-29-6	E687	0.01	mg/kg	<0.010	----
Aroclor 1254	11097-69-1	E687	0.01	mg/kg	<0.010	----
Aroclor 1260	11096-82-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1262	37324-23-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1268	11100-14-4	E687	0.01	mg/kg	<0.010	----
Organochlorine Pesticides (QCLot: 523604)						
aldrin	309-00-2	E660F	0.02	mg/kg	<0.020	----
chlordane, cis- (alpha)	5103-71-9	E660F	0.02	mg/kg	<0.020	----
chlordane, trans- (gamma)	5103-74-2	E660F	0.02	mg/kg	<0.020	----
DDD, 2,4'-	53-19-0	E660F	0.02	mg/kg	<0.020	----
DDD, 4,4'-	72-54-8	E660F	0.02	mg/kg	<0.020	----
DDE, 2,4'-	3424-82-6	E660F	0.02	mg/kg	<0.020	----
DDE, 4,4'-	72-55-9	E660F	0.02	mg/kg	<0.020	----
DDT, 2,4'-	789-02-6	E660F	0.02	mg/kg	<0.020	----
DDT, 4,4'-	50-29-3	E660F	0.02	mg/kg	<0.020	----
dieldrin	60-57-1	E660F	0.02	mg/kg	<0.020	----
endosulfan, alpha-	959-98-8	E660F	0.02	mg/kg	<0.020	----
endosulfan, beta-	33213-65-9	E660F	0.02	mg/kg	<0.020	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organochlorine Pesticides (QCLot: 523604) - continued						
endrin	72-20-8	E660F	0.02	mg/kg	<0.020	----
heptachlor	76-44-8	E660F	0.02	mg/kg	<0.020	----
heptachlor epoxide	1024-57-3	E660F	0.02	mg/kg	<0.020	----
hexachlorobenzene	118-74-1	E660F	0.01	mg/kg	<0.010	----
hexachlorobutadiene	87-68-3	E660F	0.01	mg/kg	<0.010	----
hexachlorocyclohexane, gamma-	58-89-9	E660F	0.01	mg/kg	<0.010	----
hexachloroethane	67-72-1	E660F	0.01	mg/kg	<0.010	----
methoxychlor	72-43-5	E660F	0.02	mg/kg	<0.020	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 521766)									
conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 521769)									
moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 522524)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 522592)									
moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 525529)									
conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	93.8	90.0	110	----
Cyanides (QCLot: 522364)									
cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	2.5 mg/kg	96.4	80.0	125	----
Metals (QCLot: 521761)									
boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	90.6	70.0	130	----
Metals (QCLot: 521762)									
antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	100	80.0	120	----
arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	99.6	80.0	120	----
barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	98.3	80.0	120	----
beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	98.6	80.0	120	----
boron	7440-42-8	E440	5	mg/kg	100 mg/kg	94.1	80.0	120	----
cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	100	80.0	120	----
chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	98.6	80.0	120	----
cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	98.3	80.0	120	----
copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	97.2	80.0	120	----
lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	97.2	80.0	120	----
molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	94.3	80.0	120	----
nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	97.5	80.0	120	----
selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	101	80.0	120	----
silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	# 70.1	80.0	120	MES
thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	101	80.0	120	----
uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	94.1	80.0	120	----
vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	100	80.0	120	----
zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	96.7	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 521763)									
mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	99.5	80.0	120	----
Metals (QCLot: 521765)									
calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	103	70.0	130	----
magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	101	70.0	130	----
sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	100	70.0	130	----
Metals (QCLot: 523079)									
mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	104	80.0	120	----
Metals (QCLot: 523080)									
antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	100	80.0	120	----
arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	108	80.0	120	----
barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	102	80.0	120	----
beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	89.9	80.0	120	----
boron	7440-42-8	E440	5	mg/kg	100 mg/kg	90.3	80.0	120	----
cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	100	80.0	120	----
chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	106	80.0	120	----
cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	106	80.0	120	----
copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	104	80.0	120	----
lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	103	80.0	120	----
molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	101	80.0	120	----
nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	105	80.0	120	----
selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	110	80.0	120	----
silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	# 70.6	80.0	120	MES
thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	102	80.0	120	----
uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	102	80.0	120	----
vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	108	80.0	120	----
zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	104	80.0	120	----
Metals (QCLot: 525530)									
calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	105	70.0	130	----
magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	103	70.0	130	----
sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	102	70.0	130	----
Metals (QCLot: 525531)									
boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	105	70.0	130	----
Speciated Metals (QCLot: 522544)									
chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	93.6	80.0	120	----
Volatile Organic Compounds (QCLot: 524141)									

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 524141) - continued									
acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	113	60.0	140	----
benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	98.4	70.0	130	----
bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	97.9	50.0	140	----
bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	83.5	70.0	130	----
bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	87.2	50.0	140	----
carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	92.8	70.0	130	----
chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	94.0	70.0	130	----
chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	95.4	70.0	130	----
dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	92.3	60.0	130	----
dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	91.3	70.0	130	----
dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	96.7	70.0	130	----
dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	95.8	70.0	130	----
dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	95.2	70.0	130	----
dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	69.4	50.0	140	----
dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	109	60.0	130	----
dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	93.9	60.0	130	----
dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	89.8	60.0	130	----
dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	94.2	70.0	130	----
dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	93.7	60.0	130	----
dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	100	70.0	130	----
dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	95.8	70.0	130	----
dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	85.5	70.0	130	----
dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	79.1	70.0	130	----
ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	95.3	70.0	130	----
hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	94.2	70.0	130	----
methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	98.8	60.0	140	----
methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	90.5	60.0	140	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	94.3	70.0	130	----
styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	91.6	70.0	130	----
tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	91.8	60.0	130	----
tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	93.1	60.0	130	----
tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	89.2	60.0	130	----
toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	95.7	70.0	130	----
trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	90.3	60.0	130	----
trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	92.4	60.0	130	----
trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	92.1	60.0	130	----
trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	89.0	50.0	140	----
vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	73.8	60.0	140	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 524141) - continued									
xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	94.8	70.0	130	----
xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	94.4	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 522357)									
acenaphthene	83-32-9	E642F	0.05	mg/kg	0.8 mg/kg	106	60.0	130	----
acenaphthylene	208-96-8	E642F	0.05	mg/kg	0.8 mg/kg	113	60.0	130	----
anthracene	120-12-7	E642F	0.05	mg/kg	0.8 mg/kg	105	60.0	130	----
benz(a)anthracene	56-55-3	E642F	0.05	mg/kg	0.8 mg/kg	98.8	60.0	130	----
benzo(a)pyrene	50-32-8	E642F	0.05	mg/kg	0.8 mg/kg	118	60.0	130	----
benzo(b+j)fluoranthene	n/a	E642F	0.05	mg/kg	0.8 mg/kg	105	60.0	130	----
benzo(g,h,i)perylene	191-24-2	E642F	0.05	mg/kg	0.8 mg/kg	91.3	60.0	130	----
benzo(k)fluoranthene	207-08-9	E642F	0.05	mg/kg	0.8 mg/kg	106	60.0	130	----
chrysene	218-01-9	E642F	0.05	mg/kg	0.8 mg/kg	105	60.0	130	----
dibenz(a,h)anthracene	53-70-3	E642F	0.05	mg/kg	0.8 mg/kg	94.8	60.0	130	----
fluoranthene	206-44-0	E642F	0.05	mg/kg	0.8 mg/kg	101	60.0	130	----
fluorene	86-73-7	E642F	0.05	mg/kg	0.8 mg/kg	108	60.0	130	----
indeno(1,2,3-c,d)pyrene	193-39-5	E642F	0.05	mg/kg	0.8 mg/kg	88.9	60.0	130	----
methylnaphthalene, 1-	90-12-0	E642F	0.03	mg/kg	0.8 mg/kg	109	60.0	130	----
methylnaphthalene, 2-	91-57-6	E642F	0.03	mg/kg	0.8 mg/kg	111	60.0	130	----
naphthalene	91-20-3	E642F	0.01	mg/kg	0.8 mg/kg	93.4	60.0	130	----
phenanthrene	85-01-8	E642F	0.05	mg/kg	0.8 mg/kg	95.6	60.0	130	----
pyrene	129-00-0	E642F	0.05	mg/kg	0.8 mg/kg	93.5	60.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 523736)									
acenaphthene	83-32-9	E642F	0.05	mg/kg	0.8 mg/kg	89.8	60.0	130	----
acenaphthylene	208-96-8	E642F	0.05	mg/kg	0.8 mg/kg	93.3	60.0	130	----
anthracene	120-12-7	E642F	0.05	mg/kg	0.8 mg/kg	95.8	60.0	130	----
benz(a)anthracene	56-55-3	E642F	0.05	mg/kg	0.8 mg/kg	90.2	60.0	130	----
benzo(a)pyrene	50-32-8	E642F	0.05	mg/kg	0.8 mg/kg	103	60.0	130	----
benzo(b+j)fluoranthene	n/a	E642F	0.05	mg/kg	0.8 mg/kg	92.0	60.0	130	----
benzo(g,h,i)perylene	191-24-2	E642F	0.05	mg/kg	0.8 mg/kg	91.7	60.0	130	----
benzo(k)fluoranthene	207-08-9	E642F	0.05	mg/kg	0.8 mg/kg	88.0	60.0	130	----
chrysene	218-01-9	E642F	0.05	mg/kg	0.8 mg/kg	96.0	60.0	130	----
dibenz(a,h)anthracene	53-70-3	E642F	0.05	mg/kg	0.8 mg/kg	91.8	60.0	130	----
fluoranthene	206-44-0	E642F	0.05	mg/kg	0.8 mg/kg	87.5	60.0	130	----
fluorene	86-73-7	E642F	0.05	mg/kg	0.8 mg/kg	90.9	60.0	130	----
indeno(1,2,3-c,d)pyrene	193-39-5	E642F	0.05	mg/kg	0.8 mg/kg	84.4	60.0	130	----
methylnaphthalene, 1-	90-12-0	E642F	0.03	mg/kg	0.8 mg/kg	89.3	60.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 523736) - continued									
methylnaphthalene, 2-	91-57-6	E642F	0.03	mg/kg	0.8 mg/kg	91.7	60.0	130	----
naphthalene	91-20-3	E642F	0.01	mg/kg	0.8 mg/kg	91.4	60.0	130	----
phenanthrene	85-01-8	E642F	0.05	mg/kg	0.8 mg/kg	90.7	60.0	130	----
pyrene	129-00-0	E642F	0.05	mg/kg	0.8 mg/kg	84.7	60.0	130	----
Polychlorinated Biphenyls (QCLot: 522358)									
Aroclor 1016	12674-11-2	E687	0.01	mg/kg	0.2 mg/kg	93.6	60.0	140	----
Aroclor 1221	11104-28-2	E687	0.01	mg/kg	0.2 mg/kg	93.6	60.0	140	----
Aroclor 1232	11141-16-5	E687	0.01	mg/kg	0.2 mg/kg	93.6	60.0	140	----
Aroclor 1242	53469-21-9	E687	0.01	mg/kg	0.2 mg/kg	93.6	60.0	140	----
Aroclor 1248	12672-29-6	E687	0.01	mg/kg	0.2 mg/kg	80.9	60.0	140	----
Aroclor 1254	11097-69-1	E687	0.01	mg/kg	0.2 mg/kg	89.9	60.0	140	----
Aroclor 1260	11096-82-5	E687	0.01	mg/kg	0.2 mg/kg	99.4	60.0	140	----
Aroclor 1262	37324-23-5	E687	0.01	mg/kg	0.2 mg/kg	99.4	60.0	140	----
Aroclor 1268	11100-14-4	E687	0.01	mg/kg	0.2 mg/kg	99.4	60.0	140	----
Polychlorinated Biphenyls (QCLot: 525206)									
Aroclor 1016	12674-11-2	E687	0.01	mg/kg	0.2 mg/kg	88.3	60.0	140	----
Aroclor 1221	11104-28-2	E687	0.01	mg/kg	0.2 mg/kg	88.3	60.0	140	----
Aroclor 1232	11141-16-5	E687	0.01	mg/kg	0.2 mg/kg	88.3	60.0	140	----
Aroclor 1242	53469-21-9	E687	0.01	mg/kg	0.2 mg/kg	88.3	60.0	140	----
Aroclor 1248	12672-29-6	E687	0.01	mg/kg	0.2 mg/kg	95.9	60.0	140	----
Aroclor 1254	11097-69-1	E687	0.01	mg/kg	0.2 mg/kg	83.0	60.0	140	----
Aroclor 1260	11096-82-5	E687	0.01	mg/kg	0.2 mg/kg	89.1	60.0	140	----
Aroclor 1262	37324-23-5	E687	0.01	mg/kg	0.2 mg/kg	89.1	60.0	140	----
Aroclor 1268	11100-14-4	E687	0.01	mg/kg	0.2 mg/kg	89.1	60.0	140	----
Organochlorine Pesticides (QCLot: 523604)									
aldrin	309-00-2	E660F	0.02	mg/kg	0.01 mg/kg	89.0	50.0	150	----
chlordane, cis- (alpha)	5103-71-9	E660F	0.02	mg/kg	0.01 mg/kg	79.5	50.0	150	----
chlordane, trans- (gamma)	5103-74-2	E660F	0.02	mg/kg	0.01 mg/kg	83.2	50.0	150	----
DDD, 2,4'-	53-19-0	E660F	0.02	mg/kg	0.01 mg/kg	80.1	50.0	150	----
DDD, 4,4'-	72-54-8	E660F	0.02	mg/kg	0.01 mg/kg	83.9	50.0	150	----
DDE, 2,4'-	3424-82-6	E660F	0.02	mg/kg	0.01 mg/kg	76.7	50.0	150	----
DDE, 4,4'-	72-55-9	E660F	0.02	mg/kg	0.01 mg/kg	81.1	50.0	150	----
DDT, 2,4'-	789-02-6	E660F	0.02	mg/kg	0.01 mg/kg	79.9	50.0	150	----
DDT, 4,4'-	50-29-3	E660F	0.02	mg/kg	0.01 mg/kg	85.6	50.0	150	----
dieldrin	60-57-1	E660F	0.02	mg/kg	0.01 mg/kg	84.3	50.0	150	----
endosulfan, alpha-	959-98-8	E660F	0.02	mg/kg	0.01 mg/kg	74.3	50.0	150	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Organochlorine Pesticides (QCLot: 523604) - continued									
endosulfan, beta-	33213-65-9	E660F	0.02	mg/kg	0.01 mg/kg	80.2	50.0	150	----
endrin	72-20-8	E660F	0.02	mg/kg	0.01 mg/kg	86.2	50.0	150	----
heptachlor	76-44-8	E660F	0.02	mg/kg	0.01 mg/kg	83.6	50.0	150	----
heptachlor epoxide	1024-57-3	E660F	0.02	mg/kg	0.01 mg/kg	79.6	50.0	150	----
hexachlorobenzene	118-74-1	E660F	0.01	mg/kg	0.01 mg/kg	81.7	50.0	150	----
hexachlorobutadiene	87-68-3	E660F	0.01	mg/kg	0.01 mg/kg	86.4	50.0	150	----
hexachlorocyclohexane, gamma-	58-89-9	E660F	0.01	mg/kg	0.01 mg/kg	80.6	50.0	150	----
hexachloroethane	67-72-1	E660F	0.01	mg/kg	0.01 mg/kg	81.1	50.0	150	----
methoxychlor	72-43-5	E660F	0.02	mg/kg	0.01 mg/kg	81.9	50.0	150	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 522364)										
WT2205475-001	Anonymous	cyanide, weak acid dissociable	----	E336A	1.27 mg/kg	2.5 mg/kg	102	70.0	130	----
Volatile Organic Compounds (QCLot: 524141)										
WT2205487-020	Anonymous	acetone	67-64-1	E611D	2.20 mg/kg	3.125 mg/kg	110	50.0	140	----
		benzene	71-43-2	E611D	2.11 mg/kg	3.125 mg/kg	106	50.0	140	----
		bromodichloromethane	75-27-4	E611D	2.07 mg/kg	3.125 mg/kg	104	50.0	140	----
		bromoform	75-25-2	E611D	1.81 mg/kg	3.125 mg/kg	90.9	50.0	140	----
		bromomethane	74-83-9	E611D	2.10 mg/kg	3.125 mg/kg	105	50.0	140	----
		carbon tetrachloride	56-23-5	E611D	1.99 mg/kg	3.125 mg/kg	99.8	50.0	140	----
		chlorobenzene	108-90-7	E611D	1.99 mg/kg	3.125 mg/kg	99.6	50.0	140	----
		chloroform	67-66-3	E611D	2.03 mg/kg	3.125 mg/kg	102	50.0	140	----
		dibromochloromethane	124-48-1	E611D	1.99 mg/kg	3.125 mg/kg	99.8	50.0	140	----
		dibromoethane, 1,2-	106-93-4	E611D	1.95 mg/kg	3.125 mg/kg	98.0	50.0	140	----
		dichlorobenzene, 1,2-	95-50-1	E611D	1.96 mg/kg	3.125 mg/kg	98.2	50.0	140	----
		dichlorobenzene, 1,3-	541-73-1	E611D	1.89 mg/kg	3.125 mg/kg	94.9	50.0	140	----
		dichlorobenzene, 1,4-	106-46-7	E611D	1.88 mg/kg	3.125 mg/kg	94.4	50.0	140	----
		dichlorodifluoromethane	75-71-8	E611D	2.62 mg/kg	3.125 mg/kg	131	50.0	140	----
		dichloroethane, 1,1-	75-34-3	E611D	2.22 mg/kg	3.125 mg/kg	111	50.0	140	----
		dichloroethane, 1,2-	107-06-2	E611D	1.99 mg/kg	3.125 mg/kg	100.0	50.0	140	----
		dichloroethylene, 1,1-	75-35-4	E611D	2.03 mg/kg	3.125 mg/kg	102	50.0	140	----
		dichloroethylene, cis-1,2-	156-59-2	E611D	2.02 mg/kg	3.125 mg/kg	102	50.0	140	----
		dichloroethylene, trans-1,2-	156-60-5	E611D	2.00 mg/kg	3.125 mg/kg	100	50.0	140	----
		dichloromethane	75-09-2	E611D	2.16 mg/kg	3.125 mg/kg	108	50.0	140	----
		dichloropropane, 1,2-	78-87-5	E611D	2.03 mg/kg	3.125 mg/kg	102	50.0	140	----
		dichloropropylene, cis-1,3-	10061-01-5	E611D	1.82 mg/kg	3.125 mg/kg	91.0	50.0	140	----
		dichloropropylene, trans-1,3-	10061-02-6	E611D	1.71 mg/kg	3.125 mg/kg	85.8	50.0	140	----
		ethylbenzene	100-41-4	E611D	2.00 mg/kg	3.125 mg/kg	100	50.0	140	----
		hexane, n-	110-54-3	E611D	2.19 mg/kg	3.125 mg/kg	110	50.0	140	----
		methyl ethyl ketone [MEK]	78-93-3	E611D	2.06 mg/kg	3.125 mg/kg	104	50.0	140	----
		methyl isobutyl ketone [MIBK]	108-10-1	E611D	1.90 mg/kg	3.125 mg/kg	95.3	50.0	140	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	1.96 mg/kg	3.125 mg/kg	98.3	50.0	140	----
		styrene	100-42-5	E611D	1.94 mg/kg	3.125 mg/kg	97.6	50.0	140	----
		tetrachloroethane, 1,1,1,2-	630-20-6	E611D	1.97 mg/kg	3.125 mg/kg	98.6	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 524141) - continued										
WT2205487-020	Anonymous	tetrachloroethane, 1,1,2,2-	79-34-5	E611D	2.03 mg/kg	3.125 mg/kg	102	50.0	140	----
		tetrachloroethylene	127-18-4	E611D	1.86 mg/kg	3.125 mg/kg	93.4	50.0	140	----
		toluene	108-88-3	E611D	2.03 mg/kg	3.125 mg/kg	102	50.0	140	----
		trichloroethane, 1,1,1-	71-55-6	E611D	1.94 mg/kg	3.125 mg/kg	97.0	50.0	140	----
		trichloroethane, 1,1,2-	79-00-5	E611D	1.98 mg/kg	3.125 mg/kg	99.2	50.0	140	----
		trichloroethylene	79-01-6	E611D	1.94 mg/kg	3.125 mg/kg	97.1	50.0	140	----
		trichlorofluoromethane	75-69-4	E611D	2.11 mg/kg	3.125 mg/kg	106	50.0	140	----
		vinyl chloride	75-01-4	E611D	1.90 mg/kg	3.125 mg/kg	95.2	50.0	140	----
		xylene, m+p-	179601-23-1	E611D	3.97 mg/kg	6.25 mg/kg	99.6	50.0	140	----
		xylene, o-	95-47-6	E611D	1.99 mg/kg	3.125 mg/kg	100.0	50.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 522357)										
WT2204211-006	Anonymous	acenaphthene	83-32-9	E642F	0.682 mg/kg	0.8 mg/kg	85.5	50.0	140	----
		acenaphthylene	208-96-8	E642F	0.761 mg/kg	0.8 mg/kg	95.4	50.0	140	----
		anthracene	120-12-7	E642F	0.790 mg/kg	0.8 mg/kg	99.0	50.0	140	----
		benz(a)anthracene	56-55-3	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(a)pyrene	50-32-8	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(b+j)fluoranthene	n/a	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(g,h,i)perylene	191-24-2	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(k)fluoranthene	207-08-9	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		chrysene	218-01-9	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		dibenz(a,h)anthracene	53-70-3	E642F	0.635 mg/kg	0.8 mg/kg	79.5	50.0	140	----
		fluoranthene	206-44-0	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		fluorene	86-73-7	E642F	0.723 mg/kg	0.8 mg/kg	90.6	50.0	140	----
		indeno(1,2,3-c,d)pyrene	193-39-5	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		methylnaphthalene, 1-	90-12-0	E642F	0.677 mg/kg	0.8 mg/kg	84.8	50.0	140	----
		methylnaphthalene, 2-	91-57-6	E642F	0.690 mg/kg	0.8 mg/kg	86.4	50.0	140	----
		naphthalene	91-20-3	E642F	0.661 mg/kg	0.8 mg/kg	82.8	50.0	140	----
		phenanthrene	85-01-8	E642F	0.595 mg/kg	0.8 mg/kg	74.5	50.0	140	----
		pyrene	129-00-0	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 523736)										
WT2204211-003	Anonymous	acenaphthene	83-32-9	E642F	0.948 mg/kg	0.8 mg/kg	120	50.0	140	----
		acenaphthylene	208-96-8	E642F	1.42 mg/kg	0.8 mg/kg	179	50.0	140	E
		anthracene	120-12-7	E642F	1.46 mg/kg	0.8 mg/kg	185	50.0	140	E
		benz(a)anthracene	56-55-3	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(a)pyrene	50-32-8	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(b+j)fluoranthene	n/a	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 523736) - continued										
WT2204211-003	Anonymous	benzo(g,h,i)perylene	191-24-2	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(k)fluoranthene	207-08-9	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		chrysene	218-01-9	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		dibenz(a,h)anthracene	53-70-3	E642F	1.12 mg/kg	0.8 mg/kg	141	50.0	140	E
		fluoranthene	206-44-0	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		fluorene	86-73-7	E642F	1.04 mg/kg	0.8 mg/kg	131	50.0	140	----
		indeno(1,2,3-c,d)pyrene	193-39-5	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		methylnaphthalene, 1-	90-12-0	E642F	0.809 mg/kg	0.8 mg/kg	102	50.0	140	----
		methylnaphthalene, 2-	91-57-6	E642F	0.800 mg/kg	0.8 mg/kg	101	50.0	140	----
		naphthalene	91-20-3	E642F	0.850 mg/kg	0.8 mg/kg	107	50.0	140	----
		phenanthrene	85-01-8	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		pyrene	129-00-0	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
Polychlorinated Biphenyls (QCLot: 522358)										
WT2204211-006	Anonymous	Aroclor 1016	12674-11-2	E687	0.192 mg/kg	0.2 mg/kg	96.1	50.0	150	----
		Aroclor 1221	11104-28-2	E687	0.192 mg/kg	0.2 mg/kg	96.1	50.0	150	----
		Aroclor 1232	11141-16-5	E687	0.192 mg/kg	0.2 mg/kg	96.1	50.0	150	----
		Aroclor 1242	53469-21-9	E687	0.191 mg/kg	0.2 mg/kg	95.5	50.0	150	----
		Aroclor 1248	12672-29-6	E687	0.192 mg/kg	0.2 mg/kg	96.1	50.0	150	----
		Aroclor 1254	11097-69-1	E687	0.184 mg/kg	0.2 mg/kg	92.0	50.0	150	----
		Aroclor 1260	11096-82-5	E687	0.200 mg/kg	0.2 mg/kg	100	50.0	150	----
		Aroclor 1262	37324-23-5	E687	0.219 mg/kg	0.2 mg/kg	110	50.0	150	----
		Aroclor 1268	11100-14-4	E687	0.219 mg/kg	0.2 mg/kg	110	50.0	150	----
Polychlorinated Biphenyls (QCLot: 525206)										
WT2205488-001	Anonymous	Aroclor 1016	12674-11-2	E687	0.190 mg/kg	0.2 mg/kg	95.2	50.0	150	----
		Aroclor 1221	11104-28-2	E687	0.190 mg/kg	0.2 mg/kg	95.2	50.0	150	----
		Aroclor 1232	11141-16-5	E687	0.190 mg/kg	0.2 mg/kg	95.2	50.0	150	----
		Aroclor 1242	53469-21-9	E687	0.188 mg/kg	0.2 mg/kg	94.6	50.0	150	----
		Aroclor 1248	12672-29-6	E687	0.190 mg/kg	0.2 mg/kg	95.2	50.0	150	----
		Aroclor 1254	11097-69-1	E687	0.174 mg/kg	0.2 mg/kg	87.2	50.0	150	----
		Aroclor 1260	11096-82-5	E687	0.197 mg/kg	0.2 mg/kg	98.7	50.0	150	----
		Aroclor 1262	37324-23-5	E687	0.201 mg/kg	0.2 mg/kg	101	50.0	150	----
		Aroclor 1268	11100-14-4	E687	0.201 mg/kg	0.2 mg/kg	101	50.0	150	----
Organochlorine Pesticides (QCLot: 523604)										
WT2205489-003	BH2 SS4B	aldrin	309-00-2	E660F	0.009 mg/kg	0.01 mg/kg	88.8	50.0	150	----
		chlordane, cis- (alpha)	5103-71-9	E660F	0.008 mg/kg	0.01 mg/kg	76.0	50.0	150	----
		chlordane, trans- (gamma)	5103-74-2	E660F	0.008 mg/kg	0.01 mg/kg	84.9	50.0	150	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Organochlorine Pesticides (QCLot: 523604) - continued										
WT2205489-003	BH2 SS4B	DDD, 2,4'-	53-19-0	E660F	0.008 mg/kg	0.01 mg/kg	76.2	50.0	150	----
		DDD, 4,4'-	72-54-8	E660F	0.008 mg/kg	0.01 mg/kg	81.3	50.0	150	----
		DDE, 2,4'-	3424-82-6	E660F	0.008 mg/kg	0.01 mg/kg	75.0	50.0	150	----
		DDE, 4,4'-	72-55-9	E660F	0.008 mg/kg	0.01 mg/kg	81.0	50.0	150	----
		DDT, 2,4'-	789-02-6	E660F	0.008 mg/kg	0.01 mg/kg	78.6	50.0	150	----
		DDT, 4,4'-	50-29-3	E660F	0.008 mg/kg	0.01 mg/kg	85.1	50.0	150	----
		dieldrin	60-57-1	E660F	0.008 mg/kg	0.01 mg/kg	82.6	50.0	150	----
		endosulfan, alpha-	959-98-8	E660F	0.008 mg/kg	0.01 mg/kg	75.5	50.0	150	----
		endosulfan, beta-	33213-65-9	E660F	0.008 mg/kg	0.01 mg/kg	78.7	50.0	150	----
		endrin	72-20-8	E660F	0.009 mg/kg	0.01 mg/kg	92.2	50.0	150	----
		heptachlor	76-44-8	E660F	0.008 mg/kg	0.01 mg/kg	82.4	50.0	150	----
		heptachlor epoxide	1024-57-3	E660F	0.008 mg/kg	0.01 mg/kg	85.3	50.0	150	----
		hexachlorobenzene	118-74-1	E660F	0.008 mg/kg	0.01 mg/kg	85.0	50.0	150	----
		hexachlorobutadiene	87-68-3	E660F	0.008 mg/kg	0.01 mg/kg	80.0	50.0	150	----
		hexachlorocyclohexane, gamma-	58-89-9	E660F	0.008 mg/kg	0.01 mg/kg	80.4	50.0	150	----
		hexachloroethane	67-72-1	E660F	0.008 mg/kg	0.01 mg/kg	83.0	50.0	150	----
		methoxychlor	72-43-5	E660F	0.008 mg/kg	0.01 mg/kg	82.9	50.0	150	----

Qualifiers

Qualifier	Description
E	*Matrix Spike recovery outside ALS DQO due to heterogeneous analyte background in sample.*

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 521766)									
	RM	conductivity (1:2 leachate)	----	E100-L	3396 µS/cm	95.1	70.0	130	----
Physical Tests (QCLot: 525529)									
	RM	conductivity (1:2 leachate)	----	E100-L	3396 µS/cm	110	70.0	130	----
Metals (QCLot: 521761)									
	RM	boron, hot water soluble	7440-42-8	E487	5.92 mg/kg	109	70.0	130	----
Metals (QCLot: 521762)									
	RM	antimony	7440-36-0	E440	3.99 mg/kg	94.3	70.0	130	----
	RM	arsenic	7440-38-2	E440	3.73 mg/kg	96.1	70.0	130	----
	RM	barium	7440-39-3	E440	105 mg/kg	104	70.0	130	----
	RM	beryllium	7440-41-7	E440	0.349 mg/kg	104	70.0	130	----
	RM	boron	7440-42-8	E440	8.5 mg/kg	99.1	40.0	160	----
	RM	chromium	7440-47-3	E440	101 mg/kg	99.0	70.0	130	----
	RM	cobalt	7440-48-4	E440	6.9 mg/kg	102	70.0	130	----
	RM	copper	7440-50-8	E440	123 mg/kg	103	70.0	130	----
	RM	lead	7439-92-1	E440	267 mg/kg	102	70.0	130	----
	RM	molybdenum	7439-98-7	E440	1.03 mg/kg	98.6	70.0	130	----
	RM	nickel	7440-02-0	E440	26.7 mg/kg	105	70.0	130	----
	RM	silver	7440-22-4	E440	4.06 mg/kg	102	70.0	130	----
	RM	thallium	7440-28-0	E440	0.0786 mg/kg	96.8	40.0	160	----
	RM	uranium	7440-61-1	E440	0.52 mg/kg	96.7	70.0	130	----
	RM	vanadium	7440-62-2	E440	32.7 mg/kg	101	70.0	130	----
	RM	zinc	7440-66-6	E440	297 mg/kg	99.7	70.0	130	----
Metals (QCLot: 521763)									
	RM	mercury	7439-97-6	E510	0.0585 mg/kg	106	70.0	130	----
Metals (QCLot: 521765)									
	RM	calcium, soluble ion content	7440-70-2	E484	178.9 mg/L	96.7	70.0	130	----
	RM	magnesium, soluble ion content	7439-95-4	E484	53.95 mg/L	97.7	70.0	130	----
	RM	sodium, soluble ion content	17341-25-2	E484	199.6 mg/L	101	70.0	130	----
Metals (QCLot: 523079)									

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report: RM Target Concentration	Recovery (%): RM	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Metals (QCLot: 523079) - continued									
	RM	mercury	7439-97-6	E510	0.0585 mg/kg	107	70.0	130	----
Metals (QCLot: 523080)									
	RM	antimony	7440-36-0	E440	3.99 mg/kg	85.4	70.0	130	----
	RM	arsenic	7440-38-2	E440	3.73 mg/kg	102	70.0	130	----
	RM	barium	7440-39-3	E440	105 mg/kg	105	70.0	130	----
	RM	beryllium	7440-41-7	E440	0.349 mg/kg	81.2	70.0	130	----
	RM	boron	7440-42-8	E440	8.5 mg/kg	82.3	40.0	160	----
	RM	cadmium	7440-43-9	E440	0.91 mg/kg	100	70.0	130	----
	RM	chromium	7440-47-3	E440	101 mg/kg	104	70.0	130	----
	RM	cobalt	7440-48-4	E440	6.9 mg/kg	102	70.0	130	----
	RM	copper	7440-50-8	E440	123 mg/kg	102	70.0	130	----
	RM	lead	7439-92-1	E440	267 mg/kg	91.5	70.0	130	----
	RM	molybdenum	7439-98-7	E440	1.03 mg/kg	96.4	70.0	130	----
	RM	nickel	7440-02-0	E440	26.7 mg/kg	102	70.0	130	----
	RM	silver	7440-22-4	E440	4.06 mg/kg	89.3	70.0	130	----
	RM	thallium	7440-28-0	E440	0.0786 mg/kg	84.9	40.0	160	----
	RM	uranium	7440-61-1	E440	0.52 mg/kg	90.6	70.0	130	----
	RM	vanadium	7440-62-2	E440	32.7 mg/kg	101	70.0	130	----
	RM	zinc	7440-66-6	E440	297 mg/kg	100.0	70.0	130	----
Metals (QCLot: 525530)									
	RM	calcium, soluble ion content	7440-70-2	E484	178.9 mg/L	103	70.0	130	----
	RM	magnesium, soluble ion content	7439-95-4	E484	53.95 mg/L	106	70.0	130	----
	RM	sodium, soluble ion content	17341-25-2	E484	199.6 mg/L	108	70.0	130	----
Metals (QCLot: 525531)									
	RM	boron, hot water soluble	7440-42-8	E487	5.92 mg/kg	97.3	70.0	130	----
Speciated Metals (QCLot: 522544)									
	RM	chromium, hexavalent [Cr VI]	18540-29-9	E532	131 mg/kg	99.8	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 951652

Canada Toll Free: 1 800 668 9878

Pa

Environmental Division Waterloo

Work Order Reference WT2205489

Telephone : +1 519 886 6910

ALS www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	GROUNDED ENGINEERING
Contact:	EMMA LEET
Phone:	647-264-7932
Company address below will appear on the final report	
Street:	1 BANIGAN DR
City/Province:	TORONTO ON
Postal Code:	M4H 1G3
Invoice To	Same as Report To [X] YES [ ] NO
	Copy of Invoice with Report [X] YES [ ] NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: [X] PDF [X] EXCEL [X] EDD (DIGITAL)

Merge QC/QCI Reports with COA [X] YES [ ] NO [ ] N/A

[X] Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: [X] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax: elect@groundedeng.ca

Email 2: sbastan@groundedeng.ca

Email 3: dwalters@groundedeng.ca

Invoice Recipients

Select Invoice Distribution: [X] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax:

Email 2:

Turnaround Time (TAT) Requested

[X] Routine [R] if received by 3pm M-F - no surcharges apply

[ ] 4 day [P4] if received by 3pm M-F - 20% rush surcharge minim

[ ] 3 day [P3] if received by 3pm M-F - 25% rush surcharge minin

[ ] 2 day [P2] if received by 3pm M-F - 50% rush surcharge minin

[ ] 1 day [E] if received by 3pm M-F - 100% rush surcharge minim

[ ] Same day [E2] if received by 10am M-S - 200% rush surcharge. Ad may apply to rush requests on weekends, statutory holidays and non-r

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please

Project Information

ALS Account # / Quote #:

Job #: 22-087

PO / AFE:

LSD: 4094 TOMKEN RD, MISSISSAUGA

ALS Lab Work Order # (ALS use only): WT2205489

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Contact: Sampler: AJ

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	M&I	PAH	PCB	OC	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
1	BH2 SS2B	08-JUN-22	14:30	Soil	5		X	X		X			
2	BH2 SS3		14:30		1	X							
3	BH2 SS4B		14:30		2	X			X				
4	BH2 SS5		14:30		5		X	X		X			
5	BH3 SS2		17:30		3					X			
6	BH3 SS3		17:30		3	X	X	X					
7	BH3 SS4		1730		4	X	X	X	X				
8	BH3 SS5		17:30		3					X			
9	DUP - M&I		14:30		1	X							
10	DUP - PAH		17:30		1		X						
11	DUP - PCB		17:30		1			X					
12	DUP - OC		17:30		1				X				

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

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? [ ] YES [ ] NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

OReg 153/04 ; Table 3, RPI, Coarse

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: [ ] NONE [X] ICE [ ] ICE PACKS [ ] FROZEN [ ] COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: [ ] YES [ ] NO

Cooler Custody Seals Intact: [ ] YES [ ] N/A Sample Custody Seals Intact: [ ] YES [ ] N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				12.9			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Alexandra Tolhurst	10 JUN 22	17:00

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
BB	06 13 22	1030

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

AUG 2020 FRONT

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

COC Number: 20 - 951653

Page 2 of 2

www.alsglobal.com

Report To — Contact and company name below will appear on the final report

Company:	GROUNDED ENGINEERING
Contact:	EMMA LEET
Phone:	647-264-7932

Company address below will appear on the final report

Street:	1 BANIGAN DR
City/Province:	TORONTO ON
Postal Code:	M4H 1G3

Invoice To

Same as Report To ☒ YES ☐ NO

Copy of Invoice with Report ☒ YES ☐ NO

Company:

Contact:

Project Information

ALS Account # / Quote #:

Job #: 22-087

PO / AFE:

LSD: 4094 TOMKEN RD MISSISSAUGA

ALS Lab Work Order # (ALS use only): WT2205489

Reports / Recipients

Select Report Format: ☒ PDF ☒ EXCEL ☒ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☒ YES ☐ NO ☐ N/A

☒ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax: eleet@groundedeng.ca

Email 2: sbastan@groundedeng.ca

Email 3: bwalters@groundedeng.ca

Invoice Recipients

Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax

Email 2

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#

Major/Minor Code: | Routing Code:

Requisitioner:

Location:

ALS Contact: | Sampler: AJ

Turnaround Time (TAT) Requested

☒ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

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

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	M&I	PAH	PCB	OC	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
13	BH1 SS1B	10 JUN 22	11:30	Soil	2	X	X	X					
14	BH1 SS2	↓	11:30	↓	5		X	X	X	X			
15	BH1 SS3	↓	11:30	↓		X							
16	BH1 SS4B	↓	11:30	↓						X			
17	DUP-VOC	↓	11:30	↓						X			

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

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

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

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

OREG 153/04, Table 3, RPI, Coarse

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☒ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C | FINAL COOLER TEMPERATURES °C: 17.9

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: [signature]	Date: 10 JUN 22	Time: 17:00	Received by:	Date:	Time:	Received by: BB	Date: 06/13/22	Time: 1030

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2205489**	Page	: 1 of 21
Client	: **Grounded Engineering Inc.**	Laboratory	: Waterloo - Environmental
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087	Date Samples Received	: 13-Jun-2022 10:30
PO	: ----	Issue Date	: 21-Jun-2022 14:09
C-O-C number	: 20-951652, 20-951653		
Sampler	: AJ		
Site	: 4094 TOMKEN RD, MISSISSAUGA		
Quote number	: Q88323 - SOA		
No. of samples received	: 17		
No. of samples analysed	: 17		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	acenaphthene	83-32-9	E642F	101 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	anthracene	120-12-7	E642F	83.7 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	benz(a)anthracene	56-55-3	E642F	58.1 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	benzo(k)fluoranthene	207-08-9	E642F	53.7 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	chrysene	218-01-9	E642F	58.6 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	fluoranthene	206-44-0	E642F	67.8 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	fluorene	86-73-7	E642F	95.6 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	phenanthrene	85-01-8	E642F	97.4 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	pyrene	129-00-0	E642F	64.3 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Laboratory Control Sample (LCS) Recoveries								
Metals	QC-MRG2-521762002	----	silver	7440-22-4	E440	70.1 % MES	80.0-120%	Recovery less than lower control limit
Metals	QC-MRG2-523079002	----	silver	7440-22-4	E440	70.6 % MES	80.0-120%	Recovery less than lower control limit

Result Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Recoveries								
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	acenaphthylene	208-96-8	E642F	179 % E	50.0-140%	Recovery greater than upper data quality objective

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Matrix Spike (MS) Recoveries - Continued								
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	anthracene	120-12-7	E642F	185 % E	50.0-140%	Recovery greater than upper data quality objective
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	dibenz(a,h)anthracene	53-70-3	E642F	141 % E	50.0-140%	Recovery greater than upper data quality objective

Result Qualifiers

Qualifier	*Description*
E	*Matrix Spike recovery outside ALS DQO due to heterogeneous analyte background in sample.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E336A	10-Jun-2022	14-Jun-2022	14 days	4 days	✓	14-Jun-2022	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH1 SS3	E336A	10-Jun-2022	14-Jun-2022	14 days	4 days	✓	14-Jun-2022	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH2 SS3	E336A	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	14-Jun-2022	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E336A	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	14-Jun-2022	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH3 SS3	E336A	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	14-Jun-2022	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
BH3 SS4	E336A	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	14-Jun-2022	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap										
DUP-M&I	E336A	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	14-Jun-2022	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH2 SS3	E487	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	14-Jun-2022	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E487	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	14-Jun-2022	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH3 SS3	E487	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	14-Jun-2022	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH3 SS4	E487	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	14-Jun-2022	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
DUP-M&I	E487	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	14-Jun-2022	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E487	10-Jun-2022	17-Jun-2022	180 days	7 days	✓	17-Jun-2022	180 days	0 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap										
BH1 SS3	E487	10-Jun-2022	17-Jun-2022	180 days	7 days	✓	17-Jun-2022	180 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E510	10-Jun-2022	16-Jun-2022	----	----		16-Jun-2022	28 days	6 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH1 SS3	E510	10-Jun-2022	16-Jun-2022	----	----		16-Jun-2022	28 days	6 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH2 SS3	E510	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E510	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH3 SS3	E510	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
BH3 SS4	E510	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS										
Glass soil jar/Teflon lined cap										
DUP-M&I	E510	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	28 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E440	10-Jun-2022	16-Jun-2022	----	----		17-Jun-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH1 SS3	E440	10-Jun-2022	16-Jun-2022	----	----		17-Jun-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH2 SS3	E440	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E440	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	180 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH3 SS3	E440	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
BH3 SS4	E440	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
Glass soil jar/Teflon lined cap										
DUP-M&I	E440	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	180 days	7 days	✓
Organochlorine Pesticides : OCPs by GC-MS-MS										
Glass soil jar/Teflon lined cap										
BH1 SS2	E660F	10-Jun-2022	14-Jun-2022	14 days	4 days	✓	17-Jun-2022	40 days	3 days	✓
Organochlorine Pesticides : OCPs by GC-MS-MS										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E660F	08-Jun-2022	14-Jun-2022	14 days	6 days	✓	17-Jun-2022	40 days	3 days	✓
Organochlorine Pesticides : OCPs by GC-MS-MS										
Glass soil jar/Teflon lined cap										
BH3 SS4	E660F	08-Jun-2022	14-Jun-2022	14 days	6 days	✓	17-Jun-2022	40 days	3 days	✓
Organochlorine Pesticides : OCPs by GC-MS-MS										
Glass soil jar/Teflon lined cap										
DUP-OC	E660F	08-Jun-2022	14-Jun-2022	14 days	6 days	✓	17-Jun-2022	40 days	3 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E100-L	10-Jun-2022	17-Jun-2022	----	----		20-Jun-2022	30 days	10 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
BH1 SS3	E100-L	10-Jun-2022	17-Jun-2022	----	----		20-Jun-2022	30 days	10 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
BH2 SS3	E100-L	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E100-L	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
BH3 SS3	E100-L	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
BH3 SS4	E100-L	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap										
DUP-M&I	E100-L	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	30 days	7 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E144	10-Jun-2022	----	----	----		13-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH1 SS2	E144	10-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH1 SS3	E144	10-Jun-2022	----	----	----		13-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH1 SS4B	E144	10-Jun-2022	----	----	----		14-Jun-2022	----	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH2 SS2B	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH2 SS3	E144	08-Jun-2022	----	----	----		13-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E144	08-Jun-2022	----	----	----		13-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH2 SS5	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH3 SS2	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH3 SS3	E144	08-Jun-2022	----	----	----		13-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH3 SS4	E144	08-Jun-2022	----	----	----		13-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
BH3 SS5	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-M&I	E144	08-Jun-2022	----	----	----		13-Jun-2022	----	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-OC	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-PAH	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-PCB	E144	08-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
DUP-VOC	E144	10-Jun-2022	----	----	----		14-Jun-2022	----	----	
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E108A	10-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	4 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH1 SS3	E108A	10-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	4 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH2 SS3	E108A	08-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	6 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E108A	08-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	6 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH3 SS3	E108A	08-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	6 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
BH3 SS4	E108A	08-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	6 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap										
DUP-M&I	E108A	08-Jun-2022	14-Jun-2022	----	----		14-Jun-2022	30 days	6 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E687	10-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	40 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
BH1 SS2	E687	10-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	40 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
BH2 SS2B	E687	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	40 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
BH2 SS5	E687	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	40 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
BH3 SS3	E687	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	40 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
BH3 SS4	E687	08-Jun-2022	14-Jun-2022	----	----		15-Jun-2022	40 days	1 days	✓
Polychlorinated Biphenyls : PCB Aroclors by GC-MS										
Glass soil jar/Teflon lined cap										
DUP-PCB	E687	08-Jun-2022	15-Jun-2022	----	----		17-Jun-2022	40 days	2 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E642F	10-Jun-2022	14-Jun-2022	14 days	4 days	✓	15-Jun-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
BH1 SS2	E642F	10-Jun-2022	14-Jun-2022	14 days	4 days	✓	15-Jun-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
BH2 SS2B	E642F	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	15-Jun-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
BH2 SS5	E642F	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	15-Jun-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
BH3 SS3	E642F	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	15-Jun-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
BH3 SS4	E642F	08-Jun-2022	14-Jun-2022	14 days	5 days	✓	15-Jun-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by MeOH:Tol GC-MS										
Glass soil jar/Teflon lined cap										
DUP-PAH	E642F	08-Jun-2022	14-Jun-2022	14 days	6 days	✓	16-Jun-2022	40 days	1 days	✓
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH2 SS3	E484	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	15-Jun-2022	180 days	1 days	✓
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E484	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	15-Jun-2022	180 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH3 SS3	E484	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	15-Jun-2022	180 days	1 days	✓
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH3 SS4	E484	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	15-Jun-2022	180 days	1 days	✓
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
DUP-M&I	E484	08-Jun-2022	14-Jun-2022	180 days	6 days	✓	15-Jun-2022	180 days	1 days	✓
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E484	10-Jun-2022	17-Jun-2022	180 days	7 days	✓	17-Jun-2022	180 days	0 days	✓
Saturated Paste Extractables : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap										
BH1 SS3	E484	10-Jun-2022	17-Jun-2022	180 days	7 days	✓	17-Jun-2022	180 days	0 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH1 SS1B	E532	10-Jun-2022	14-Jun-2022	30 days	4 days	✓	15-Jun-2022	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH1 SS3	E532	10-Jun-2022	14-Jun-2022	30 days	4 days	✓	15-Jun-2022	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH2 SS3	E532	08-Jun-2022	14-Jun-2022	30 days	6 days	✓	15-Jun-2022	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH2 SS4B	E532	08-Jun-2022	14-Jun-2022	30 days	6 days	✓	15-Jun-2022	7 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH3 SS3	E532	08-Jun-2022	14-Jun-2022	30 days	6 days	✓	15-Jun-2022	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
BH3 SS4	E532	08-Jun-2022	14-Jun-2022	30 days	6 days	✓	15-Jun-2022	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap										
DUP-M&I	E532	08-Jun-2022	14-Jun-2022	30 days	6 days	✓	15-Jun-2022	7 days	1 days	✓
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
BH1 SS2	E611D	10-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	5 days	✓
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
BH1 SS4B	E611D	10-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	5 days	✓
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
DUP-VOC	E611D	10-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	5 days	✓
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
BH2 SS2B	E611D	08-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	7 days	✓
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
BH2 SS5	E611D	08-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	7 days	✓
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
BH3 SS2	E611D	08-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (ON List) by Headspace GC-MS										
Glass soil methanol vial										
BH3 SS5	E611D	08-Jun-2022	15-Jun-2022	----	----		15-Jun-2022	40 days	7 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Boron-Hot Water Extractable by ICPOES	E487	521761	2	26	7.6	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	521766	2	23	8.7	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	522544	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	521763	2	28	7.1	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	521762	2	29	6.9	5.0	✓
Moisture Content by Gravimetry	E144	521769	2	28	7.1	5.0	✓
OCPs by GC-MS-MS	E660F	523604	1	9	11.1	5.0	✓
PAHs by MeOH:Tol GC-MS	E642F	522357	2	17	11.7	5.0	✓
PCB Aroclors by GC-MS	E687	522358	2	12	16.6	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	522524	1	13	7.6	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	521765	2	21	9.5	5.0	✓
VOCs (ON List) by Headspace GC-MS	E611D	524141	1	11	9.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	522364	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Boron-Hot Water Extractable by ICPOES	E487	521761	4	26	15.3	10.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	521766	4	23	17.3	10.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	522544	2	12	16.6	10.0	✓
Mercury in Soil/Solid by CVAAS	E510	521763	4	28	14.2	10.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	521762	4	29	13.7	10.0	✓
Moisture Content by Gravimetry	E144	521769	2	28	7.1	5.0	✓
OCPs by GC-MS-MS	E660F	523604	1	9	11.1	5.0	✓
PAHs by MeOH:Tol GC-MS	E642F	522357	2	17	11.7	5.0	✓
PCB Aroclors by GC-MS	E687	522358	2	12	16.6	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	522524	1	13	7.6	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	521765	4	21	19.0	10.0	✓
VOCs (ON List) by Headspace GC-MS	E611D	524141	1	11	9.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	522364	1	20	5.0	5.0	✓
Method Blanks (MB)							
Boron-Hot Water Extractable by ICPOES	E487	521761	2	26	7.6	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	521766	2	23	8.7	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	522544	1	12	8.3	5.0	✓
Mercury in Soil/Solid by CVAAS	E510	521763	2	28	7.1	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	521762	2	29	6.9	5.0	✓
Moisture Content by Gravimetry	E144	521769	2	28	7.1	5.0	✓
OCPs by GC-MS-MS	E660F	523604	1	9	11.1	5.0	✓
PAHs by MeOH:Tol GC-MS	E642F	522357	2	17	11.7	5.0	✓
PCB Aroclors by GC-MS	E687	522358	2	12	16.6	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	521765	2	21	9.5	5.0	✓
VOCs (ON List) by Headspace GC-MS	E611D	524141	1	11	9.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	522364	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
OCPs by GC-MS-MS	E660F	523604	1	9	11.1	5.0	✓
PAHs by MeOH:Tol GC-MS	E642F	522357	2	17	11.7	5.0	✓
PCB Aroclors by GC-MS	E687	522358	2	12	16.6	5.0	✓
VOCs (ON List) by Headspace GC-MS	E611D	524141	1	11	9.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	522364	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L Waterloo - Environmental	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a soil sample that has been added in a defined ratio of soil to deionized water, then shaken well and allowed to settle. Conductance is measured in the fluid that is observed in the upper layer.
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A Waterloo - Environmental	Soil/Solid	MOEE E3137A	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) and is carried out in accordance with procedures described in the Analytical Protocol (prescriptive method). A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling, or decanting and then analyzed using a pH meter and electrode.
Moisture Content by Gravimetry	E144 Waterloo - Environmental	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
WAD Cyanide (0.01M NaOH Extraction)	E336A Waterloo - Environmental	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined after extraction by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Metals in Soil/Solid by CRC ICPMS	E440 Waterloo - Environmental	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484 Waterloo - Environmental	Soil/Solid	SW846 6010C	A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.
Boron-Hot Water Extractable by ICPOES	E487 Waterloo - Environmental	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Mercury in Soil/Solid by CVAAS	E510 Waterloo - Environmental	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
Hexavalent Chromium (Cr VI) by IC	E532 Waterloo - Environmental	Soil/Solid	APHA 3500-CR C	Instrumental analysis is performed by ion chromatography with UV detection.
VOCs (ON List) by Headspace GC-MS	E611D Waterloo - Environmental	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by MeOH:Tol GC-MS	E642F Waterloo - Environmental	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with methanol/toluene and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.
OCPs by GC-MS-MS	E660F Waterloo - Environmental	Soil/Solid	EPA 8270E (mod)	OCPs are analyzed by GC-MS-MS.
PCB Aroclors by GC-MS	E687 Waterloo - Environmental	Soil/Solid	EPA 8270E (mod)	PCB Aroclors are analyzed by GC-MS

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 Waterloo - Environmental	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Leach 1:2 Soil : 0.01CaCl2 - As Received for pH	EP108A Waterloo - Environmental	Soil/Solid	MOEE E3137A	A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling or decanting and then analyzed using a pH meter and electrode.
Cyanide Extraction for CFA (0.01M NaOH)	EP333A Waterloo - Environmental	Soil/Solid	ON MECP E3015 (mod)	Extraction for various cyanide analysis is by rotary extraction of the soil with 0.01M Sodium Hydroxide.
Digestion for Metals and Mercury	EP440 Waterloo - Environmental	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Boron-Hot Water Extractable	EP487 Waterloo - Environmental	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with weak calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011)
Preparation of Hexavalent Chromium (Cr VI) for IC	EP532 Waterloo - Environmental	Soil/Solid	EPA 3060A	Field moist samples are digested with a sodium hydroxide/sodium carbonate solution as described in EPA 3060A.
VOCs Methanol Extraction for Headspace Analysis	EP581 Waterloo - Environmental	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
Pesticides, PCB, PAH, and Neutral Extractable Chlorinated Hydrocarbons Extraction	EP660 Waterloo - Environmental	Soil/Solid	EPA 3570 (mod)	A homogenized subsample is extracted with organic solvents using a mechanical shaker.
Pesticides, PCB, PAH, and Neutral Extractable Chlorinated Hydrocarbons Extraction (High Level)	EP660-H Waterloo - Environmental	Soil/Solid	EPA 3570 (mod)	A homogenized subsample is extracted with organic solvents using a mechanical shaker.

QUALITY CONTROL REPORT

Work Order	: **WT2205489**	Page	: 1 of 26
Client	: Grounded Engineering Inc.	Laboratory	: Waterloo - Environmental
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087	Date Samples Received	: 13-Jun-2022 10:30
PO	: ----	Date Analysis Commenced	: 13-Jun-2022
C-O-C number	: 20-951652, 20-951653	Issue Date	: 21-Jun-2022 14:09
Sampler	: AJ		
Site	: 4094 TOMKEN RD, MISSISSAUGA		
Quote number	: Q88323 - SOA		
No. of samples received	: 17		
No. of samples analysed	: 17		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Amanda Ganouri-Lumsden	Department Manager - Microbiology and Prep	Waterloo Centralized Prep, Waterloo, Ontario
Greg Pokocky	Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario
Jeremy Gingras	Team Leader - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Jon Fisher	Department Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Jon Fisher	Department Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Sarah Birch	Team Leader - Volatiles	Waterloo Organics, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 521766)											
WT2205475-001	Anonymous	conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	0.933 mS/cm	1110	17.6%	20%	----
Physical Tests (QC Lot: 521769)											
WT2205475-001	Anonymous	moisture	----	E144	0.25	%	9.49	8.31	13.3%	20%	----
Physical Tests (QC Lot: 522524)											
WT2205487-014	Anonymous	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	8.69	8.71	0.02	Diff <2x LOR	----
Physical Tests (QC Lot: 522592)											
WT2205489-005	BH3 SS2	moisture	----	E144	0.25	%	17.5	18.0	3.10%	20%	----
Physical Tests (QC Lot: 525529)											
WT2205566-001	Anonymous	conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	5.49 mS/cm	5680	3.40%	20%	----
Cyanides (QC Lot: 522364)											
WT2205475-001	Anonymous	cyanide, weak acid dissociable	----	E336A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Metals (QC Lot: 521761)											
WT2205475-001	Anonymous	boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.14	0.13	0.01	Diff <2x LOR	----
Metals (QC Lot: 521762)											
WT2205475-001	Anonymous	antimony	7440-36-0	E440	0.10	mg/kg	0.11	0.10	0.006	Diff <2x LOR	----
		arsenic	7440-38-2	E440	0.10	mg/kg	2.32	2.23	4.15%	30%	----
		barium	7440-39-3	E440	0.50	mg/kg	23.4	23.3	0.546%	40%	----
		beryllium	7440-41-7	E440	0.10	mg/kg	0.20	0.21	0.006	Diff <2x LOR	----
		boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		cadmium	7440-43-9	E440	0.020	mg/kg	0.106	0.108	0.003	Diff <2x LOR	----
		chromium	7440-47-3	E440	0.50	mg/kg	9.35	8.91	4.87%	30%	----
		cobalt	7440-48-4	E440	0.10	mg/kg	2.71	2.60	4.06%	30%	----
		copper	7440-50-8	E440	0.50	mg/kg	5.00	4.70	6.16%	30%	----
		lead	7439-92-1	E440	0.50	mg/kg	7.76	7.58	2.39%	40%	----
		molybdenum	7439-98-7	E440	0.10	mg/kg	0.62	0.62	0.775%	40%	----
		nickel	7440-02-0	E440	0.50	mg/kg	5.11	5.02	1.89%	30%	----
		selenium	7782-49-2	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		thallium	7440-28-0	E440	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		uranium	7440-61-1	E440	0.050	mg/kg	0.367	0.361	1.58%	30%	----
		vanadium	7440-62-2	E440	0.20	mg/kg	16.1	15.9	1.22%	30%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Metals (QC Lot: 521762) - continued											
WT2205475-001	Anonymous	zinc	7440-66-6	E440	2.0	mg/kg	28.9	28.0	3.24%	30%	----
Metals (QC Lot: 521763)											
WT2205475-001	Anonymous	mercury	7439-97-6	E510	0.0050	mg/kg	0.0185	0.0186	0.0001	Diff <2x LOR	----
Metals (QC Lot: 521765)											
WT2205475-001	Anonymous	calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	9.50	7.47	23.9%	30%	----
		magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	1.27	0.87	0.40	Diff <2x LOR	----
		sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	203	235	14.6%	30%	----
Metals (QC Lot: 523079)											
WT2205489-013	BH1 SS1B	mercury	7439-97-6	E510	0.0050	mg/kg	0.0279	0.0254	9.41%	40%	----
Metals (QC Lot: 523080)											
WT2205489-013	BH1 SS1B	antimony	7440-36-0	E440	0.10	mg/kg	0.19	0.19	0.005	Diff <2x LOR	----
		arsenic	7440-38-2	E440	0.10	mg/kg	5.78	5.46	5.71%	30%	----
		barium	7440-39-3	E440	0.50	mg/kg	66.6	64.1	3.88%	40%	----
		beryllium	7440-41-7	E440	0.10	mg/kg	0.71	0.66	7.36%	30%	----
		boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		cadmium	7440-43-9	E440	0.020	mg/kg	0.189	0.167	12.0%	30%	----
		chromium	7440-47-3	E440	0.50	mg/kg	23.4	22.4	4.20%	30%	----
		cobalt	7440-48-4	E440	0.10	mg/kg	12.8	12.5	2.24%	30%	----
		copper	7440-50-8	E440	0.50	mg/kg	18.7	17.8	5.19%	30%	----
		lead	7439-92-1	E440	0.50	mg/kg	12.8	12.7	0.330%	40%	----
		molybdenum	7439-98-7	E440	0.10	mg/kg	0.36	0.36	0.0002	Diff <2x LOR	----
		nickel	7440-02-0	E440	0.50	mg/kg	21.8	20.8	4.82%	30%	----
		selenium	7782-49-2	E440	0.20	mg/kg	0.30	0.28	0.02	Diff <2x LOR	----
		silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		thallium	7440-28-0	E440	0.050	mg/kg	0.120	0.122	0.002	Diff <2x LOR	----
		uranium	7440-61-1	E440	0.050	mg/kg	0.547	0.555	1.52%	30%	----
		vanadium	7440-62-2	E440	0.20	mg/kg	35.1	34.3	2.52%	30%	----
		zinc	7440-66-6	E440	2.0	mg/kg	62.7	59.9	4.57%	30%	----
Metals (QC Lot: 525530)											
WT2205566-001	Anonymous	calcium, soluble ion content	7440-70-2	E484	10.0	mg/L	<10.0	<10.0	0	Diff <2x LOR	----
		magnesium, soluble ion content	7439-95-4	E484	10.0	mg/L	<10.0	<10.0	0	Diff <2x LOR	----
		sodium, soluble ion content	17341-25-2	E484	10.0	mg/L	1190	1230	3.32%	30%	----
Metals (QC Lot: 525531)											
WT2205489-015	BH1 SS3	boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	0.17	0.16	0.010	Diff <2x LOR	----
Speciated Metals (QC Lot: 522544)											

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Speciated Metals (QC Lot: 522544) - continued											
WT2204211-003	Anonymous	chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 524141)											
WT2205487-020	Anonymous	acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		toluene	108-88-3	E611D	0.050	mg/kg	0.105	0.098	0.006	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 524141) - continued											
WT2205487-020	Anonymous	trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 522357)											
WT2204211-006	Anonymous	acenaphthene	83-32-9	E642F	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		acenaphthylene	208-96-8	E642F	0.050	mg/kg	0.390	0.330	16.6%	50%	----
		anthracene	120-12-7	E642F	0.050	mg/kg	0.243	0.200	19.4%	50%	----
		benz(a)anthracene	56-55-3	E642F	0.050	mg/kg	1.71	1.32	25.9%	50%	----
		benzo(a)pyrene	50-32-8	E642F	0.050	mg/kg	2.63	2.08	23.2%	50%	----
		benzo(b+j)fluoranthene	n/a	E642F	0.050	mg/kg	2.87	2.28	23.0%	50%	----
		benzo(g,h,i)perylene	191-24-2	E642F	0.050	mg/kg	1.45	1.24	15.5%	50%	----
		benzo(k)fluoranthene	207-08-9	E642F	0.050	mg/kg	1.04	0.796	26.8%	50%	----
		chrysene	218-01-9	E642F	0.050	mg/kg	1.64	1.24	27.8%	50%	----
		dibenz(a,h)anthracene	53-70-3	E642F	0.050	mg/kg	0.340	0.273	22.1%	50%	----
		fluoranthene	206-44-0	E642F	0.050	mg/kg	2.58	1.80	35.3%	50%	----
		fluorene	86-73-7	E642F	0.050	mg/kg	0.062	0.057	0.005	Diff <2x LOR	----
		indeno(1,2,3-c,d)pyrene	193-39-5	E642F	0.050	mg/kg	1.39	1.08	25.2%	50%	----
		methylnaphthalene, 1-	90-12-0	E642F	0.030	mg/kg	0.085	0.058	0.027	Diff <2x LOR	----
		methylnaphthalene, 2-	91-57-6	E642F	0.030	mg/kg	0.110	0.072	0.038	Diff <2x LOR	----
		naphthalene	91-20-3	E642F	0.010	mg/kg	0.122	0.073	49.7%	50%	----
		phenanthrene	85-01-8	E642F	0.050	mg/kg	0.673	0.522	25.3%	50%	----
		pyrene	129-00-0	E642F	0.050	mg/kg	2.48	1.67	38.9%	50%	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 523736)											
WT2204211-003	Anonymous	acenaphthene	83-32-9	E642F	0.050	mg/kg	0.110	0.335	101%	50%	DUP-H
		acenaphthylene	208-96-8	E642F	0.050	mg/kg	0.636	0.796	22.3%	50%	----
		anthracene	120-12-7	E642F	0.050	mg/kg	0.725	1.77	83.7%	50%	DUP-H
		benz(a)anthracene	56-55-3	E642F	0.050	mg/kg	3.66	6.65	58.1%	50%	DUP-H
		benzo(a)pyrene	50-32-8	E642F	0.050	mg/kg	5.09	7.98	44.2%	50%	----
		benzo(b+j)fluoranthene	n/a	E642F	0.050	mg/kg	5.22	8.29	45.4%	50%	----
		benzo(g,h,i)perylene	191-24-2	E642F	0.050	mg/kg	2.93	3.83	26.6%	50%	----
		benzo(k)fluoranthene	207-08-9	E642F	0.050	mg/kg	1.63	2.82	53.7%	50%	DUP-H

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Polycyclic Aromatic Hydrocarbons (QC Lot: 523736) - continued											
WT2204211-003	Anonymous	chrysene	218-01-9	E642F	0.050	mg/kg	3.09	5.65	58.6%	50%	DUP-H
		dibenz(a,h)anthracene	53-70-3	E642F	0.050	mg/kg	0.648	0.876	30.0%	50%	----
		fluoranthene	206-44-0	E642F	0.050	mg/kg	5.87	11.9	67.8%	50%	DUP-H
		fluorene	86-73-7	E642F	0.050	mg/kg	0.137	0.388	95.6%	50%	DUP-H
		indeno(1,2,3-c,d)pyrene	193-39-5	E642F	0.050	mg/kg	2.86	3.83	28.8%	50%	----
		methylnaphthalene, 1-	90-12-0	E642F	0.030	mg/kg	0.058	0.106	0.048	Diff <2x LOR	----
		methylnaphthalene, 2-	91-57-6	E642F	0.030	mg/kg	0.065	0.103	0.038	Diff <2x LOR	----
		naphthalene	91-20-3	E642F	0.020	mg/kg	0.114	0.167	38.1%	50%	----
		phenanthrene	85-01-8	E642F	0.050	mg/kg	1.83	5.31	97.4%	50%	DUP-H
		pyrene	129-00-0	E642F	0.050	mg/kg	5.72	11.1	64.3%	50%	DUP-H
Polychlorinated Biphenyls (QC Lot: 522358)											
WT2204211-006	Anonymous	Aroclor 1016	12674-11-2	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1221	11104-28-2	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1232	11141-16-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1242	53469-21-9	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1248	12672-29-6	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1254	11097-69-1	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1260	11096-82-5	E687	0.010	mg/kg	0.020	0.014	0.007	Diff <2x LOR	----
		Aroclor 1262	37324-23-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1268	11100-14-4	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
Polychlorinated Biphenyls (QC Lot: 525206)											
WT2205488-001	Anonymous	Aroclor 1016	12674-11-2	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1221	11104-28-2	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1232	11141-16-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1242	53469-21-9	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1248	12672-29-6	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1254	11097-69-1	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1260	11096-82-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1262	37324-23-5	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Aroclor 1268	11100-14-4	E687	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
Organochlorine Pesticides (QC Lot: 523604)											
WT2205489-003	BH2 SS4B	aldrin	309-00-2	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		chlordane, cis- (alpha)	5103-71-9	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		chlordane, trans- (gamma)	5103-74-2	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		DDD, 2,4'-	53-19-0	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Organochlorine Pesticides (QC Lot: 523604) - continued											
WT2205489-003	BH2 SS4B	DDD, 4,4'-	72-54-8	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		DDE, 2,4'-	3424-82-6	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		DDE, 4,4'-	72-55-9	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		DDT, 2,4'-	789-02-6	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		DDT, 4,4'-	50-29-3	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		dieldrin	60-57-1	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		endosulfan, alpha-	959-98-8	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		endosulfan, beta-	33213-65-9	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		endrin	72-20-8	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		heptachlor	76-44-8	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		heptachlor epoxide	1024-57-3	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		hexachlorobenzene	118-74-1	E660F	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		hexachlorobutadiene	87-68-3	E660F	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		hexachlorocyclohexane, gamma-	58-89-9	E660F	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		hexachloroethane	67-72-1	E660F	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		methoxychlor	72-43-5	E660F	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 521766)						
conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Physical Tests (QCLot: 521769)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 522592)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 525529)						
conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Cyanides (QCLot: 522364)						
cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Metals (QCLot: 521761)						
boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals (QCLot: 521762)						
antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
boron	7440-42-8	E440	5	mg/kg	<5.0	----
cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Metals (QCLot: 521763)						
mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 521765)						

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 521765) - continued						
calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals (QCLot: 523079)						
mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 523080)						
antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
boron	7440-42-8	E440	5	mg/kg	<5.0	----
cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----
zinc	7440-66-6	E440	2	mg/kg	<2.0	----
Metals (QCLot: 525530)						
calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals (QCLot: 525531)						
boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Speciated Metals (QCLot: 522544)						
chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Volatile Organic Compounds (QCLot: 524141)						
acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 524141) - continued						
bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----
styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----
trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 524141) - continued						
xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Polycyclic Aromatic Hydrocarbons (QCLot: 522357)						
acenaphthene	83-32-9	E642F	0.05	mg/kg	<0.050	----
acenaphthylene	208-96-8	E642F	0.05	mg/kg	<0.050	----
anthracene	120-12-7	E642F	0.05	mg/kg	<0.050	----
benz(a)anthracene	56-55-3	E642F	0.05	mg/kg	<0.050	----
benzo(a)pyrene	50-32-8	E642F	0.05	mg/kg	<0.050	----
benzo(b+j)fluoranthene	n/a	E642F	0.05	mg/kg	<0.050	----
benzo(g,h,i)perylene	191-24-2	E642F	0.05	mg/kg	<0.050	----
benzo(k)fluoranthene	207-08-9	E642F	0.05	mg/kg	<0.050	----
chrysene	218-01-9	E642F	0.05	mg/kg	<0.050	----
dibenz(a,h)anthracene	53-70-3	E642F	0.05	mg/kg	<0.050	----
fluoranthene	206-44-0	E642F	0.05	mg/kg	<0.050	----
fluorene	86-73-7	E642F	0.05	mg/kg	<0.050	----
indeno(1,2,3-c,d)pyrene	193-39-5	E642F	0.05	mg/kg	<0.050	----
methylnaphthalene, 1-	90-12-0	E642F	0.03	mg/kg	<0.030	----
methylnaphthalene, 2-	91-57-6	E642F	0.03	mg/kg	<0.030	----
naphthalene	91-20-3	E642F	0.01	mg/kg	<0.010	----
phenanthrene	85-01-8	E642F	0.05	mg/kg	<0.050	----
pyrene	129-00-0	E642F	0.05	mg/kg	<0.050	----
Polycyclic Aromatic Hydrocarbons (QCLot: 523736)						
acenaphthene	83-32-9	E642F	0.05	mg/kg	<0.050	----
acenaphthylene	208-96-8	E642F	0.05	mg/kg	<0.050	----
anthracene	120-12-7	E642F	0.05	mg/kg	<0.050	----
benz(a)anthracene	56-55-3	E642F	0.05	mg/kg	<0.050	----
benzo(a)pyrene	50-32-8	E642F	0.05	mg/kg	<0.050	----
benzo(b+j)fluoranthene	n/a	E642F	0.05	mg/kg	<0.050	----
benzo(g,h,i)perylene	191-24-2	E642F	0.05	mg/kg	<0.050	----
benzo(k)fluoranthene	207-08-9	E642F	0.05	mg/kg	<0.050	----
chrysene	218-01-9	E642F	0.05	mg/kg	<0.050	----
dibenz(a,h)anthracene	53-70-3	E642F	0.05	mg/kg	<0.050	----
fluoranthene	206-44-0	E642F	0.05	mg/kg	<0.050	----
fluorene	86-73-7	E642F	0.05	mg/kg	<0.050	----
indeno(1,2,3-c,d)pyrene	193-39-5	E642F	0.05	mg/kg	<0.050	----
methylnaphthalene, 1-	90-12-0	E642F	0.03	mg/kg	<0.030	----
methylnaphthalene, 2-	91-57-6	E642F	0.03	mg/kg	<0.030	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 523736) - continued						
naphthalene	91-20-3	E642F	0.01	mg/kg	<0.010	----
phenanthrene	85-01-8	E642F	0.05	mg/kg	<0.050	----
pyrene	129-00-0	E642F	0.05	mg/kg	<0.050	----
Polychlorinated Biphenyls (QCLot: 522358)						
Aroclor 1016	12674-11-2	E687	0.01	mg/kg	<0.010	----
Aroclor 1221	11104-28-2	E687	0.01	mg/kg	<0.010	----
Aroclor 1232	11141-16-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1242	53469-21-9	E687	0.01	mg/kg	<0.010	----
Aroclor 1248	12672-29-6	E687	0.01	mg/kg	<0.010	----
Aroclor 1254	11097-69-1	E687	0.01	mg/kg	<0.010	----
Aroclor 1260	11096-82-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1262	37324-23-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1268	11100-14-4	E687	0.01	mg/kg	<0.010	----
Polychlorinated Biphenyls (QCLot: 525206)						
Aroclor 1016	12674-11-2	E687	0.01	mg/kg	<0.010	----
Aroclor 1221	11104-28-2	E687	0.01	mg/kg	<0.010	----
Aroclor 1232	11141-16-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1242	53469-21-9	E687	0.01	mg/kg	<0.010	----
Aroclor 1248	12672-29-6	E687	0.01	mg/kg	<0.010	----
Aroclor 1254	11097-69-1	E687	0.01	mg/kg	<0.010	----
Aroclor 1260	11096-82-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1262	37324-23-5	E687	0.01	mg/kg	<0.010	----
Aroclor 1268	11100-14-4	E687	0.01	mg/kg	<0.010	----
Organochlorine Pesticides (QCLot: 523604)						
aldrin	309-00-2	E660F	0.02	mg/kg	<0.020	----
chlordane, cis- (alpha)	5103-71-9	E660F	0.02	mg/kg	<0.020	----
chlordane, trans- (gamma)	5103-74-2	E660F	0.02	mg/kg	<0.020	----
DDD, 2,4'-	53-19-0	E660F	0.02	mg/kg	<0.020	----
DDD, 4,4'-	72-54-8	E660F	0.02	mg/kg	<0.020	----
DDE, 2,4'-	3424-82-6	E660F	0.02	mg/kg	<0.020	----
DDE, 4,4'-	72-55-9	E660F	0.02	mg/kg	<0.020	----
DDT, 2,4'-	789-02-6	E660F	0.02	mg/kg	<0.020	----
DDT, 4,4'-	50-29-3	E660F	0.02	mg/kg	<0.020	----
dieldrin	60-57-1	E660F	0.02	mg/kg	<0.020	----
endosulfan, alpha-	959-98-8	E660F	0.02	mg/kg	<0.020	----
endosulfan, beta-	33213-65-9	E660F	0.02	mg/kg	<0.020	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organochlorine Pesticides (QCLot: 523604) - continued						
endrin	72-20-8	E660F	0.02	mg/kg	<0.020	----
heptachlor	76-44-8	E660F	0.02	mg/kg	<0.020	----
heptachlor epoxide	1024-57-3	E660F	0.02	mg/kg	<0.020	----
hexachlorobenzene	118-74-1	E660F	0.01	mg/kg	<0.010	----
hexachlorobutadiene	87-68-3	E660F	0.01	mg/kg	<0.010	----
hexachlorocyclohexane, gamma-	58-89-9	E660F	0.01	mg/kg	<0.010	----
hexachloroethane	67-72-1	E660F	0.01	mg/kg	<0.010	----
methoxychlor	72-43-5	E660F	0.02	mg/kg	<0.020	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 521766)									
conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 521769)									
moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 522524)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 522592)									
moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 525529)									
conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	93.8	90.0	110	----
Cyanides (QCLot: 522364)									
cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	2.5 mg/kg	96.4	80.0	125	----
Metals (QCLot: 521761)									
boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	90.6	70.0	130	----
Metals (QCLot: 521762)									
antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	100	80.0	120	----
arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	99.6	80.0	120	----
barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	98.3	80.0	120	----
beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	98.6	80.0	120	----
boron	7440-42-8	E440	5	mg/kg	100 mg/kg	94.1	80.0	120	----
cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	100	80.0	120	----
chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	98.6	80.0	120	----
cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	98.3	80.0	120	----
copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	97.2	80.0	120	----
lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	97.2	80.0	120	----
molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	94.3	80.0	120	----
nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	97.5	80.0	120	----
selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	101	80.0	120	----
silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	# 70.1	80.0	120	MES
thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	101	80.0	120	----
uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	94.1	80.0	120	----
vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	100	80.0	120	----
zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	96.7	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 521763)									
mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	99.5	80.0	120	----
Metals (QCLot: 521765)									
calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	103	70.0	130	----
magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	101	70.0	130	----
sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	100	70.0	130	----
Metals (QCLot: 523079)									
mercury	7439-97-6	E510	0.005	mg/kg	0.1 mg/kg	104	80.0	120	----
Metals (QCLot: 523080)									
antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	100	80.0	120	----
arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	108	80.0	120	----
barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	102	80.0	120	----
beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	89.9	80.0	120	----
boron	7440-42-8	E440	5	mg/kg	100 mg/kg	90.3	80.0	120	----
cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	100	80.0	120	----
chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	106	80.0	120	----
cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	106	80.0	120	----
copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	104	80.0	120	----
lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	103	80.0	120	----
molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	101	80.0	120	----
nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	105	80.0	120	----
selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	110	80.0	120	----
silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	# 70.6	80.0	120	MES
thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	102	80.0	120	----
uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	102	80.0	120	----
vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	108	80.0	120	----
zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	104	80.0	120	----
Metals (QCLot: 525530)									
calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	105	70.0	130	----
magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	103	70.0	130	----
sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	102	70.0	130	----
Metals (QCLot: 525531)									
boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	1.33333 mg/kg	105	70.0	130	----
Speciated Metals (QCLot: 522544)									
chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	93.6	80.0	120	----
Volatile Organic Compounds (QCLot: 524141)									

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 524141) - continued									
acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	113	60.0	140	----
benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	98.4	70.0	130	----
bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	97.9	50.0	140	----
bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	83.5	70.0	130	----
bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	87.2	50.0	140	----
carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	92.8	70.0	130	----
chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	94.0	70.0	130	----
chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	95.4	70.0	130	----
dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	92.3	60.0	130	----
dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	91.3	70.0	130	----
dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	96.7	70.0	130	----
dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	95.8	70.0	130	----
dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	95.2	70.0	130	----
dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	69.4	50.0	140	----
dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	109	60.0	130	----
dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	93.9	60.0	130	----
dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	89.8	60.0	130	----
dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	94.2	70.0	130	----
dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	93.7	60.0	130	----
dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	100	70.0	130	----
dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	95.8	70.0	130	----
dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	85.5	70.0	130	----
dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	79.1	70.0	130	----
ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	95.3	70.0	130	----
hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	94.2	70.0	130	----
methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	98.8	60.0	140	----
methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	90.5	60.0	140	----
methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	94.3	70.0	130	----
styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	91.6	70.0	130	----
tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	91.8	60.0	130	----
tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	93.1	60.0	130	----
tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	89.2	60.0	130	----
toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	95.7	70.0	130	----
trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	90.3	60.0	130	----
trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	92.4	60.0	130	----
trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	92.1	60.0	130	----
trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	89.0	50.0	140	----
vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	73.8	60.0	140	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 524141) - continued									
xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	94.8	70.0	130	----
xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	94.4	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 522357)									
acenaphthene	83-32-9	E642F	0.05	mg/kg	0.8 mg/kg	106	60.0	130	----
acenaphthylene	208-96-8	E642F	0.05	mg/kg	0.8 mg/kg	113	60.0	130	----
anthracene	120-12-7	E642F	0.05	mg/kg	0.8 mg/kg	105	60.0	130	----
benz(a)anthracene	56-55-3	E642F	0.05	mg/kg	0.8 mg/kg	98.8	60.0	130	----
benzo(a)pyrene	50-32-8	E642F	0.05	mg/kg	0.8 mg/kg	118	60.0	130	----
benzo(b+j)fluoranthene	n/a	E642F	0.05	mg/kg	0.8 mg/kg	105	60.0	130	----
benzo(g,h,i)perylene	191-24-2	E642F	0.05	mg/kg	0.8 mg/kg	91.3	60.0	130	----
benzo(k)fluoranthene	207-08-9	E642F	0.05	mg/kg	0.8 mg/kg	106	60.0	130	----
chrysene	218-01-9	E642F	0.05	mg/kg	0.8 mg/kg	105	60.0	130	----
dibenz(a,h)anthracene	53-70-3	E642F	0.05	mg/kg	0.8 mg/kg	94.8	60.0	130	----
fluoranthene	206-44-0	E642F	0.05	mg/kg	0.8 mg/kg	101	60.0	130	----
fluorene	86-73-7	E642F	0.05	mg/kg	0.8 mg/kg	108	60.0	130	----
indeno(1,2,3-c,d)pyrene	193-39-5	E642F	0.05	mg/kg	0.8 mg/kg	88.9	60.0	130	----
methylnaphthalene, 1-	90-12-0	E642F	0.03	mg/kg	0.8 mg/kg	109	60.0	130	----
methylnaphthalene, 2-	91-57-6	E642F	0.03	mg/kg	0.8 mg/kg	111	60.0	130	----
naphthalene	91-20-3	E642F	0.01	mg/kg	0.8 mg/kg	93.4	60.0	130	----
phenanthrene	85-01-8	E642F	0.05	mg/kg	0.8 mg/kg	95.6	60.0	130	----
pyrene	129-00-0	E642F	0.05	mg/kg	0.8 mg/kg	93.5	60.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 523736)									
acenaphthene	83-32-9	E642F	0.05	mg/kg	0.8 mg/kg	89.8	60.0	130	----
acenaphthylene	208-96-8	E642F	0.05	mg/kg	0.8 mg/kg	93.3	60.0	130	----
anthracene	120-12-7	E642F	0.05	mg/kg	0.8 mg/kg	95.8	60.0	130	----
benz(a)anthracene	56-55-3	E642F	0.05	mg/kg	0.8 mg/kg	90.2	60.0	130	----
benzo(a)pyrene	50-32-8	E642F	0.05	mg/kg	0.8 mg/kg	103	60.0	130	----
benzo(b+j)fluoranthene	n/a	E642F	0.05	mg/kg	0.8 mg/kg	92.0	60.0	130	----
benzo(g,h,i)perylene	191-24-2	E642F	0.05	mg/kg	0.8 mg/kg	91.7	60.0	130	----
benzo(k)fluoranthene	207-08-9	E642F	0.05	mg/kg	0.8 mg/kg	88.0	60.0	130	----
chrysene	218-01-9	E642F	0.05	mg/kg	0.8 mg/kg	96.0	60.0	130	----
dibenz(a,h)anthracene	53-70-3	E642F	0.05	mg/kg	0.8 mg/kg	91.8	60.0	130	----
fluoranthene	206-44-0	E642F	0.05	mg/kg	0.8 mg/kg	87.5	60.0	130	----
fluorene	86-73-7	E642F	0.05	mg/kg	0.8 mg/kg	90.9	60.0	130	----
indeno(1,2,3-c,d)pyrene	193-39-5	E642F	0.05	mg/kg	0.8 mg/kg	84.4	60.0	130	----
methylnaphthalene, 1-	90-12-0	E642F	0.03	mg/kg	0.8 mg/kg	89.3	60.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 523736) - continued									
methylnaphthalene, 2-	91-57-6	E642F	0.03	mg/kg	0.8 mg/kg	91.7	60.0	130	----
naphthalene	91-20-3	E642F	0.01	mg/kg	0.8 mg/kg	91.4	60.0	130	----
phenanthrene	85-01-8	E642F	0.05	mg/kg	0.8 mg/kg	90.7	60.0	130	----
pyrene	129-00-0	E642F	0.05	mg/kg	0.8 mg/kg	84.7	60.0	130	----
Polychlorinated Biphenyls (QCLot: 522358)									
Aroclor 1016	12674-11-2	E687	0.01	mg/kg	0.2 mg/kg	93.6	60.0	140	----
Aroclor 1221	11104-28-2	E687	0.01	mg/kg	0.2 mg/kg	93.6	60.0	140	----
Aroclor 1232	11141-16-5	E687	0.01	mg/kg	0.2 mg/kg	93.6	60.0	140	----
Aroclor 1242	53469-21-9	E687	0.01	mg/kg	0.2 mg/kg	93.6	60.0	140	----
Aroclor 1248	12672-29-6	E687	0.01	mg/kg	0.2 mg/kg	80.9	60.0	140	----
Aroclor 1254	11097-69-1	E687	0.01	mg/kg	0.2 mg/kg	89.9	60.0	140	----
Aroclor 1260	11096-82-5	E687	0.01	mg/kg	0.2 mg/kg	99.4	60.0	140	----
Aroclor 1262	37324-23-5	E687	0.01	mg/kg	0.2 mg/kg	99.4	60.0	140	----
Aroclor 1268	11100-14-4	E687	0.01	mg/kg	0.2 mg/kg	99.4	60.0	140	----
Polychlorinated Biphenyls (QCLot: 525206)									
Aroclor 1016	12674-11-2	E687	0.01	mg/kg	0.2 mg/kg	88.3	60.0	140	----
Aroclor 1221	11104-28-2	E687	0.01	mg/kg	0.2 mg/kg	88.3	60.0	140	----
Aroclor 1232	11141-16-5	E687	0.01	mg/kg	0.2 mg/kg	88.3	60.0	140	----
Aroclor 1242	53469-21-9	E687	0.01	mg/kg	0.2 mg/kg	88.3	60.0	140	----
Aroclor 1248	12672-29-6	E687	0.01	mg/kg	0.2 mg/kg	95.9	60.0	140	----
Aroclor 1254	11097-69-1	E687	0.01	mg/kg	0.2 mg/kg	83.0	60.0	140	----
Aroclor 1260	11096-82-5	E687	0.01	mg/kg	0.2 mg/kg	89.1	60.0	140	----
Aroclor 1262	37324-23-5	E687	0.01	mg/kg	0.2 mg/kg	89.1	60.0	140	----
Aroclor 1268	11100-14-4	E687	0.01	mg/kg	0.2 mg/kg	89.1	60.0	140	----
Organochlorine Pesticides (QCLot: 523604)									
aldrin	309-00-2	E660F	0.02	mg/kg	0.01 mg/kg	89.0	50.0	150	----
chlordane, cis- (alpha)	5103-71-9	E660F	0.02	mg/kg	0.01 mg/kg	79.5	50.0	150	----
chlordane, trans- (gamma)	5103-74-2	E660F	0.02	mg/kg	0.01 mg/kg	83.2	50.0	150	----
DDD, 2,4'-	53-19-0	E660F	0.02	mg/kg	0.01 mg/kg	80.1	50.0	150	----
DDD, 4,4'-	72-54-8	E660F	0.02	mg/kg	0.01 mg/kg	83.9	50.0	150	----
DDE, 2,4'-	3424-82-6	E660F	0.02	mg/kg	0.01 mg/kg	76.7	50.0	150	----
DDE, 4,4'-	72-55-9	E660F	0.02	mg/kg	0.01 mg/kg	81.1	50.0	150	----
DDT, 2,4'-	789-02-6	E660F	0.02	mg/kg	0.01 mg/kg	79.9	50.0	150	----
DDT, 4,4'-	50-29-3	E660F	0.02	mg/kg	0.01 mg/kg	85.6	50.0	150	----
dieldrin	60-57-1	E660F	0.02	mg/kg	0.01 mg/kg	84.3	50.0	150	----
endosulfan, alpha-	959-98-8	E660F	0.02	mg/kg	0.01 mg/kg	74.3	50.0	150	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Organochlorine Pesticides (QCLot: 523604) - continued									
endosulfan, beta-	33213-65-9	E660F	0.02	mg/kg	0.01 mg/kg	80.2	50.0	150	----
endrin	72-20-8	E660F	0.02	mg/kg	0.01 mg/kg	86.2	50.0	150	----
heptachlor	76-44-8	E660F	0.02	mg/kg	0.01 mg/kg	83.6	50.0	150	----
heptachlor epoxide	1024-57-3	E660F	0.02	mg/kg	0.01 mg/kg	79.6	50.0	150	----
hexachlorobenzene	118-74-1	E660F	0.01	mg/kg	0.01 mg/kg	81.7	50.0	150	----
hexachlorobutadiene	87-68-3	E660F	0.01	mg/kg	0.01 mg/kg	86.4	50.0	150	----
hexachlorocyclohexane, gamma-	58-89-9	E660F	0.01	mg/kg	0.01 mg/kg	80.6	50.0	150	----
hexachloroethane	67-72-1	E660F	0.01	mg/kg	0.01 mg/kg	81.1	50.0	150	----
methoxychlor	72-43-5	E660F	0.02	mg/kg	0.01 mg/kg	81.9	50.0	150	----

Qualifiers

Qualifier	Description
MES	*Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).*

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 522364)										
WT2205475-001	Anonymous	cyanide, weak acid dissociable	----	E336A	1.27 mg/kg	2.5 mg/kg	102	70.0	130	----
Volatile Organic Compounds (QCLot: 524141)										
WT2205487-020	Anonymous	acetone	67-64-1	E611D	2.20 mg/kg	3.125 mg/kg	110	50.0	140	----
		benzene	71-43-2	E611D	2.11 mg/kg	3.125 mg/kg	106	50.0	140	----
		bromodichloromethane	75-27-4	E611D	2.07 mg/kg	3.125 mg/kg	104	50.0	140	----
		bromoform	75-25-2	E611D	1.81 mg/kg	3.125 mg/kg	90.9	50.0	140	----
		bromomethane	74-83-9	E611D	2.10 mg/kg	3.125 mg/kg	105	50.0	140	----
		carbon tetrachloride	56-23-5	E611D	1.99 mg/kg	3.125 mg/kg	99.8	50.0	140	----
		chlorobenzene	108-90-7	E611D	1.99 mg/kg	3.125 mg/kg	99.6	50.0	140	----
		chloroform	67-66-3	E611D	2.03 mg/kg	3.125 mg/kg	102	50.0	140	----
		dibromochloromethane	124-48-1	E611D	1.99 mg/kg	3.125 mg/kg	99.8	50.0	140	----
		dibromoethane, 1,2-	106-93-4	E611D	1.95 mg/kg	3.125 mg/kg	98.0	50.0	140	----
		dichlorobenzene, 1,2-	95-50-1	E611D	1.96 mg/kg	3.125 mg/kg	98.2	50.0	140	----
		dichlorobenzene, 1,3-	541-73-1	E611D	1.89 mg/kg	3.125 mg/kg	94.9	50.0	140	----
		dichlorobenzene, 1,4-	106-46-7	E611D	1.88 mg/kg	3.125 mg/kg	94.4	50.0	140	----
		dichlorodifluoromethane	75-71-8	E611D	2.62 mg/kg	3.125 mg/kg	131	50.0	140	----
		dichloroethane, 1,1-	75-34-3	E611D	2.22 mg/kg	3.125 mg/kg	111	50.0	140	----
		dichloroethane, 1,2-	107-06-2	E611D	1.99 mg/kg	3.125 mg/kg	100.0	50.0	140	----
		dichloroethylene, 1,1-	75-35-4	E611D	2.03 mg/kg	3.125 mg/kg	102	50.0	140	----
		dichloroethylene, cis-1,2-	156-59-2	E611D	2.02 mg/kg	3.125 mg/kg	102	50.0	140	----
		dichloroethylene, trans-1,2-	156-60-5	E611D	2.00 mg/kg	3.125 mg/kg	100	50.0	140	----
		dichloromethane	75-09-2	E611D	2.16 mg/kg	3.125 mg/kg	108	50.0	140	----
		dichloropropane, 1,2-	78-87-5	E611D	2.03 mg/kg	3.125 mg/kg	102	50.0	140	----
		dichloropropylene, cis-1,3-	10061-01-5	E611D	1.82 mg/kg	3.125 mg/kg	91.0	50.0	140	----
		dichloropropylene, trans-1,3-	10061-02-6	E611D	1.71 mg/kg	3.125 mg/kg	85.8	50.0	140	----
		ethylbenzene	100-41-4	E611D	2.00 mg/kg	3.125 mg/kg	100	50.0	140	----
		hexane, n-	110-54-3	E611D	2.19 mg/kg	3.125 mg/kg	110	50.0	140	----
		methyl ethyl ketone [MEK]	78-93-3	E611D	2.06 mg/kg	3.125 mg/kg	104	50.0	140	----
		methyl isobutyl ketone [MIBK]	108-10-1	E611D	1.90 mg/kg	3.125 mg/kg	95.3	50.0	140	----
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	1.96 mg/kg	3.125 mg/kg	98.3	50.0	140	----
		styrene	100-42-5	E611D	1.94 mg/kg	3.125 mg/kg	97.6	50.0	140	----
		tetrachloroethane, 1,1,1,2-	630-20-6	E611D	1.97 mg/kg	3.125 mg/kg	98.6	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 524141) - continued										
WT2205487-020	Anonymous	tetrachloroethane, 1,1,2,2-	79-34-5	E611D	2.03 mg/kg	3.125 mg/kg	102	50.0	140	----
		tetrachloroethylene	127-18-4	E611D	1.86 mg/kg	3.125 mg/kg	93.4	50.0	140	----
		toluene	108-88-3	E611D	2.03 mg/kg	3.125 mg/kg	102	50.0	140	----
		trichloroethane, 1,1,1-	71-55-6	E611D	1.94 mg/kg	3.125 mg/kg	97.0	50.0	140	----
		trichloroethane, 1,1,2-	79-00-5	E611D	1.98 mg/kg	3.125 mg/kg	99.2	50.0	140	----
		trichloroethylene	79-01-6	E611D	1.94 mg/kg	3.125 mg/kg	97.1	50.0	140	----
		trichlorofluoromethane	75-69-4	E611D	2.11 mg/kg	3.125 mg/kg	106	50.0	140	----
		vinyl chloride	75-01-4	E611D	1.90 mg/kg	3.125 mg/kg	95.2	50.0	140	----
		xylene, m+p-	179601-23-1	E611D	3.97 mg/kg	6.25 mg/kg	99.6	50.0	140	----
		xylene, o-	95-47-6	E611D	1.99 mg/kg	3.125 mg/kg	100.0	50.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 522357)										
WT2204211-006	Anonymous	acenaphthene	83-32-9	E642F	0.682 mg/kg	0.8 mg/kg	85.5	50.0	140	----
		acenaphthylene	208-96-8	E642F	0.761 mg/kg	0.8 mg/kg	95.4	50.0	140	----
		anthracene	120-12-7	E642F	0.790 mg/kg	0.8 mg/kg	99.0	50.0	140	----
		benz(a)anthracene	56-55-3	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(a)pyrene	50-32-8	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(b+j)fluoranthene	n/a	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(g,h,i)perylene	191-24-2	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(k)fluoranthene	207-08-9	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		chrysene	218-01-9	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		dibenz(a,h)anthracene	53-70-3	E642F	0.635 mg/kg	0.8 mg/kg	79.5	50.0	140	----
		fluoranthene	206-44-0	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		fluorene	86-73-7	E642F	0.723 mg/kg	0.8 mg/kg	90.6	50.0	140	----
		indeno(1,2,3-c,d)pyrene	193-39-5	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		methylnaphthalene, 1-	90-12-0	E642F	0.677 mg/kg	0.8 mg/kg	84.8	50.0	140	----
		methylnaphthalene, 2-	91-57-6	E642F	0.690 mg/kg	0.8 mg/kg	86.4	50.0	140	----
		naphthalene	91-20-3	E642F	0.661 mg/kg	0.8 mg/kg	82.8	50.0	140	----
		phenanthrene	85-01-8	E642F	0.595 mg/kg	0.8 mg/kg	74.5	50.0	140	----
		pyrene	129-00-0	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 523736)										
WT2204211-003	Anonymous	acenaphthene	83-32-9	E642F	0.948 mg/kg	0.8 mg/kg	120	50.0	140	----
		acenaphthylene	208-96-8	E642F	1.42 mg/kg	0.8 mg/kg	179	50.0	140	E
		anthracene	120-12-7	E642F	1.46 mg/kg	0.8 mg/kg	185	50.0	140	E
		benz(a)anthracene	56-55-3	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(a)pyrene	50-32-8	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(b+j)fluoranthene	n/a	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 523736) - continued										
WT2204211-003	Anonymous	benzo(g,h,i)perylene	191-24-2	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		benzo(k)fluoranthene	207-08-9	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		chrysene	218-01-9	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		dibenz(a,h)anthracene	53-70-3	E642F	1.12 mg/kg	0.8 mg/kg	141	50.0	140	E
		fluoranthene	206-44-0	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		fluorene	86-73-7	E642F	1.04 mg/kg	0.8 mg/kg	131	50.0	140	----
		indeno(1,2,3-c,d)pyrene	193-39-5	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		methylnaphthalene, 1-	90-12-0	E642F	0.809 mg/kg	0.8 mg/kg	102	50.0	140	----
		methylnaphthalene, 2-	91-57-6	E642F	0.800 mg/kg	0.8 mg/kg	101	50.0	140	----
		naphthalene	91-20-3	E642F	0.850 mg/kg	0.8 mg/kg	107	50.0	140	----
		phenanthrene	85-01-8	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
		pyrene	129-00-0	E642F	ND mg/kg	0.8 mg/kg	ND	50.0	140	----
Polychlorinated Biphenyls (QCLot: 522358)										
WT2204211-006	Anonymous	Aroclor 1016	12674-11-2	E687	0.192 mg/kg	0.2 mg/kg	96.1	50.0	150	----
		Aroclor 1221	11104-28-2	E687	0.192 mg/kg	0.2 mg/kg	96.1	50.0	150	----
		Aroclor 1232	11141-16-5	E687	0.192 mg/kg	0.2 mg/kg	96.1	50.0	150	----
		Aroclor 1242	53469-21-9	E687	0.191 mg/kg	0.2 mg/kg	95.5	50.0	150	----
		Aroclor 1248	12672-29-6	E687	0.192 mg/kg	0.2 mg/kg	96.1	50.0	150	----
		Aroclor 1254	11097-69-1	E687	0.184 mg/kg	0.2 mg/kg	92.0	50.0	150	----
		Aroclor 1260	11096-82-5	E687	0.200 mg/kg	0.2 mg/kg	100	50.0	150	----
		Aroclor 1262	37324-23-5	E687	0.219 mg/kg	0.2 mg/kg	110	50.0	150	----
		Aroclor 1268	11100-14-4	E687	0.219 mg/kg	0.2 mg/kg	110	50.0	150	----
Polychlorinated Biphenyls (QCLot: 525206)										
WT2205488-001	Anonymous	Aroclor 1016	12674-11-2	E687	0.190 mg/kg	0.2 mg/kg	95.2	50.0	150	----
		Aroclor 1221	11104-28-2	E687	0.190 mg/kg	0.2 mg/kg	95.2	50.0	150	----
		Aroclor 1232	11141-16-5	E687	0.190 mg/kg	0.2 mg/kg	95.2	50.0	150	----
		Aroclor 1242	53469-21-9	E687	0.188 mg/kg	0.2 mg/kg	94.6	50.0	150	----
		Aroclor 1248	12672-29-6	E687	0.190 mg/kg	0.2 mg/kg	95.2	50.0	150	----
		Aroclor 1254	11097-69-1	E687	0.174 mg/kg	0.2 mg/kg	87.2	50.0	150	----
		Aroclor 1260	11096-82-5	E687	0.197 mg/kg	0.2 mg/kg	98.7	50.0	150	----
		Aroclor 1262	37324-23-5	E687	0.201 mg/kg	0.2 mg/kg	101	50.0	150	----
		Aroclor 1268	11100-14-4	E687	0.201 mg/kg	0.2 mg/kg	101	50.0	150	----
Organochlorine Pesticides (QCLot: 523604)										
WT2205489-003	BH2 SS4B	aldrin	309-00-2	E660F	0.009 mg/kg	0.01 mg/kg	88.8	50.0	150	----
		chlordane, cis- (alpha)	5103-71-9	E660F	0.008 mg/kg	0.01 mg/kg	76.0	50.0	150	----
		chlordane, trans- (gamma)	5103-74-2	E660F	0.008 mg/kg	0.01 mg/kg	84.9	50.0	150	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Organochlorine Pesticides (QCLot: 523604) - continued										
WT2205489-003	BH2 SS4B	DDD, 2,4'-	53-19-0	E660F	0.008 mg/kg	0.01 mg/kg	76.2	50.0	150	----
		DDD, 4,4'-	72-54-8	E660F	0.008 mg/kg	0.01 mg/kg	81.3	50.0	150	----
		DDE, 2,4'-	3424-82-6	E660F	0.008 mg/kg	0.01 mg/kg	75.0	50.0	150	----
		DDE, 4,4'-	72-55-9	E660F	0.008 mg/kg	0.01 mg/kg	81.0	50.0	150	----
		DDT, 2,4'-	789-02-6	E660F	0.008 mg/kg	0.01 mg/kg	78.6	50.0	150	----
		DDT, 4,4'-	50-29-3	E660F	0.008 mg/kg	0.01 mg/kg	85.1	50.0	150	----
		dieldrin	60-57-1	E660F	0.008 mg/kg	0.01 mg/kg	82.6	50.0	150	----
		endosulfan, alpha-	959-98-8	E660F	0.008 mg/kg	0.01 mg/kg	75.5	50.0	150	----
		endosulfan, beta-	33213-65-9	E660F	0.008 mg/kg	0.01 mg/kg	78.7	50.0	150	----
		endrin	72-20-8	E660F	0.009 mg/kg	0.01 mg/kg	92.2	50.0	150	----
		heptachlor	76-44-8	E660F	0.008 mg/kg	0.01 mg/kg	82.4	50.0	150	----
		heptachlor epoxide	1024-57-3	E660F	0.008 mg/kg	0.01 mg/kg	85.3	50.0	150	----
		hexachlorobenzene	118-74-1	E660F	0.008 mg/kg	0.01 mg/kg	85.0	50.0	150	----
		hexachlorobutadiene	87-68-3	E660F	0.008 mg/kg	0.01 mg/kg	80.0	50.0	150	----
		hexachlorocyclohexane, gamma-	58-89-9	E660F	0.008 mg/kg	0.01 mg/kg	80.4	50.0	150	----
		hexachloroethane	67-72-1	E660F	0.008 mg/kg	0.01 mg/kg	83.0	50.0	150	----
		methoxychlor	72-43-5	E660F	0.008 mg/kg	0.01 mg/kg	82.9	50.0	150	----

Qualifiers

Qualifier	Description
E	*Matrix Spike recovery outside ALS DQO due to heterogeneous analyte background in sample.*

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

Reference Material (RM) Report									
					RM Target Concentration	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method		RM	Low	High	Qualifier
Physical Tests (QCLot: 521766)									
	RM	conductivity (1:2 leachate)	----	E100-L	3396 µS/cm	95.1	70.0	130	----
Physical Tests (QCLot: 525529)									
	RM	conductivity (1:2 leachate)	----	E100-L	3396 µS/cm	110	70.0	130	----
Metals (QCLot: 521761)									
	RM	boron, hot water soluble	7440-42-8	E487	5.92 mg/kg	109	70.0	130	----
Metals (QCLot: 521762)									
	RM	antimony	7440-36-0	E440	3.99 mg/kg	94.3	70.0	130	----
	RM	arsenic	7440-38-2	E440	3.73 mg/kg	96.1	70.0	130	----
	RM	barium	7440-39-3	E440	105 mg/kg	104	70.0	130	----
	RM	beryllium	7440-41-7	E440	0.349 mg/kg	104	70.0	130	----
	RM	boron	7440-42-8	E440	8.5 mg/kg	99.1	40.0	160	----
	RM	chromium	7440-47-3	E440	101 mg/kg	99.0	70.0	130	----
	RM	cobalt	7440-48-4	E440	6.9 mg/kg	102	70.0	130	----
	RM	copper	7440-50-8	E440	123 mg/kg	103	70.0	130	----
	RM	lead	7439-92-1	E440	267 mg/kg	102	70.0	130	----
	RM	molybdenum	7439-98-7	E440	1.03 mg/kg	98.6	70.0	130	----
	RM	nickel	7440-02-0	E440	26.7 mg/kg	105	70.0	130	----
	RM	silver	7440-22-4	E440	4.06 mg/kg	102	70.0	130	----
	RM	thallium	7440-28-0	E440	0.0786 mg/kg	96.8	40.0	160	----
	RM	uranium	7440-61-1	E440	0.52 mg/kg	96.7	70.0	130	----
	RM	vanadium	7440-62-2	E440	32.7 mg/kg	101	70.0	130	----
	RM	zinc	7440-66-6	E440	297 mg/kg	99.7	70.0	130	----
Metals (QCLot: 521763)									
	RM	mercury	7439-97-6	E510	0.0585 mg/kg	106	70.0	130	----
Metals (QCLot: 521765)									
	RM	calcium, soluble ion content	7440-70-2	E484	178.9 mg/L	96.7	70.0	130	----
	RM	magnesium, soluble ion content	7439-95-4	E484	53.95 mg/L	97.7	70.0	130	----
	RM	sodium, soluble ion content	17341-25-2	E484	199.6 mg/L	101	70.0	130	----
Metals (QCLot: 523079)									

Sub-Matrix:

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report: RM Target Concentration	Recovery (%): RM	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Metals (QCLot: 523079) - continued									
	RM	mercury	7439-97-6	E510	0.0585 mg/kg	107	70.0	130	----
Metals (QCLot: 523080)									
	RM	antimony	7440-36-0	E440	3.99 mg/kg	85.4	70.0	130	----
	RM	arsenic	7440-38-2	E440	3.73 mg/kg	102	70.0	130	----
	RM	barium	7440-39-3	E440	105 mg/kg	105	70.0	130	----
	RM	beryllium	7440-41-7	E440	0.349 mg/kg	81.2	70.0	130	----
	RM	boron	7440-42-8	E440	8.5 mg/kg	82.3	40.0	160	----
	RM	cadmium	7440-43-9	E440	0.91 mg/kg	100	70.0	130	----
	RM	chromium	7440-47-3	E440	101 mg/kg	104	70.0	130	----
	RM	cobalt	7440-48-4	E440	6.9 mg/kg	102	70.0	130	----
	RM	copper	7440-50-8	E440	123 mg/kg	102	70.0	130	----
	RM	lead	7439-92-1	E440	267 mg/kg	91.5	70.0	130	----
	RM	molybdenum	7439-98-7	E440	1.03 mg/kg	96.4	70.0	130	----
	RM	nickel	7440-02-0	E440	26.7 mg/kg	102	70.0	130	----
	RM	silver	7440-22-4	E440	4.06 mg/kg	89.3	70.0	130	----
	RM	thallium	7440-28-0	E440	0.0786 mg/kg	84.9	40.0	160	----
	RM	uranium	7440-61-1	E440	0.52 mg/kg	90.6	70.0	130	----
	RM	vanadium	7440-62-2	E440	32.7 mg/kg	101	70.0	130	----
	RM	zinc	7440-66-6	E440	297 mg/kg	100.0	70.0	130	----
Metals (QCLot: 525530)									
	RM	calcium, soluble ion content	7440-70-2	E484	178.9 mg/L	103	70.0	130	----
	RM	magnesium, soluble ion content	7439-95-4	E484	53.95 mg/L	106	70.0	130	----
	RM	sodium, soluble ion content	17341-25-2	E484	199.6 mg/L	108	70.0	130	----
Metals (QCLot: 525531)									
	RM	boron, hot water soluble	7440-42-8	E487	5.92 mg/kg	97.3	70.0	130	----
Speciated Metals (QCLot: 522544)									
	RM	chromium, hexavalent [Cr VI]	18540-29-9	E532	131 mg/kg	99.8	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 951652

Canada Toll Free: 1 800 668 9878

Pa

Environmental Division Waterloo

Work Order Reference WT2205489

Telephone : +1 519 886 6910

ALS www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	GROUNDED ENGINEERING
Contact:	EMMA LEET
Phone:	647-264-7932
Company address below will appear on the final report	
Street:	1 BANIGAN DR
City/Province:	TORONTO ON
Postal Code:	M4H 1G3
Invoice To	Same as Report To [X] YES [ ] NO
	Copy of Invoice with Report [X] YES [ ] NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: [X] PDF [X] EXCEL [X] EDD (DIGITAL)

Merge QC/QCI Reports with COA [X] YES [ ] NO [ ] N/A

[X] Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: [X] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax: elect@groundedeng.ca

Email 2: sbastan@groundedeng.ca

Email 3: dwalters@groundedeng.ca

Invoice Recipients

Select Invoice Distribution: [X] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax:

Email 2:

Turnaround Time (TAT) Requested

[X] Routine [R] if received by 3pm M-F - no surcharges apply

[ ] 4 day [P4] if received by 3pm M-F - 20% rush surcharge minim

[ ] 3 day [P3] if received by 3pm M-F - 25% rush surcharge minin

[ ] 2 day [P2] if received by 3pm M-F - 50% rush surcharge minin

[ ] 1 day [E] if received by 3pm M-F - 100% rush surcharge minim

[ ] Same day [E2] if received by 10am M-S - 200% rush surcharge. Ad may apply to rush requests on weekends, statutory holidays and non-r

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please

Project Information

ALS Account # / Quote #:

Job #: 22-087

PO / AFE:

LSD: 4094 TOMKEN RD, MISSISSAUGA

ALS Lab Work Order # (ALS use only): WT2205489

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Contact: Sampler: AJ

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	M&I	PAH	PCB	OC	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
1	BH2 SS2B	08-JUN-22	14:30	Soil	5		X	X		X			
2	BH2 SS3		14:30		1	X							
3	BH2 SS4B		14:30		2	X			X				
4	BH2 SS5		14:30		5		X	X		X			
5	BH3 SS2		17:30		3					X			
6	BH3 SS3		17:30		3	X	X	X					
7	BH3 SS4		1730		4	X	X	X	X				
8	BH3 SS5		17:30		3					X			
9	DUP - M&I		14:30		1	X							
10	DUP - PAH		17:30		1		X						
11	DUP - PCB		17:30		1			X					
12	DUP - OC		17:30		1				X				

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

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? [ ] YES [ ] NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

OReg 153/04 ; Table 3, RPI, Coarse

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: [ ] NONE [X] ICE [ ] ICE PACKS [ ] FROZEN [ ] COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: [ ] YES [ ] NO

Cooler Custody Seals Intact: [ ] YES [ ] N/A Sample Custody Seals Intact: [ ] YES [ ] N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				12.9			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
Alexandra Tolhurst	10 JUN 22	17:00

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
BB	06 13 22	1030

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

AUG 2020 FRONT

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Report To	Contact and company name below will appear on the final report
Company:	GROUNDED ENGINEERING
Contact:	EMMA LEET
Phone:	647-264-7932
	Company address below will appear on the final report
Street:	1 BANIGAN DR
City/Province:	TORONTO ON
Postal Code:	M4H 1G3
Invoice To	Same as Report To ☒ YES ☐ NO
	Copy of Invoice with Report ☒ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

- Select Report Format: ☒ PDF ☒ EXCEL ☒ EDD (DIGITAL)
- Merge QC/QCI Reports with COA ☒ YES ☐ NO ☐ N/A
- ☒ Compare Results to Criteria on Report - provide details below if box checked
- Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
- Email 1 or Fax: eleet@groundedeng.ca
- Email 2: sbastan@groundedeng.ca
- Email 3: bwalters@groundedeng.ca

Invoice Recipients

- Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX
- Email 1 or Fax:
- Email 2:

Turnaround Time (TAT) Requested

- ☒ Routine [R] if received by 3pm M-F - no surcharges apply
- ☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
- ☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
- ☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
- ☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
- ☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

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

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

- ALS Account # / Quote #:
- Job #: 22-087
- PO / AFE:
- LSD: 4094 TOMKEN RD MISSISSAUGA
- ALS Lab Work Order # (ALS use only): WT2205489

Oil and Gas Required Fields (client use)

- AFE/Cost Center: PO#
- Major/Minor Code: Routing Code:
- Requisitioner:
- Location:
- ALS Contact: Sampler: AJ

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	M&I	PAH	PCB	OC	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
13	BH1 SS1B	10 JUN 22	11:30	Soil	2	X	X	X					
14	BH1 SS2	↓	11:30	↓	5		X	X	X	X			
15	BH1 SS3	↓	11:30	↓		X							
16	BH1 SS4B	↓	11:30	↓						X			
17	DUP-VOC	↓	11:30	↓						X			

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

- Are samples taken from a Regulated DW System? ☐ YES ☐ NO
- Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

OREG 153/04, Table 3, RPI, Coarse

SAMPLE RECEIPT DETAILS (ALS use only)

- Cooling Method: ☐ NONE ☒ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
- Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
- Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A
- INITIAL COOLER TEMPERATURES °C:
- FINAL COOLER TEMPERATURES °C: 17.9

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: [signature]	Date: 10 JUN 22	Time: 17:00	Received by:	Date:	Time:	Received by: BB	Date: 06/13/22	Time: 1030

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Canada Ltd.

right solutions. right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2408091**	Page	: 1 of 16
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087-102	Date Samples Received	: 09-Apr-2024 12:11
PO	: ----	Date Analysis Commenced	: 09-Apr-2024
C-O-C number	: 20-1084553	Issue Date	: 16-Apr-2024 15:56
Sampler	: LB		
Site	: 4094 Tomken Rd		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 17		
No. of samples analysed	: 11		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Josphin Masihi	Analyst	Centralized Prep, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Metals, Waterloo, Ontario
Niral Patel		Centralized Prep, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
BH201- SS2	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T3-RPI-C	1.16 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	10.3 -	5 -
BH206- SS1 (B)	Soil/Solid	Arsenic		ON153/04	T3-RPI-C	18.2 mg/kg	18 mg/kg
BH208- SS2	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T3-RPI-C	0.775 mS/cm	0.7 mS/cm
DUP- 2	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T3-RPI-C	1.21 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T3-RPI-C	10.2 -	5 -

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Sample Comments

Sample	Client Id	Comment
WT2408091-001	BH201- SS2	RRQC: Silver recovery outside of ALS DQOs due to issue with standard. Reported data was not affected by this issue.
WT2408091-003	BH204- SS1 (B)	RRQC: Silver recovery outside of ALS DQOs due to issue with standard. Reported data was not affected by this issue.
WT2408091-005	BH205- SS2	RRQC: Silver recovery outside of ALS DQOs due to issue with standard. Reported data was not affected by this issue.
WT2408091-007	BH206- SS1 (B)	RRQC: Silver recovery outside of ALS DQOs due to issue with standard. Reported data was not affected by this issue.
WT2408091-009	BH207- SS2	RRQC: Silver recovery outside of ALS DQOs due to issue with standard. Reported data was not affected by this issue.
WT2408091-011	BH208- SS2	RRQC: Silver recovery outside of ALS DQOs due to issue with standard. Reported data was not affected by this issue.
WT2408091-015	DUP- 2	RRQC: Silver recovery outside of ALS DQOs due to issue with standard. Reported data was not affected by this issue.

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH201- SS2	BH204- SS1 (B)	BH205- SS2	BH206- SS1 (B)	BH207- SS2	BH208- SS2	BH208- SS3
				Sampling date/time	08-Apr-2024 11:30	04-Apr-2024 10:50	02-Apr-2024 10:00	04-Apr-2024 09:00	03-Apr-2024 09:00	04-Apr-2024 13:00	04-Apr-2024 13:10
				Sub-Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					WT2408091-001	WT2408091-003	WT2408091-005	WT2408091-007	WT2408091-009	WT2408091-011	WT2408091-012
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm		1.16	0.418	0.216	0.517	0.222	0.775	----
Moisture	----	E144/WT	%		14.8	15.4	11.0	14.9	17.5	18.1	15.8
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units		7.61	7.61	7.43	7.55	7.58	6.95	----
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L		21.8	33.9	17.3	27.4	16.8	38.4	----
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L		4.32	7.93	3.78	10.5	4.05	10.6	----
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L		201	41.3	26.7	62.6	25.0	92.4	----
Sodium adsorption ratio [SAR]	----	E484/WT	-		10.3	1.66	1.52	2.58	1.42	3.40	----
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg		0.18	0.17	0.16	0.19	0.23	0.15	----
Arsenic	7440-38-2	E440C/WT	mg/kg		6.69	7.34	6.24	18.2	7.26	6.82	----
Barium	7440-39-3	E440C/WT	mg/kg		86.2	102	79.6	85.1	52.3	97.7	----
Beryllium	7440-41-7	E440C/WT	mg/kg		0.91	0.95	0.77	1.20	1.26	0.95	----
Boron	7440-42-8	E440C/WT	mg/kg		13.9	11.7	9.6	14.3	15.3	10.0	----
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg		0.33	0.47	0.17	0.91	0.22	0.21	----
Cadmium	7440-43-9	E440C/WT	mg/kg		0.092	0.090	0.108	0.072	0.052	0.155	----
Chromium	7440-47-3	E440C/WT	mg/kg		27.1	30.9	23.6	32.8	35.1	27.9	----
Cobalt	7440-48-4	E440C/WT	mg/kg		15.2	14.6	12.3	19.2	20.7	16.8	----
Copper	7440-50-8	E440C/WT	mg/kg		30.4	36.6	30.0	64.2	43.6	22.6	----
Lead	7439-92-1	E440C/WT	mg/kg		9.31	8.70	9.48	5.75	5.69	8.52	----
Mercury	7439-97-6	E510C/WT	mg/kg		0.0195	0.0242	0.0249	0.0175	0.0134	0.0258	----
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.30	0.31	0.36	0.26	0.22	0.54	----
Nickel	7440-02-0	E440C/WT	mg/kg		31.9	32.6	27.1	39.4	42.9	30.1	----
Selenium	7782-49-2	E440C/WT	mg/kg		<0.20	0.27	<0.20	0.20	<0.20	0.31	----
Silver	7440-22-4	E440C/WT	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	----

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH201- SS2	BH204- SS1 (B)	BH205- SS2	BH206- SS1 (B)	BH207- SS2	BH208- SS2	BH208- SS3
				Sampling date/time	08-Apr-2024 11:30	04-Apr-2024 10:50	02-Apr-2024 10:00	04-Apr-2024 09:00	03-Apr-2024 09:00	04-Apr-2024 13:00	04-Apr-2024 13:10
				Sub-Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					WT2408091-001	WT2408091-003	WT2408091-005	WT2408091-007	WT2408091-009	WT2408091-011	WT2408091-012
Metals											
Thallium	7440-28-0	E440C/WT	mg/kg		0.160	0.181	0.161	0.154	0.151	0.137	----
Uranium	7440-61-1	E440C/WT	mg/kg		0.566	0.789	0.491	0.699	0.499	0.694	----
Vanadium	7440-62-2	E440C/WT	mg/kg		38.0	44.9	35.8	44.9	47.7	40.5	----
Zinc	7440-66-6	E440C/WT	mg/kg		67.7	69.2	58.0	82.6	89.5	80.0	----
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		<0.10	0.30	0.28	0.18	0.36	0.15	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		<0.50	----	<0.50	<0.50	<0.50	----	<0.50
Benzene	71-43-2	E611D/WT	mg/kg		<0.0050	----	<0.0050	<0.0050	<0.0050	----	<0.0050
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Bromoform	75-25-2	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Bromomethane	74-83-9	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Chlorobenzene	108-90-7	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Chloroform	67-66-3	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dichloromethane	75-09-2	E611D/WT	mg/kg		<0.045	----	<0.045	<0.045	<0.045	----	<0.045
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH201- SS2	BH204- SS1 (B)	BH205- SS2	BH206- SS1 (B)	BH207- SS2	BH208- SS2	BH208- SS3
				Sampling date/time	08-Apr-2024 11:30	04-Apr-2024 10:50	02-Apr-2024 10:00	04-Apr-2024 09:00	03-Apr-2024 09:00	04-Apr-2024 13:00	04-Apr-2024 13:10
				Sub-Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					WT2408091-001	WT2408091-003	WT2408091-005	WT2408091-007	WT2408091-009	WT2408091-011	WT2408091-012
Volatile Organic Compounds											
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg		<0.030	----	<0.030	<0.030	<0.030	----	<0.030
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg		<0.030	----	<0.030	<0.030	<0.030	----	<0.030
Ethylbenzene	100-41-4	E611D/WT	mg/kg		<0.015	----	<0.015	<0.015	<0.015	----	<0.015
Hexane, n-	110-54-3	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg		<0.50	----	<0.50	<0.50	<0.50	----	<0.50
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg		<0.50	----	<0.50	<0.50	<0.50	----	<0.50
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg		<0.040	----	<0.040	<0.040	<0.040	----	<0.040
Styrene	100-42-5	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Toluene	108-88-3	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Trichloroethylene	79-01-6	E611D/WT	mg/kg		<0.010	----	<0.010	<0.010	<0.010	----	<0.010
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
Vinyl chloride	75-01-4	E611D/WT	mg/kg		<0.020	----	<0.020	<0.020	<0.020	----	<0.020
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg		<0.030	----	<0.030	<0.030	<0.030	----	<0.030
Xylene, o-	95-47-6	E611D/WT	mg/kg		<0.030	----	<0.030	<0.030	<0.030	----	<0.030
Xylenes, total	1330-20-7	E611D/WT	mg/kg		<0.050	----	<0.050	<0.050	<0.050	----	<0.050
BTEX, total	----	E611D/WT	mg/kg		<0.10	----	<0.10	<0.10	<0.10	----	<0.10
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		102	----	97.8	102	99.6	----	98.1
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		107	----	104	106	103	----	102
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH201- SS2	BH204- SS1 (B)	BH205- SS2	BH206- SS1 (B)	BH207- SS2	BH208- SS2	BH208- SS3
				Sampling date/time	08-Apr-2024 11:30	04-Apr-2024 10:50	02-Apr-2024 10:00	04-Apr-2024 09:00	03-Apr-2024 09:00	04-Apr-2024 13:00	04-Apr-2024 13:10
				Sub-Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
					WT2408091-001	WT2408091-003	WT2408091-005	WT2408091-007	WT2408091-009	WT2408091-011	WT2408091-012
Polycyclic Aromatic Hydrocarbons											
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	----
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	----
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	----
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	----
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		90.8	83.8	85.6	85.6	83.6	90.6	----
Chrysene-d12	1719-03-5	E641A/WT	%		114	101	109	112	112	118	----
Naphthalene-d8	1146-65-2	E641A/WT	%		109	99.7	105	103	105	109	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		98.4	92.6	94.2	96.0	96.7	101	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUP- 1	DUP- 2	----	----	----	----	----
				Sampling date/time	02-Apr-2024 10:00	08-Apr-2024 11:30	----	----	----	----	----
				Sub-Matrix	Soil	Soil	----	----	----	----	----
				WT2408091-014	WT2408091-015	--------	--------	--------	--------	--------	
Physical Tests											
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm	----	1.21	----	----	----	----	----	
Moisture	----	E144/WT	%	13.8	13.9	----	----	----	----	----	
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units	----	6.97	----	----	----	----	----	
Cyanides											
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Fixed-Ratio Extractables											
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L	----	24.5	----	----	----	----	----	
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L	----	4.63	----	----	----	----	----	
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L	----	209	----	----	----	----	----	
Sodium adsorption ratio [SAR]	----	E484/WT	-	----	10.2	----	----	----	----	----	
Metals											
Antimony	7440-36-0	E440C/WT	mg/kg	----	0.17	----	----	----	----	----	
Arsenic	7440-38-2	E440C/WT	mg/kg	----	7.22	----	----	----	----	----	
Barium	7440-39-3	E440C/WT	mg/kg	----	100	----	----	----	----	----	
Beryllium	7440-41-7	E440C/WT	mg/kg	----	0.97	----	----	----	----	----	
Boron	7440-42-8	E440C/WT	mg/kg	----	14.2	----	----	----	----	----	
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg	----	0.36	----	----	----	----	----	
Cadmium	7440-43-9	E440C/WT	mg/kg	----	0.099	----	----	----	----	----	
Chromium	7440-47-3	E440C/WT	mg/kg	----	29.2	----	----	----	----	----	
Cobalt	7440-48-4	E440C/WT	mg/kg	----	15.5	----	----	----	----	----	
Copper	7440-50-8	E440C/WT	mg/kg	----	33.4	----	----	----	----	----	
Lead	7439-92-1	E440C/WT	mg/kg	----	9.50	----	----	----	----	----	
Mercury	7439-97-6	E510C/WT	mg/kg	----	0.0213	----	----	----	----	----	
Molybdenum	7439-98-7	E440C/WT	mg/kg	----	0.29	----	----	----	----	----	
Nickel	7440-02-0	E440C/WT	mg/kg	----	34.0	----	----	----	----	----	
Selenium	7782-49-2	E440C/WT	mg/kg	----	<0.20	----	----	----	----	----	
Silver	7440-22-4	E440C/WT	mg/kg	----	<0.10	----	----	----	----	----	
Thallium	7440-28-0	E440C/WT	mg/kg	----	0.162	----	----	----	----	----	

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUP- 1	DUP- 2	----	----	----	----	----
				Sampling date/time	02-Apr-2024 10:00	08-Apr-2024 11:30	----	----	----	----	----
				Sub-Matrix	Soil	Soil	----	----	----	----	----
					WT2408091-014	WT2408091-015	--------	--------	--------	--------	--------
Metals											
Uranium	7440-61-1	E440C/WT	mg/kg	----	0.593	----	----	----	----	----	----
Vanadium	7440-62-2	E440C/WT	mg/kg	----	40.8	----	----	----	----	----	----
Zinc	7440-66-6	E440C/WT	mg/kg	----	74.0	----	----	----	----	----	----
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg	----	0.20	----	----	----	----	----	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg	<0.50	----	----	----	----	----	----	----
Benzene	71-43-2	E611D/WT	mg/kg	<0.0050	----	----	----	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Bromoform	75-25-2	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Bromomethane	74-83-9	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Chloroform	67-66-3	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	mg/kg	<0.045	----	----	----	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg	<0.050	----	----	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUP- 1	DUP- 2	----	----	----	----	----
				Sampling date/time	02-Apr-2024 10:00	08-Apr-2024 11:30	----	----	----	----	----
				Sub-Matrix	Soil	Soil	----	----	----	----	----
					WT2408091-014	WT2408091-015	--------	--------	--------	--------	--------
Volatile Organic Compounds											
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg		<0.030	----	----	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg		<0.030	----	----	----	----	----	----
Ethylbenzene	100-41-4	E611D/WT	mg/kg		<0.015	----	----	----	----	----	----
Hexane, n-	110-54-3	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg		<0.50	----	----	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg		<0.50	----	----	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg		<0.040	----	----	----	----	----	----
Styrene	100-42-5	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Toluene	108-88-3	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	mg/kg		<0.010	----	----	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
Vinyl chloride	75-01-4	E611D/WT	mg/kg		<0.020	----	----	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg		<0.030	----	----	----	----	----	----
Xylene, o-	95-47-6	E611D/WT	mg/kg		<0.030	----	----	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	mg/kg		<0.050	----	----	----	----	----	----
BTEX, total	----	E611D/WT	mg/kg		<0.10	----	----	----	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		116	----	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		120	----	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		----	<0.050	----	----	----	----	----
Acenaphthylene	208-96-8	E641A/WT	mg/kg		----	<0.050	----	----	----	----	----
Anthracene	120-12-7	E641A/WT	mg/kg		----	<0.050	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Soil**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	DUP- 1	DUP- 2	----	----	----	----	----
				Sampling date/time	02-Apr-2024 10:00	08-Apr-2024 11:30	----	----	----	----	----
				Sub-Matrix	Soil	Soil	----	----	----	----	----
					WT2408091-014	WT2408091-015	--------	--------	--------	--------	--------
Polycyclic Aromatic Hydrocarbons											
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Chrysene	218-01-9	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Fluoranthene	206-44-0	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Fluorene	86-73-7	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg	----	<0.030	----	----	----	----	----	
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg	----	<0.030	----	----	----	----	----	
Naphthalene	91-20-3	E641A/WT	mg/kg	----	<0.010	----	----	----	----	----	
Phenanthrene	85-01-8	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Pyrene	129-00-0	E641A/WT	mg/kg	----	<0.050	----	----	----	----	----	
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%	----	85.0	----	----	----	----	----	
Chrysene-d12	1719-03-5	E641A/WT	%	----	114	----	----	----	----	----	
Naphthalene-d8	1146-65-2	E641A/WT	%	----	105	----	----	----	----	----	
Phenanthrene-d10	1517-22-2	E641A/WT	%	----	93.9	----	----	----	----	----	

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Analytical Results Evaluation

Matrix: **Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH204 SS2	BH205 SS4	----	----	----	----	----
				Sampling date/time	04-Apr-2024 00:00	04-Apr-2024 00:00	----	----	----	----	----
				Sub-Matrix	Solid	Solid	----	----	----	----	----
					WT2408091-016	WT2408091-017	--------	--------	--------	--------	--------
Physical Tests											
Moisture	----	E144/WT	%		12.2	11.7	----	----	----	----	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		<0.50	<0.50	----	----	----	----	----
Benzene	71-43-2	E611D/WT	mg/kg		<0.0050	<0.0050	----	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Bromoform	75-25-2	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Bromomethane	74-83-9	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Chloroform	67-66-3	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	mg/kg		<0.045	<0.045	----	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg		<0.030	<0.030	----	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg		<0.030	<0.030	----	----	----	----	----
Ethylbenzene	100-41-4	E611D/WT	mg/kg		<0.015	<0.015	----	----	----	----	----
Hexane, n-	110-54-3	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Solid**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH204 SS2	BH205 SS4	----	----	----	----	----
				Sampling date/time	04-Apr-2024 00:00	04-Apr-2024 00:00	----	----	----	----	----
				Sub-Matrix	Solid	Solid	----	----	----	----	----
					WT2408091-016	WT2408091-017	--------	--------	--------	--------	--------
Volatile Organic Compounds											
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg		<0.50	<0.50	----	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg		<0.50	<0.50	----	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg		<0.040	<0.040	----	----	----	----	----
Styrene	100-42-5	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Toluene	108-88-3	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	mg/kg		<0.010	<0.010	----	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
Vinyl chloride	75-01-4	E611D/WT	mg/kg		<0.020	<0.020	----	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg		<0.030	<0.030	----	----	----	----	----
Xylene, o-	95-47-6	E611D/WT	mg/kg		<0.030	<0.030	----	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	mg/kg		<0.050	<0.050	----	----	----	----	----
BTEX, total	----	E611D/WT	mg/kg		<0.10	<0.10	----	----	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		99.5	102	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		104	108	----	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T3-RPI-C
Physical Tests			
Conductivity (1:2 leachate)	----	mS/cm	**0.7 mS/cm**
Moisture	----	%	**--**
pH (1:2 soil:CaCl2-aq)	----	pH units	**--**
Cyanides			
Cyanide, weak acid dissociable	----	mg/kg	**0.051 mg/kg**
Fixed-Ratio Extractables			
Calcium, soluble ion content	7440-70-2	mg/L	**--**
Magnesium, soluble ion content	7439-95-4	mg/L	**--**
Sodium adsorption ratio [SAR]	----	-	**5 -**
Sodium, soluble ion content	17341-25-2	mg/L	**--**
Metals			
Antimony	7440-36-0	mg/kg	**7.5 mg/kg**
Arsenic	7440-38-2	mg/kg	**18 mg/kg**
Barium	7440-39-3	mg/kg	**390 mg/kg**
Beryllium	7440-41-7	mg/kg	**4 mg/kg**
Boron, hot water soluble	7440-42-8	mg/kg	**1.5 mg/kg**
Boron	7440-42-8	mg/kg	**120 mg/kg**
Cadmium	7440-43-9	mg/kg	**1.2 mg/kg**
Chromium	7440-47-3	mg/kg	**160 mg/kg**
Cobalt	7440-48-4	mg/kg	**22 mg/kg**
Copper	7440-50-8	mg/kg	**140 mg/kg**
Lead	7439-92-1	mg/kg	**120 mg/kg**
Mercury	7439-97-6	mg/kg	**0.27 mg/kg**
Molybdenum	7439-98-7	mg/kg	**6.9 mg/kg**
Nickel	7440-02-0	mg/kg	**100 mg/kg**
Selenium	7782-49-2	mg/kg	**2.4 mg/kg**
Silver	7440-22-4	mg/kg	**20 mg/kg**
Thallium	7440-28-0	mg/kg	**1 mg/kg**
Uranium	7440-61-1	mg/kg	**23 mg/kg**
Vanadium	7440-62-2	mg/kg	**86 mg/kg**
Zinc	7440-66-6	mg/kg	**340 mg/kg**
Speciated Metals			
Chromium, hexavalent [Cr VI]	18540-29-9	mg/kg	**8 mg/kg**
Volatile Organic Compounds			
Acetone	67-64-1	mg/kg	**16 mg/kg**
Benzene	71-43-2	mg/kg	**0.21 mg/kg**
Bromodichloromethane	75-27-4	mg/kg	**13 mg/kg**

Analyte	CAS Number	Unit	ON153/04 T3-RPI-C
Volatile Organic Compounds - Continued			
Bromoform	75-25-2	mg/kg	**0.27 mg/kg**
Bromomethane	74-83-9	mg/kg	**0.05 mg/kg**
BTEX, total	----	mg/kg	--
Carbon tetrachloride	56-23-5	mg/kg	**0.05 mg/kg**
Chlorobenzene	108-90-7	mg/kg	**2.4 mg/kg**
Chloroform	67-66-3	mg/kg	**0.05 mg/kg**
Dibromochloromethane	124-48-1	mg/kg	**9.4 mg/kg**
Dibromoethane, 1,2-	106-93-4	mg/kg	**0.05 mg/kg**
Dichlorobenzene, 1,2-	95-50-1	mg/kg	**3.4 mg/kg**
Dichlorobenzene, 1,3-	541-73-1	mg/kg	**4.8 mg/kg**
Dichlorobenzene, 1,4-	106-46-7	mg/kg	**0.083 mg/kg**
Dichlorodifluoromethane	75-71-8	mg/kg	**16 mg/kg**
Dichloroethane, 1,1-	75-34-3	mg/kg	**3.5 mg/kg**
Dichloroethane, 1,2-	107-06-2	mg/kg	**0.05 mg/kg**
Dichloroethylene, 1,1-	75-35-4	mg/kg	**0.05 mg/kg**
Dichloroethylene, cis-1,2-	156-59-2	mg/kg	**3.4 mg/kg**
Dichloroethylene, trans-1,2-	156-60-5	mg/kg	**0.084 mg/kg**
Dichloromethane	75-09-2	mg/kg	**0.1 mg/kg**
Dichloropropane, 1,2-	78-87-5	mg/kg	**0.05 mg/kg**
Dichloropropylene, cis+trans-1,3-	542-75-6	mg/kg	**0.05 mg/kg**
Dichloropropylene, cis-1,3-	10061-01-5	mg/kg	--
Dichloropropylene, trans-1,3-	10061-02-6	mg/kg	--
Ethylbenzene	100-41-4	mg/kg	**2 mg/kg**
Hexane, n-	110-54-3	mg/kg	**2.8 mg/kg**
Methyl ethyl ketone [MEK]	78-93-3	mg/kg	**16 mg/kg**
Methyl isobutyl ketone [MIBK]	108-10-1	mg/kg	**1.7 mg/kg**
Methyl-tert-butyl ether [MTBE]	1634-04-4	mg/kg	**0.75 mg/kg**
Styrene	100-42-5	mg/kg	**0.7 mg/kg**
Tetrachloroethane, 1,1,1,2-	630-20-6	mg/kg	**0.058 mg/kg**
Tetrachloroethane, 1,1,2,2-	79-34-5	mg/kg	**0.05 mg/kg**
Tetrachloroethylene	127-18-4	mg/kg	**0.28 mg/kg**
Toluene	108-88-3	mg/kg	**2.3 mg/kg**
Trichloroethane, 1,1,1-	71-55-6	mg/kg	**0.38 mg/kg**
Trichloroethane, 1,1,2-	79-00-5	mg/kg	**0.05 mg/kg**
Trichloroethylene	79-01-6	mg/kg	**0.061 mg/kg**
Trichlorofluoromethane	75-69-4	mg/kg	**4 mg/kg**
Vinyl chloride	75-01-4	mg/kg	**0.02 mg/kg**
Xylene, m+p-	179601-23-1	mg/kg	--
Xylene, o-	95-47-6	mg/kg	--

Analyte	CAS Number	Unit	ON153/04 T3-RPI-C
Volatile Organic Compounds - Continued			
Xylenes, total	1330-20-7	mg/kg	**3.1 mg/kg**
Volatile Organic Compounds Surrogates			
Bromofluorobenzene, 4-	460-00-4	%	--
Difluorobenzene, 1,4-	540-36-3	%	--
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	83-32-9	mg/kg	**7.9 mg/kg**
Acenaphthylene	208-96-8	mg/kg	**0.15 mg/kg**
Anthracene	120-12-7	mg/kg	**0.67 mg/kg**
Benz(a)anthracene	56-55-3	mg/kg	**0.5 mg/kg**
Benzo(a)pyrene	50-32-8	mg/kg	**0.3 mg/kg**
Benzo(b+j)fluoranthene	n/a	mg/kg	**0.78 mg/kg**
Benzo(g,h,i)perylene	191-24-2	mg/kg	**6.6 mg/kg**
Benzo(k)fluoranthene	207-08-9	mg/kg	**0.78 mg/kg**
Chrysene	218-01-9	mg/kg	**7 mg/kg**
Dibenz(a,h)anthracene	53-70-3	mg/kg	**0.1 mg/kg**
Fluoranthene	206-44-0	mg/kg	**0.69 mg/kg**
Fluorene	86-73-7	mg/kg	**62 mg/kg**
Indeno(1,2,3-c,d)pyrene	193-39-5	mg/kg	**0.38 mg/kg**
Methylnaphthalene, 1+2-	----	mg/kg	**0.99 mg/kg**
Methylnaphthalene, 1-	90-12-0	mg/kg	**0.99 mg/kg**
Methylnaphthalene, 2-	91-57-6	mg/kg	**0.99 mg/kg**
Naphthalene	91-20-3	mg/kg	**0.6 mg/kg**
Phenanthrene	85-01-8	mg/kg	**6.2 mg/kg**
Pyrene	129-00-0	mg/kg	**78 mg/kg**
Acridine-d9	34749-75-2	%	--
Chrysene-d12	1719-03-5	%	--
Naphthalene-d8	1146-65-2	%	--
Phenanthrene-d10	1517-22-2	%	--

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON153/04 Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)

T3-RPI-C 153 T3-Soil-Res/Park/Inst. Property Use (Coarse)

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2408091**	Page	: 1 of 19
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087-102	Date Samples Received	: 09-Apr-2024 12:11
PO	: ----	Issue Date	: 16-Apr-2024 15:52
C-O-C number	: 20-1084553		
Sampler	: LB		
Site	: 4094 Tomken Rd		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 17		
No. of samples analysed	: 11		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- Laboratory Control Sample (LCS) outliers occur - please see following pages for full details.
- Matrix Spike outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Benz(a)anthracene	56-55-3	E641A	0.149 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Benzo(a)pyrene	50-32-8	E641A	0.108 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Benzo(b+j)fluoranthene	n/a	E641A	0.183 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Chrysene	218-01-9	E641A	0.141 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Fluoranthene	206-44-0	E641A	162 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Phenanthrene	85-01-8	E641A	156 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Pyrene	129-00-0	E641A	151 % DUP-H	50%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Laboratory Control Sample (LCS) Recoveries								
Metals	QC-MRG2-1396782 002	----	Silver	7440-22-4	E440C	69.5 % RRQC	80.0-120%	Recovery less than lower control limit

Result Qualifiers

Qualifier	Description
RRQC	*Refer to report comments for information regarding this QC result.*

Matrix Spike (MS) Recoveries								
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Phenanthrene	85-01-8	E641A	10.3 % E	50.0-140%	Recovery less than lower data quality objective
Polycyclic Aromatic Hydrocarbons	Anonymous	Anonymous	Pyrene	129-00-0	E641A	27.5 % E	50.0-140%	Recovery less than lower data quality objective

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment

Result Qualifiers

Qualifier	Description
E	Matrix Spike recovery outside ALS DQO due to heterogeneous analyte background in sample.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH201- SS2	E336A	08-Apr-2024	10-Apr-2024	14 days	2 days	✓	10-Apr-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP- 2	E336A	08-Apr-2024	10-Apr-2024	14 days	2 days	✓	10-Apr-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH204- SS1 (B)	E336A	04-Apr-2024	10-Apr-2024	14 days	6 days	✓	10-Apr-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH206- SS1 (B)	E336A	04-Apr-2024	10-Apr-2024	14 days	6 days	✓	10-Apr-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH208- SS2	E336A	04-Apr-2024	10-Apr-2024	14 days	6 days	✓	10-Apr-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH207- SS2	E336A	03-Apr-2024	10-Apr-2024	14 days	7 days	✓	10-Apr-2024	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH205- SS2	E336A	02-Apr-2024	10-Apr-2024	14 days	8 days	✓	10-Apr-2024	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH208- SS2	E487	04-Apr-2024	15-Apr-2024	180 days	10 days	✓	15-Apr-2024	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH204- SS1 (B)	E487	04-Apr-2024	15-Apr-2024	180 days	11 days	✓	15-Apr-2024	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH206- SS1 (B)	E487	04-Apr-2024	15-Apr-2024	180 days	11 days	✓	15-Apr-2024	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH207- SS2	E487	03-Apr-2024	15-Apr-2024	180 days	12 days	✓	15-Apr-2024	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH205- SS2	E487	02-Apr-2024	15-Apr-2024	180 days	13 days	✓	15-Apr-2024	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH201- SS2	E487	08-Apr-2024	15-Apr-2024	180 days	7 days	✓	15-Apr-2024	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP- 2	E487	08-Apr-2024	15-Apr-2024	180 days	7 days	✓	15-Apr-2024	180 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH204- SS1 (B)	E510C	04-Apr-2024	14-Apr-2024	28 days	10 days	✓	15-Apr-2024	28 days	11 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH208- SS2	E510C	04-Apr-2024	14-Apr-2024	28 days	10 days	✓	15-Apr-2024	28 days	11 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH206- SS1 (B)	E510C	04-Apr-2024	14-Apr-2024	28 days	11 days	✓	15-Apr-2024	28 days	11 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH207- SS2	E510C	03-Apr-2024	14-Apr-2024	28 days	12 days	✓	15-Apr-2024	28 days	12 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH205- SS2	E510C	02-Apr-2024	14-Apr-2024	28 days	13 days	✓	15-Apr-2024	28 days	13 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH201- SS2	E510C	08-Apr-2024	14-Apr-2024	28 days	6 days	✓	15-Apr-2024	28 days	7 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP- 2	E510C	08-Apr-2024	14-Apr-2024	28 days	6 days	✓	15-Apr-2024	28 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH204- SS1 (B)	E440C	04-Apr-2024	14-Apr-2024	180 days	10 days	✓	15-Apr-2024	180 days	11 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH208- SS2	E440C	04-Apr-2024	14-Apr-2024	180 days	10 days	✓	15-Apr-2024	180 days	11 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH206- SS1 (B)	E440C	04-Apr-2024	14-Apr-2024	180 days	11 days	✓	15-Apr-2024	180 days	11 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH207- SS2	E440C	03-Apr-2024	14-Apr-2024	180 days	12 days	✓	15-Apr-2024	180 days	12 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH205- SS2	E440C	02-Apr-2024	14-Apr-2024	180 days	13 days	✓	15-Apr-2024	180 days	13 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH201- SS2	E440C	08-Apr-2024	14-Apr-2024	180 days	6 days	✓	15-Apr-2024	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP- 2	E440C	08-Apr-2024	14-Apr-2024	180 days	6 days	✓	15-Apr-2024	180 days	7 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH208- SS2	E484	04-Apr-2024	15-Apr-2024	180 days	10 days	✓	15-Apr-2024	180 days	1 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH204- SS1 (B)	E484	04-Apr-2024	15-Apr-2024	180 days	11 days	✓	15-Apr-2024	180 days	1 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH206- SS1 (B)	E484	04-Apr-2024	15-Apr-2024	180 days	11 days	✓	15-Apr-2024	180 days	1 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH207- SS2	E484	03-Apr-2024	15-Apr-2024	180 days	12 days	✓	15-Apr-2024	180 days	1 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH205- SS2	E484	02-Apr-2024	15-Apr-2024	180 days	13 days	✓	15-Apr-2024	180 days	1 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH201- SS2	E484	08-Apr-2024	15-Apr-2024	180 days	7 days	✓	15-Apr-2024	180 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP- 2	E484	08-Apr-2024	15-Apr-2024	180 days	7 days	✓	15-Apr-2024	180 days	1 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH208- SS2	E100-L	04-Apr-2024	15-Apr-2024	30 days	10 days	✓	15-Apr-2024	30 days	11 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH204- SS1 (B)	E100-L	04-Apr-2024	15-Apr-2024	30 days	11 days	✓	15-Apr-2024	30 days	11 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH206- SS1 (B)	E100-L	04-Apr-2024	15-Apr-2024	30 days	11 days	✓	15-Apr-2024	30 days	11 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH207- SS2	E100-L	03-Apr-2024	15-Apr-2024	30 days	12 days	✓	15-Apr-2024	30 days	12 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH205- SS2	E100-L	02-Apr-2024	15-Apr-2024	30 days	13 days	✓	15-Apr-2024	30 days	13 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH201- SS2	E100-L	08-Apr-2024	15-Apr-2024	30 days	7 days	✓	15-Apr-2024	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP- 2	E100-L	08-Apr-2024	15-Apr-2024	30 days	7 days	✓	15-Apr-2024	30 days	7 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP- 2	E144	08-Apr-2024	----	----	----		09-Apr-2024	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH201- SS2	E144	08-Apr-2024	----	----	----		09-Apr-2024	----	2 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH208- SS2	E144	04-Apr-2024	----	----	----		09-Apr-2024	----	5 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH208- SS3	E144	04-Apr-2024	----	----	----		09-Apr-2024	----	5 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH204- SS1 (B)	E144	04-Apr-2024	----	----	----		09-Apr-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH206- SS1 (B)	E144	04-Apr-2024	----	----	----		09-Apr-2024	----	6 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH207- SS2	E144	03-Apr-2024	----	----	----		09-Apr-2024	----	7 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH205- SS2	E144	02-Apr-2024	----	----	----		09-Apr-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
DUP- 1	E144	02-Apr-2024	----	----	----		09-Apr-2024	----	8 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH204 SS2	E144	04-Apr-2024	----	----	----		12-Apr-2024	----	9 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP] BH205 SS4	E144	04-Apr-2024	----	----	----		12-Apr-2024	----	9 days	
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH201- SS2	E108A	08-Apr-2024	10-Apr-2024	30 days	2 days	✓	16-Apr-2024	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] DUP- 2	E108A	08-Apr-2024	10-Apr-2024	30 days	2 days	✓	16-Apr-2024	30 days	8 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH204- SS1 (B)	E108A	04-Apr-2024	10-Apr-2024	30 days	6 days	✓	16-Apr-2024	30 days	12 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH206- SS1 (B)	E108A	04-Apr-2024	10-Apr-2024	30 days	6 days	✓	16-Apr-2024	30 days	12 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH208- SS2	E108A	04-Apr-2024	10-Apr-2024	30 days	6 days	✓	16-Apr-2024	30 days	12 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH207- SS2	E108A	03-Apr-2024	10-Apr-2024	30 days	7 days	✓	16-Apr-2024	30 days	13 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP] BH205- SS2	E108A	02-Apr-2024	10-Apr-2024	30 days	8 days	✓	16-Apr-2024	30 days	14 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH201- SS2	E641A	08-Apr-2024	10-Apr-2024	60 days	2 days	✓	10-Apr-2024	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] DUP- 2	E641A	08-Apr-2024	10-Apr-2024	60 days	2 days	✓	10-Apr-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH204- SS1 (B)	E641A	04-Apr-2024	10-Apr-2024	60 days	6 days	✓	10-Apr-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH206- SS1 (B)	E641A	04-Apr-2024	10-Apr-2024	60 days	6 days	✓	10-Apr-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH208- SS2	E641A	04-Apr-2024	10-Apr-2024	60 days	6 days	✓	10-Apr-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH207- SS2	E641A	03-Apr-2024	10-Apr-2024	60 days	7 days	✓	10-Apr-2024	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH205- SS2	E641A	02-Apr-2024	10-Apr-2024	60 days	8 days	✓	10-Apr-2024	40 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH201- SS2	E532	08-Apr-2024	10-Apr-2024	30 days	2 days	✓	11-Apr-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] DUP- 2	E532	08-Apr-2024	10-Apr-2024	30 days	2 days	✓	11-Apr-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH204- SS1 (B)	E532	04-Apr-2024	10-Apr-2024	30 days	6 days	✓	11-Apr-2024	7 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH206- SS1 (B)	E532	04-Apr-2024	10-Apr-2024	30 days	6 days	✓	11-Apr-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH208- SS2	E532	04-Apr-2024	10-Apr-2024	30 days	6 days	✓	11-Apr-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH207- SS2	E532	03-Apr-2024	10-Apr-2024	30 days	7 days	✓	11-Apr-2024	7 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP]										
BH205- SS2	E532	02-Apr-2024	10-Apr-2024	30 days	8 days	✓	11-Apr-2024	7 days	1 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH201- SS2	E611D	08-Apr-2024	11-Apr-2024	14 days	3 days	✓	11-Apr-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH204 SS2	E611D	04-Apr-2024	11-Apr-2024	14 days	7 days	✓	11-Apr-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH205 SS4	E611D	04-Apr-2024	11-Apr-2024	14 days	7 days	✓	11-Apr-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH206- SS1 (B)	E611D	04-Apr-2024	11-Apr-2024	14 days	7 days	✓	11-Apr-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH208- SS3	E611D	04-Apr-2024	11-Apr-2024	14 days	7 days	✓	11-Apr-2024	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH207- SS2	E611D	03-Apr-2024	11-Apr-2024	14 days	8 days	✓	11-Apr-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH205- SS2	E611D	02-Apr-2024	11-Apr-2024	14 days	9 days	✓	11-Apr-2024	40 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] DUP- 1	E611D	02-Apr-2024	11-Apr-2024	14 days	9 days	✓	11-Apr-2024	40 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Boron-Hot Water Extractable by ICPOES	E487	1396781	1	17	5.8	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1396779	1	20	5.0	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1396744	1	18	5.5	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1396782	1	17	5.8	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1396783	1	17	5.8	5.0	✓
Moisture Content by Gravimetry	E144	1400728	3	58	5.1	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS	E641A	1396746	1	15	6.6	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1396778	1	20	5.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1396780	1	17	5.8	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1398880	1	20	5.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1396745	1	17	5.8	5.0	✓
Laboratory Control Samples (LCS)							
Boron-Hot Water Extractable by ICPOES	E487	1396781	2	17	11.7	10.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1396779	2	20	10.0	10.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1396744	2	18	11.1	10.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1396782	2	17	11.7	10.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1396783	2	17	11.7	10.0	✓
Moisture Content by Gravimetry	E144	1400728	3	58	5.1	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS	E641A	1396746	1	15	6.6	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	1396778	1	20	5.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1396780	2	17	11.7	10.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1398880	1	20	5.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1396745	1	17	5.8	5.0	✓
Method Blanks (MB)							
Boron-Hot Water Extractable by ICPOES	E487	1396781	1	17	5.8	5.0	✓
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	1396779	1	20	5.0	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	1396744	1	18	5.5	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	1396782	1	17	5.8	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	1396783	1	17	5.8	5.0	✓
Moisture Content by Gravimetry	E144	1400728	3	58	5.1	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS	E641A	1396746	1	15	6.6	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	1396780	1	17	5.8	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1398880	1	20	5.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1396745	1	17	5.8	5.0	✓
Matrix Spikes (MS)							

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS) - Continued							
PAHs in Soil/solid by Hex:Ace GC-MS	E641A	1396746	1	15	6.6	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1398880	1	20	5.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	1396745	1	17	5.8	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L ALS Environmental - Waterloo	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a soil sample that has been added in a defined ratio of soil to deionized water, then shaken well and allowed to settle. Conductance is measured in the fluid that is observed in the upper layer.
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A ALS Environmental - Waterloo	Soil/Solid	MECP E3530	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) and is carried out in accordance with procedures described in the Analytical Protocol (prescriptive method). A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling, or decanting and then analyzed using a pH meter and electrode. This method is equivalent to ASTM D4972 and is acceptable for topsoil analysis.
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
WAD Cyanide (0.01M NaOH Extraction)	E336A ALS Environmental - Waterloo	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined after extraction by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 355 µm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484 ALS Environmental - Waterloo	Soil/Solid	SW846 6010C	A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Boron-Hot Water Extractable by ICPOES	E487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO3 and HCl, followed by CVAAS analysis.
Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Waterloo	Soil/Solid	APHA 3500-CR C	Instrumental analysis is performed by ion chromatography with UV detection.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs in Soil/solid by Hex:Ace GC-MS	E641A ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. If reported, IACR (index of additive cancer risk, unitless) and B(a)P toxic potency equivalent (in soil concentration units) are calculated as per CCME PAH Soil Quality Guidelines fact sheet (2010) or ABT1.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Waterloo	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Leach 1:2 Soil : 0.01CaCl2 - As Received for pH	EP108A ALS Environmental - Waterloo	Soil/Solid	MOEE E3137A	A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling or decanting and then analyzed using a pH meter and electrode.
Cyanide Extraction for CFA (0.01M NaOH)	EP333A ALS Environmental - Waterloo	Soil/Solid	ON MECP E3015 (mod)	Extraction for various cyanide analysis is by rotary extraction of the soil with 0.01M Sodium Hydroxide.
Digestion for Metals and Mercury (355 µm Sieve)	EP440C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO3 and HCl. This method is intended to liberate metals that may be environmentally available.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Boron-Hot Water Extractable	EP487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with weak calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011)
Preparation of Hexavalent Chromium (Cr VI) for IC	EP532 ALS Environmental - Waterloo	Soil/Solid	EPA 3060A	Field moist samples are digested with a sodium hydroxide/sodium carbonate solution as described in EPA 3060A.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Waterloo	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.

QUALITY CONTROL REPORT

Work Order	: **WT2408091**	Page	: 1 of 16
Client	: Grounded Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087-102	Date Samples Received	: 09-Apr-2024 12:11
PO	: ----	Date Analysis Commenced	: 09-Apr-2024
C-O-C number	: 20-1084553	Issue Date	: 16-Apr-2024 15:56
Sampler	: LB		
Site	: 4094 Tomken Rd		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 17		
No. of samples analysed	: 11		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Josphin Masihi	Analyst	Waterloo Centralized Prep, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Niral Patel		Waterloo Centralized Prep, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1396778)											
WT2408089-001	Anonymous	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	7.87	7.83	0.510%	5%	----
Physical Tests (QC Lot: 1396779)											
WT2408174-001	Anonymous	Conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	0.325 mS/cm	323	0.617%	20%	----
Physical Tests (QC Lot: 1396786)											
WT2408083-013	Anonymous	Moisture	----	E144	0.25	%	32.0	29.9	6.71%	20%	----
Physical Tests (QC Lot: 1396800)											
WT2408091-001	BH201- SS2	Moisture	----	E144	0.25	%	14.8	15.2	2.45%	20%	----
Physical Tests (QC Lot: 1400728)											
VA24A7660-001	Anonymous	Moisture	----	E144	0.25	%	8.42	8.30	1.46%	20%	----
Cyanides (QC Lot: 1396745)											
WT2408089-001	Anonymous	Cyanide, weak acid dissociable	----	E336A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Metals (QC Lot: 1396780)											
WT2408174-001	Anonymous	Calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	15.1	15.5	2.61%	30%	----
		Magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	2.00	1.88	0.12	Diff <2x LOR	----
		Sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	53.0	52.7	0.568%	30%	----
Metals (QC Lot: 1396781)											
WT2408185-001	Anonymous	Boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	<0.10	<0.10	0.0007	Diff <2x LOR	----
Metals (QC Lot: 1396782)											
WT2408089-001	Anonymous	Mercury	7439-97-6	E510C	0.0050	mg/kg	0.0600	0.0584	2.56%	40%	----
Metals (QC Lot: 1396783)											
WT2408089-001	Anonymous	Antimony	7440-36-0	E440C	0.10	mg/kg	0.39	0.37	0.02	Diff <2x LOR	----
		Arsenic	7440-38-2	E440C	0.10	mg/kg	8.18	7.84	4.29%	30%	----
		Barium	7440-39-3	E440C	0.50	mg/kg	79.6	76.9	3.50%	40%	----
		Beryllium	7440-41-7	E440C	0.10	mg/kg	0.88	0.83	5.43%	30%	----
		Boron	7440-42-8	E440C	5.0	mg/kg	10.6	10.4	0.1	Diff <2x LOR	----
		Cadmium	7440-43-9	E440C	0.020	mg/kg	0.340	0.329	3.31%	30%	----
		Chromium	7440-47-3	E440C	0.50	mg/kg	28.8	27.9	3.20%	30%	----
		Cobalt	7440-48-4	E440C	0.10	mg/kg	11.6	11.2	4.42%	30%	----
		Copper	7440-50-8	E440C	0.50	mg/kg	37.7	35.7	5.34%	30%	----
		Lead	7439-92-1	E440C	0.50	mg/kg	97.3	89.6	8.32%	40%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 1396783) - continued											
WT2408089-001	Anonymous	Molybdenum	7439-98-7	E440C	0.10	mg/kg	0.54	0.51	5.58%	40%	----
		Nickel	7440-02-0	E440C	0.50	mg/kg	25.6	24.5	4.62%	30%	----
		Selenium	7782-49-2	E440C	0.20	mg/kg	0.31	0.32	0.02	Diff <2x LOR	----
		Silver	7440-22-4	E440C	0.10	mg/kg	0.13	0.12	0.007	Diff <2x LOR	----
		Thallium	7440-28-0	E440C	0.050	mg/kg	0.153	0.155	0.002	Diff <2x LOR	----
		Uranium	7440-61-1	E440C	0.050	mg/kg	0.604	0.581	3.82%	30%	----
		Vanadium	7440-62-2	E440C	0.20	mg/kg	38.3	36.8	4.12%	30%	----
		Zinc	7440-66-6	E440C	2.0	mg/kg	132	125	5.80%	30%	----
Speciated Metals (QC Lot: 1396744)											
WT2407916-002	Anonymous	Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	<0.10 µg/g	<0.10	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1398880)											
WT2408379-001	Anonymous	Acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1398880) - continued											
WT2408379-001	Anonymous	Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
Polycyclic Aromatic Hydrocarbons (QC Lot: 1396746)											
WT2408067-001	Anonymous	Acenaphthene	83-32-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Acenaphthylene	208-96-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Anthracene	120-12-7	E641A	0.050	mg/kg	0.103	<0.050	0.053	Diff <2x LOR	J
		Benz(a)anthracene	56-55-3	E641A	0.050	mg/kg	0.199	# <0.050	0.149	Diff <2x LOR	DUP-H
		Benzo(a)pyrene	50-32-8	E641A	0.050	mg/kg	0.158	# <0.050	0.108	Diff <2x LOR	DUP-H
		Benzo(b+j)fluoranthene	n/a	E641A	0.050	mg/kg	0.233	# <0.050	0.183	Diff <2x LOR	DUP-H
		Benzo(g,h,i)perylene	191-24-2	E641A	0.050	mg/kg	0.100	<0.050	0.050	Diff <2x LOR	J
		Benzo(k)fluoranthene	207-08-9	E641A	0.050	mg/kg	0.098	<0.050	0.048	Diff <2x LOR	J
		Chrysene	218-01-9	E641A	0.050	mg/kg	0.191	# <0.050	0.141	Diff <2x LOR	DUP-H
		Dibenz(a,h)anthracene	53-70-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		Fluoranthene	206-44-0	E641A	0.050	mg/kg	0.476	<0.050	162%	50%	DUP-H
		Fluorene	86-73-7	E641A	0.050	mg/kg	0.052	<0.050	0.002	Diff <2x LOR	J
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.050	mg/kg	0.118	<0.050	0.068	Diff <2x LOR	J
		Methylnaphthalene, 1-	90-12-0	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E641A	0.010	mg/kg	0.014	<0.010	0.004	Diff <2x LOR	J

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Polycyclic Aromatic Hydrocarbons (QC Lot: 1396746) - continued											
WT2408067-001	Anonymous	Phenanthrene	85-01-8	E641A	0.050	mg/kg	0.406	<0.050	156%	50%	DUP-H
		Pyrene	129-00-0	E641A	0.050	mg/kg	0.362	<0.050	151%	50%	DUP-H

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*
J	*Duplicate results and limits are expressed in terms of absolute difference.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1396779)						
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Physical Tests (QCLot: 1396786)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1396800)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 1400728)						
Moisture	----	E144	0.25	%	<0.25	----
Cyanides (QCLot: 1396745)						
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Metals (QCLot: 1396780)						
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals (QCLot: 1396781)						
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals (QCLot: 1396782)						
Mercury	7439-97-6	E510C	0.005	mg/kg	<0.0050	----
Metals (QCLot: 1396783)						
Antimony	7440-36-0	E440C	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440C	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440C	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	<0.020	----
Chromium	7440-47-3	E440C	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440C	0.5	mg/kg	<0.50	----
Lead	7439-92-1	E440C	0.5	mg/kg	<0.50	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440C	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440C	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440C	0.1	mg/kg	<0.10	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 1396783) - continued						
Thallium	7440-28-0	E440C	0.05	mg/kg	<0.050	----
Uranium	7440-61-1	E440C	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440C	2	mg/kg	<2.0	----
Speciated Metals (QCLot: 1396744)						
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Volatile Organic Compounds (QCLot: 1398880)						
Acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
Benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1398880) - continued						
Styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1396746)						
Acenaphthene	83-32-9	E641A	0.05	mg/kg	<0.050	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	<0.050	----
Anthracene	120-12-7	E641A	0.05	mg/kg	<0.050	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	<0.050	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	<0.050	----
Chrysene	218-01-9	E641A	0.05	mg/kg	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	<0.050	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	<0.050	----
Fluorene	86-73-7	E641A	0.05	mg/kg	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	<0.030	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	<0.030	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	<0.050	----
Pyrene	129-00-0	E641A	0.05	mg/kg	<0.050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1396778)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	98.6	98.0	102	----
Physical Tests (QCLot: 1396779)									
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1410 µS/cm	97.6	90.0	110	----
Physical Tests (QCLot: 1396786)									
Moisture	----	E144	0.25	%	50 %	99.5	90.0	110	----
Physical Tests (QCLot: 1396800)									
Moisture	----	E144	0.25	%	50 %	99.0	90.0	110	----
Physical Tests (QCLot: 1400728)									
Moisture	----	E144	0.25	%	50 %	99.5	90.0	110	----
Cyanides (QCLot: 1396745)									
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	1.25 mg/kg	92.0	80.0	120	----
Metals (QCLot: 1396780)									
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	105	80.0	120	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	101	80.0	120	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	101	80.0	120	----
Metals (QCLot: 1396781)									
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	2 mg/kg	104	70.0	130	----
Metals (QCLot: 1396782)									
Mercury	7439-97-6	E510C	0.005	mg/kg	0.1 mg/kg	108	80.0	120	----
Metals (QCLot: 1396783)									
Antimony	7440-36-0	E440C	0.1	mg/kg	100 mg/kg	119	80.0	120	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	100 mg/kg	116	80.0	120	----
Barium	7440-39-3	E440C	0.5	mg/kg	25 mg/kg	111	80.0	120	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	10 mg/kg	101	80.0	120	----
Boron	7440-42-8	E440C	5	mg/kg	100 mg/kg	96.9	80.0	120	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	10 mg/kg	110	80.0	120	----
Chromium	7440-47-3	E440C	0.5	mg/kg	25 mg/kg	109	80.0	120	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	25 mg/kg	108	80.0	120	----
Copper	7440-50-8	E440C	0.5	mg/kg	25 mg/kg	109	80.0	120	----
Lead	7439-92-1	E440C	0.5	mg/kg	50 mg/kg	108	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 1396783) - continued									
Molybdenum	7439-98-7	E440C	0.1	mg/kg	25 mg/kg	112	80.0	120	----
Nickel	7440-02-0	E440C	0.5	mg/kg	50 mg/kg	109	80.0	120	----
Selenium	7782-49-2	E440C	0.2	mg/kg	100 mg/kg	115	80.0	120	----
Silver	7440-22-4	E440C	0.1	mg/kg	10 mg/kg	# 69.5	80.0	120	RRQC
Thallium	7440-28-0	E440C	0.05	mg/kg	100 mg/kg	106	80.0	120	----
Uranium	7440-61-1	E440C	0.05	mg/kg	0.5 mg/kg	108	80.0	120	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	50 mg/kg	114	80.0	120	----
Zinc	7440-66-6	E440C	2	mg/kg	50 mg/kg	110	80.0	120	----
Speciated Metals (QCLot: 1396744)									
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	104	80.0	120	----
Volatile Organic Compounds (QCLot: 1398880)									
Acetone	67-64-1	E611D	0.5	mg/kg	3.48 mg/kg	107	60.0	140	----
Benzene	71-43-2	E611D	0.005	mg/kg	3.48 mg/kg	99.8	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.48 mg/kg	102	50.0	140	----
Bromoform	75-25-2	E611D	0.05	mg/kg	3.48 mg/kg	93.6	70.0	130	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	3.48 mg/kg	103	50.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.48 mg/kg	118	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.48 mg/kg	99.4	70.0	130	----
Chloroform	67-66-3	E611D	0.05	mg/kg	3.48 mg/kg	109	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.48 mg/kg	99.0	60.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.48 mg/kg	95.6	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.48 mg/kg	102	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.48 mg/kg	103	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.48 mg/kg	103	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.48 mg/kg	79.9	50.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.48 mg/kg	102	60.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.48 mg/kg	106	60.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.48 mg/kg	104	60.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.48 mg/kg	102	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.48 mg/kg	104	60.0	130	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	3.48 mg/kg	105	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.48 mg/kg	97.2	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.48 mg/kg	90.2	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.48 mg/kg	91.0	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1398880) - continued									
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.48 mg/kg	103	70.0	130	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	3.48 mg/kg	103	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.48 mg/kg	91.2	60.0	140	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.48 mg/kg	84.8	60.0	140	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.48 mg/kg	100	70.0	130	----
Styrene	100-42-5	E611D	0.05	mg/kg	3.48 mg/kg	98.8	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.48 mg/kg	104	60.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.48 mg/kg	96.0	60.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.48 mg/kg	113	60.0	130	----
Toluene	108-88-3	E611D	0.05	mg/kg	3.48 mg/kg	98.7	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.48 mg/kg	109	60.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.48 mg/kg	97.7	60.0	130	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.48 mg/kg	109	60.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.48 mg/kg	124	50.0	140	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.48 mg/kg	99.3	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	104	70.0	130	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	3.48 mg/kg	100	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1396746)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	95.4	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	0.5 mg/kg	95.2	60.0	130	----
Anthracene	120-12-7	E641A	0.05	mg/kg	0.5 mg/kg	88.2	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	103	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	85.9	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	96.6	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	110	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	103	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	114	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	96.3	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	96.7	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	94.2	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	99.1	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	89.5	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	92.4	60.0	130	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	83.4	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	88.6	60.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 1396746) - continued									
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	94.6	60.0	130	----

Qualifiers

Qualifier	Description
RRQC	*Refer to report comments for information regarding this QC result.*

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 1396745)										
WT2408089-001	Anonymous	Cyanide, weak acid dissociable	----	E336A	1.10 mg/kg	1.24 mg/kg	88.8	70.0	130	----
Volatile Organic Compounds (QCLot: 1398880)										
WT2408379-001	Anonymous	Acetone	67-64-1	E611D	2.98 mg/kg	2.69 mg/kg	111	50.0	140	----
		Benzene	71-43-2	E611D	2.81 mg/kg	2.69 mg/kg	105	50.0	140	----
		Bromodichloromethane	75-27-4	E611D	2.89 mg/kg	2.69 mg/kg	108	50.0	140	----
		Bromoform	75-25-2	E611D	2.61 mg/kg	2.69 mg/kg	97.2	50.0	140	----
		Bromomethane	74-83-9	E611D	2.97 mg/kg	2.69 mg/kg	110	50.0	140	----
		Carbon tetrachloride	56-23-5	E611D	3.29 mg/kg	2.69 mg/kg	122	50.0	140	----
		Chlorobenzene	108-90-7	E611D	2.79 mg/kg	2.69 mg/kg	104	50.0	140	----
		Chloroform	67-66-3	E611D	3.09 mg/kg	2.69 mg/kg	115	50.0	140	----
		Dibromochloromethane	124-48-1	E611D	2.83 mg/kg	2.69 mg/kg	105	50.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	2.71 mg/kg	2.69 mg/kg	101	50.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	2.83 mg/kg	2.69 mg/kg	105	50.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	2.80 mg/kg	2.69 mg/kg	104	50.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	2.80 mg/kg	2.69 mg/kg	104	50.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	2.98 mg/kg	2.69 mg/kg	111	50.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	2.87 mg/kg	2.69 mg/kg	107	50.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	2.99 mg/kg	2.69 mg/kg	111	50.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	2.93 mg/kg	2.69 mg/kg	109	50.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	2.88 mg/kg	2.69 mg/kg	107	50.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	2.83 mg/kg	2.69 mg/kg	105	50.0	140	----
		Dichloromethane	75-09-2	E611D	2.96 mg/kg	2.69 mg/kg	110	50.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	2.76 mg/kg	2.69 mg/kg	103	50.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	2.46 mg/kg	2.69 mg/kg	91.5	50.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	2.46 mg/kg	2.69 mg/kg	91.8	50.0	140	----
		Ethylbenzene	100-41-4	E611D	2.86 mg/kg	2.69 mg/kg	107	50.0	140	----
		Hexane, n-	110-54-3	E611D	2.95 mg/kg	2.69 mg/kg	110	50.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	2.23 mg/kg	2.69 mg/kg	83.0	50.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	2.34 mg/kg	2.69 mg/kg	87.0	50.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	2.79 mg/kg	2.69 mg/kg	104	50.0	140	----
		Styrene	100-42-5	E611D	2.77 mg/kg	2.69 mg/kg	103	50.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	2.93 mg/kg	2.69 mg/kg	109	50.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	2.75 mg/kg	2.69 mg/kg	102	50.0	140	----
		Tetrachloroethylene	127-18-4	E611D	3.06 mg/kg	2.69 mg/kg	114	50.0	140	----
		Toluene	108-88-3	E611D	2.76 mg/kg	2.69 mg/kg	103	50.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	3.08 mg/kg	2.69 mg/kg	114	50.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	2.79 mg/kg	2.69 mg/kg	104	50.0	140	----
		Trichloroethylene	79-01-6	E611D	3.01 mg/kg	2.69 mg/kg	112	50.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	3.60 mg/kg	2.69 mg/kg	134	50.0	140	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1398880) - continued										
WT2408379-001	Anonymous	Vinyl chloride	75-01-4	E611D	2.96 mg/kg	2.69 mg/kg	110	50.0	140	----
		Xylene, m+p-	179601-23-1	E611D	5.75 mg/kg	5.37 mg/kg	107	50.0	140	----
		Xylene, o-	95-47-6	E611D	2.81 mg/kg	2.69 mg/kg	105	50.0	140	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1396746)										
WT2408067-001	Anonymous	Acenaphthene	83-32-9	E641A	0.386 mg/kg	0.403 mg/kg	95.8	50.0	140	----
		Acenaphthylene	208-96-8	E641A	0.419 mg/kg	0.403 mg/kg	104	50.0	140	----
		Anthracene	120-12-7	E641A	0.313 mg/kg	0.403 mg/kg	77.8	50.0	140	----
		Benz(a)anthracene	56-55-3	E641A	0.261 mg/kg	0.403 mg/kg	64.7	50.0	140	----
		Benzo(a)pyrene	50-32-8	E641A	0.279 mg/kg	0.403 mg/kg	69.2	50.0	140	----
		Benzo(b+j)fluoranthene	n/a	E641A	0.256 mg/kg	0.403 mg/kg	63.6	50.0	140	----
		Benzo(g,h,i)perylene	191-24-2	E641A	0.398 mg/kg	0.403 mg/kg	98.7	50.0	140	----
		Benzo(k)fluoranthene	207-08-9	E641A	0.372 mg/kg	0.403 mg/kg	92.3	50.0	140	----
		Chrysene	218-01-9	E641A	0.268 mg/kg	0.403 mg/kg	66.7	50.0	140	----
		Dibenz(a,h)anthracene	53-70-3	E641A	0.411 mg/kg	0.403 mg/kg	102	50.0	140	----
		Fluoranthene	206-44-0	E641A	ND mg/kg	----	ND	50.0	140	MS-B
		Fluorene	86-73-7	E641A	0.378 mg/kg	0.403 mg/kg	93.9	50.0	140	----
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.367 mg/kg	0.403 mg/kg	91.1	50.0	140	----
		Methylnaphthalene, 1-	90-12-0	E641A	0.393 mg/kg	0.403 mg/kg	97.6	50.0	140	----
		Methylnaphthalene, 2-	91-57-6	E641A	0.409 mg/kg	0.403 mg/kg	102	50.0	140	----
		Naphthalene	91-20-3	E641A	0.385 mg/kg	0.403 mg/kg	95.6	50.0	140	----
		Phenanthrene	85-01-8	E641A	0.041 mg/kg	0.403 mg/kg	10.3	50.0	140	E
		Pyrene	129-00-0	E641A	0.111 mg/kg	0.403 mg/kg	27.5	50.0	140	E

Qualifiers

Qualifier	Description
E	*Matrix Spike recovery outside ALS DQO due to heterogeneous analyte background in sample.*
MS-B	*Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.*

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix:

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 1396779)									
QC-1396779-003	RM	Conductivity (1:2 leachate)	----	E100-L	1380 µS/cm	102	70.0	130	----
Metals (QCLot: 1396780)									
QC-1396780-003	RM	Calcium, soluble ion content	7440-70-2	E484	59.1 mg/L	98.3	70.0	130	----
QC-1396780-003	RM	Magnesium, soluble ion content	7439-95-4	E484	19 mg/L	97.4	70.0	130	----
QC-1396780-003	RM	Sodium, soluble ion content	17341-25-2	E484	34.3 mg/L	99.1	70.0	130	----
Metals (QCLot: 1396781)									
QC-1396781-003	RM	Boron, hot water soluble	7440-42-8	E487	1.37 mg/kg	96.7	60.0	140	----
Metals (QCLot: 1396782)									
QC-1396782-003	RM	Mercury	7439-97-6	E510C	0.058 mg/kg	120	70.0	130	----
Metals (QCLot: 1396783)									
QC-1396783-003	RM	Antimony	7440-36-0	E440C	3.99 mg/kg	96.8	70.0	130	----
QC-1396783-003	RM	Arsenic	7440-38-2	E440C	3.73 mg/kg	98.0	70.0	130	----
QC-1396783-003	RM	Barium	7440-39-3	E440C	105 mg/kg	105	70.0	130	----
QC-1396783-003	RM	Beryllium	7440-41-7	E440C	0.349 mg/kg	102	70.0	130	----
QC-1396783-003	RM	Boron	7440-42-8	E440C	8.5 mg/kg	105	70.0	130	----
QC-1396783-003	RM	Cadmium	7440-43-9	E440C	0.91 mg/kg	99.4	70.0	130	----
QC-1396783-003	RM	Chromium	7440-47-3	E440C	101 mg/kg	99.8	70.0	130	----
QC-1396783-003	RM	Cobalt	7440-48-4	E440C	6.9 mg/kg	100	70.0	130	----
QC-1396783-003	RM	Copper	7440-50-8	E440C	123 mg/kg	116	70.0	130	----
QC-1396783-003	RM	Lead	7439-92-1	E440C	267 mg/kg	99.5	70.0	130	----
QC-1396783-003	RM	Molybdenum	7439-98-7	E440C	1.03 mg/kg	93.8	70.0	130	----
QC-1396783-003	RM	Nickel	7440-02-0	E440C	26.7 mg/kg	100	70.0	130	----
QC-1396783-003	RM	Thallium	7440-28-0	E440C	0.079 mg/kg	95.7	70.0	130	----
QC-1396783-003	RM	Uranium	7440-61-1	E440C	0.52 mg/kg	96.4	70.0	130	----
QC-1396783-003	RM	Vanadium	7440-62-2	E440C	32.7 mg/kg	99.8	70.0	130	----
QC-1396783-003	RM	Zinc	7440-66-6	E440C	297 mg/kg	99.3	70.0	130	----
Speciated Metals (QCLot: 1396744)									
QC-1396744-003	RM	Chromium, hexavalent [Cr VI]	18540-29-9	E532	226 mg/kg	91.8	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1084553

Page 1 of 2

ALS www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division Waterloo
Work Order Reference
WT2408091

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Groundled Eng
Contact:	Emma Leet
Phone:	647-264-7960
	Company address below will appear on the final report
Street:	1 Banigan Dr
City/Province:	Toronto M4H 1G3
Postal Code:	
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A
☑ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax eleet@groundledeng.ca
Email 2
Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax
Email 2

Turnaround Time (TAT) Requested

- ☐ Routine [R] if received by 3pm M-F - no surcharges apply
- ☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
- ☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
- ☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
- ☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
- ☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Addit may apply to rush requests on weekends, statutory holidays and non-rc

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please

Project Information

ALS Account # / Quote #:
Job #: 22-087-102
PO / AFE:
LSD: 4094 Tomken Rd

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (ALS use only):

ALS Contact: Sampler: LB

Analysis R

Indicate Filtered (F), Preserved (P) or Filtered a

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	MET	PAH	VOC	SAMPLES ON HOLD	EXTENDED STORAGE RI	SUSPECTED HAZARD (s
	BH201-SS2	04/08/24	11:30	Soil	4	x	x	x			
	BH201-SS3	04/08/24	11:45		4	x	x	x	X		
	BH204-SS1(B)	04/04/24	10:50		4	x	x	x			
	BH204-SS3	04/04/24	11:10		4	x	x	x	X		
	BH205-SS2	04/02/24	10:00		4	x	x	x			
	BH205-SS3	04/02/24	10:15		5	x	x	x	X		
	BH206-SS1(B)	04/04/24	9:00		4	x	x	x			
	BH206-SS2	04/04/24	9:10		4	x	x	x	X		
	BH207-SS2	04/03/24	9:00		4	x	x	x			
	BH207-SS3	04/03/24	9:10		4	x	x	x	X		
	BH208-SS2	04/04/24	13:00		1	x	x				
	BH208-SS3	04/04/24	13:10		3			x			

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

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

Compare to O.Reg 153/04 Table 3 RPI
CT
Limited Sample (PAH & M&I) compare (250mL)

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
6.6	2.4			7.5			

SHIPMENT RELEASE (client use)

Released by: LB Date: 02/04/24 Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: Karan Date: 4/9/2024 Time: 12:11

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: Date: 09-Apr-24 Time: 13:40

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

VS-017 SOL-457,458

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1084553

Canada Toll Free: 1 800 668 9878

Page 1 of 2

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Environmental Division Waterloo
Work Order Reference
WT2408091

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Groundcleq Eng
Contact:	Emma Leet
Phone:	647-264-7960
Company address below will appear on the final report	
Street:	1 Banigan Dr
City/Province:	Toronto M4H 1G3
Postal Code:	
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients	
Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☑ YES ☐ NO ☐ N/A
☑ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	eleet@groundcleq.ca
Email 2	
Email 3	

Invoice Recipients	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Turnaround Time (TAT) Requested
☐ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Addit may apply to rush requests on weekends, statutory holidays and non-ro
Date and Time Required for all E&P TATs:
For all tests with rush TATs requested, please

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	12-087-102	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:	4094 Tomken Rd	Location:	
ALS Lab Work Order # (ALS use only):		ALS Contact:	Sampler: LB

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Analysis Request: Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) — MET	PAH	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see Special Instructions)
	BH201 - SS2	04/08/24	11:30	Soil	4	X	X	X			
	BH201 - SS3	04/08/24	11:45		4	X	X	X	X		
	BH204 - SS1 (B)	04/04/24	10:50		4	X	X	X			
	BH204 - SS3	04/04/24	11:10		4	X	X	X	X		
	BH205 - SS2	04/02/24	10:00		4	X	X	X			
	BH205 - SS3	04/02/24	10:15		5	X	X	X	X		
	BH206 - SS1 (B)	04/04/24	9:00		4	X	X	X			
	BH206 - SS2	04/04/24	9:10		4	X	X	X	X		
	BH207 - SS2	04/03/24	9:00		4	X	X	X			
	BH207 - SS3	04/03/24	9:10		4	X	X	X	X		
	BH208 - SS2	04/04/24	13:00		1	X	X				
	BH208 - SS3	04/04/24	13:10		3			X			

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Compare to O.Reg 153/04 Table 3 RPI CT
Are samples for human consumption/ use? ☐ YES ☐ NO	Limited Sample (PAH & M&I) compare (250mL)

SAMPLE RECEIPT DETAILS (ALS use only)									
Cooling Method:	☐ NONE	☑ ICE	☐ ICE PACKS	☐ FROZEN	☐ COOLING INITIATED				
Submission Comments identified on Sample Receipt Notification:					☐ YES	☐ NO			
Cooler Custody Seals Intact:	☐ YES	☐ N/A	Sample Custody Seals Intact:		☐ YES	☐ N/A			
INITIAL COOLER TEMPERATURES °C					FINAL COOLER TEMPERATURES °C				
6.6	2.4				7.5				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: LB	Date: 02/09/24	Time:	Received by: Karan	Date: 4/9/2024	Time: 12:11	Received by: TL	Date: 09-Apr-24	Time: 13:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

VS-017 SOL-457, 458

Chain of Custody (COC) / Analytical Request Form

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Canada Toll Free: 1 800 668 9878

COC Number: 20 - 1085196

Page 2 of 2

Report To	Contact and company name below will appear on the final report
Company:	Grounded Eng
Contact:	Emma Leet
Phone:	647-264-7960
Company address below will appear on the final report	
Street:	1 Bayview Dr
City/Province:	Toronto ON
Postal Code:	M4M 1G3

Invoice To		
	Same as Report To	☑ YES ☐ NO
	Copy of Invoice with Report	☑ YES ☐ NO
Company:		
Contact:		

Reports / Recipients	
Select Report Format:	☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA	☐ YES ☐ NO ☐ N/A
☑ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	eleet@groundedeng.ca
Email 2	
Email 3	

Invoice Recipients	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Turnaround Time (TAT) Requested
☐ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

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

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information	
ALS Account # / Quote #:	
Job #:	22-087-102
PO / AFE:	
LSD:	4094 Tomken Rd
ALS Lab Work Order # (ALS use only):	

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

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	MRT	PAH	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH208-SS4	04/04/24	So.l	13:20	4	X	X	X	X		
	DUP-1	04/02/24	↓	10:00	3			X			
	DUP-2	04/08/24	↓	11:30	1	X	X				

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Compare to O. Reg 153/04 Table 3 RPI CT
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☒ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
6.6	2.4			7.5			

SHIPMENT RELEASE (client use)		
Released by: LB	Date: 02/09/24	Time:

INITIAL SHIPMENT RECEPTION (ALS use only)		
Received by: Kristen	Date: 9/9/2024	Time: 12:11

FINAL SHIPMENT RECEPTION (ALS use only)		
Received by:	Date: 09-Apr-24	Time: 13:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALIG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Groundwater

ALS Canada Ltd.

right solutions. right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2408478**	Page	: 1 of 10
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087-102	Date Samples Received	: 11-Apr-2024 15:14
PO	: ----	Date Analysis Commenced	: 11-Apr-2024
C-O-C number	: 20-1047526	Issue Date	: 18-Apr-2024 17:57
Sampler	: LB		
Site	: 4094 TOMKAN RD		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Metals, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Inorganics, Waterloo, Ontario

No Breaches Found

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/L	micrograms per litre
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLQ	Detection Limit raised due to co-eluting interference. Mass Spectrometry qualifier ion ratio did not meet acceptance criteria.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH201	BH205	DUP-1	TRIP BLANK	----	----	----
				Sampling date/time	11-Apr-2024 12:00	10-Apr-2024 14:00	11-Apr-2024 12:00	11-Apr-2024 00:00	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WT2408478-001	WT2408478-002	WT2408478-003	WT2408478-004	--------	--------	--------
Physical Tests											
Conductivity	----	E100/WT	mS/cm		3.62	----	3.00	----	----	----	----
pH	----	E108/WT	pH units		8.09	----	8.11	----	----	----	----
Anions and Nutrients											
Chloride	16887-00-6	E235.Cl/WT	mg/L		1010 DLDS	----	772 DLDS	----	----	----	----
Cyanides											
Cyanide, weak acid dissociable	----	E336/WT	µg/L		<2.0	----	<2.0	----	----	----	----
Dissolved Metals											
Antimony, dissolved	7440-36-0	E421/WT	µg/L		1.71 DLHC	----	1.74 DLHC	----	----	----	----
Arsenic, dissolved	7440-38-2	E421/WT	µg/L		1.33 DLHC	----	1.34 DLHC	----	----	----	----
Barium, dissolved	7440-39-3	E421/WT	µg/L		370 DLHC	----	362 DLHC	----	----	----	----
Beryllium, dissolved	7440-41-7	E421/WT	µg/L		<0.200 DLHC	----	<0.200 DLHC	----	----	----	----
Boron, dissolved	7440-42-8	E421/WT	µg/L		813 DLHC	----	852 DLHC	----	----	----	----
Cadmium, dissolved	7440-43-9	E421/WT	µg/L		0.181 DLHC	----	0.197 DLHC	----	----	----	----
Chromium, dissolved	7440-47-3	E421/WT	µg/L		<5.00 DLHC	----	<5.00 DLHC	----	----	----	----
Cobalt, dissolved	7440-48-4	E421/WT	µg/L		5.44 DLHC	----	5.01 DLHC	----	----	----	----
Copper, dissolved	7440-50-8	E421/WT	µg/L		<2.00 DLHC	----	<2.00 DLHC	----	----	----	----
Lead, dissolved	7439-92-1	E421/WT	µg/L		<0.500 DLHC	----	<0.500 DLHC	----	----	----	----
Mercury, dissolved	7439-97-6	E509/WT	µg/L		<0.0050	----	<0.0050	----	----	----	----
Molybdenum, dissolved	7439-98-7	E421/WT	µg/L		18.3 DLHC	----	19.0 DLHC	----	----	----	----
Nickel, dissolved	7440-02-0	E421/WT	µg/L		13.2 DLHC	----	12.7 DLHC	----	----	----	----
Selenium, dissolved	7782-49-2	E421/WT	µg/L		<0.500 DLHC	----	<0.500 DLHC	----	----	----	----
Silver, dissolved	7440-22-4	E421/WT	µg/L		<0.100 DLHC	----	<0.100 DLHC	----	----	----	----
Sodium, dissolved	7440-23-5	E421/WT	µg/L		541000 DLHC	----	545000 DLHC	----	----	----	----
Thallium, dissolved	7440-28-0	E421/WT	µg/L		<0.100 DLHC	----	<0.100 DLHC	----	----	----	----
Uranium, dissolved	7440-61-1	E421/WT	µg/L		1.24 DLHC	----	1.30 DLHC	----	----	----	----
Vanadium, dissolved	7440-62-2	E421/WT	µg/L		<5.00 DLHC	----	<5.00 DLHC	----	----	----	----
Zinc, dissolved	7440-66-6	E421/WT	µg/L		<10.0 DLHC	----	<10.0 DLHC	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH201	BH205	DUP-1	TRIP BLANK	----	----	----
				Sampling date/time	11-Apr-2024 12:00	10-Apr-2024 14:00	11-Apr-2024 12:00	11-Apr-2024 00:00	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WT2408478-001	WT2408478-002	WT2408478-003	WT2408478-004	--------	--------	--------
Dissolved Metals											
Dissolved mercury filtration location	----	EP509/WT	-		Field	----	Field	----	----	----	----
Dissolved metals filtration location	----	EP421/WT	-		Field	----	Field	----	----	----	----
Speciated Metals											
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A/WT	µg/L		<0.50	----	<0.50	----	----	----	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	µg/L		<20	<20	<20	<20	----	----	----
Benzene	71-43-2	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Bromoform	75-25-2	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Bromomethane	74-83-9	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	µg/L		<0.20	<0.20	<0.20	<0.20	----	----	----
Chlorobenzene	108-90-7	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Chloroform	67-66-3	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	µg/L		<0.20	<0.20	<0.20	<0.20	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dichloromethane	75-09-2	E611D/WT	µg/L		<1.0	<1.0	<1.0	<1.0	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	µg/L		<0.30	<0.30	<0.30	<0.30	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH201	BH205	DUP-1	TRIP BLANK	----	----	----
				Sampling date/time	11-Apr-2024 12:00	10-Apr-2024 14:00	11-Apr-2024 12:00	11-Apr-2024 00:00	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WT2408478-001	WT2408478-002	WT2408478-003	WT2408478-004	--------	--------	--------
Volatile Organic Compounds											
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	µg/L		<0.30	<0.30	<0.30	<0.30	----	----	----
Ethylbenzene	100-41-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Hexane, n-	110-54-3	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	µg/L		<20	<20	<20	<20	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	µg/L		<20	<20	<20	<20	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Styrene	100-42-5	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Toluene	108-88-3	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Trichloroethylene	79-01-6	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Vinyl chloride	75-01-4	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	µg/L		<0.40	<0.40	<0.40	<0.40	----	----	----
Xylene, o-	95-47-6	E611D/WT	µg/L		<0.30	<0.30	<0.30	<0.30	----	----	----
Xylenes, total	1330-20-7	E611D/WT	µg/L		<0.50	<0.50	<0.50	<0.50	----	----	----
BTEX, total	----	E611D/WT	µg/L		<1.0	<1.0	<1.0	<1.0	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		101	103	106	93.7	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		98.6	98.5	98.6	98.8	----	----	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	µg/L		<0.016 DLQ	----	<0.016 DLQ	----	----	----	----
Acenaphthylene	208-96-8	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----
Anthracene	120-12-7	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH201	BH205	DUP-1	TRIP BLANK	----	----	----
				Sampling date/time	11-Apr-2024 12:00	10-Apr-2024 14:00	11-Apr-2024 12:00	11-Apr-2024 00:00	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WT2408478-001	WT2408478-002	WT2408478-003	WT2408478-004	--------	--------	--------
Polycyclic Aromatic Hydrocarbons											
Benzo(a)pyrene	50-32-8	E641A/WT	µg/L		<0.0050	----	<0.0050	----	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----
Chrysene	218-01-9	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	µg/L		<0.0050	----	<0.0050	----	----	----	----
Fluoranthene	206-44-0	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----
Fluorene	86-73-7	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	µg/L		<0.015	----	<0.015	----	----	----	----
Methylnaphthalene, 2-	91-57-6	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----
Naphthalene	91-20-3	E641A/WT	µg/L		<0.050	----	<0.050	----	----	----	----
Phenanthrene	85-01-8	E641A/WT	µg/L		<0.020	----	<0.020	----	----	----	----
Pyrene	129-00-0	E641A/WT	µg/L		<0.010	----	<0.010	----	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates											
Chrysene-d12	1719-03-5	E641A/WT	%		129	----	140	----	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%		106	----	106	----	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		109	----	108	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-AI I
Physical Tests			
Conductivity	----	mS/cm	--
pH	----	pH units	--
Anions and Nutrients			
Chloride	16887-00-6	mg/L	**2300 mg/L**
Cyanides			
Cyanide, weak acid dissociable	----	µg/L	**66 µg/L**
Dissolved Metals			
Antimony, dissolved	7440-36-0	µg/L	**20000 µg/L**
Arsenic, dissolved	7440-38-2	µg/L	**1900 µg/L**
Barium, dissolved	7440-39-3	µg/L	**29000 µg/L**
Beryllium, dissolved	7440-41-7	µg/L	**67 µg/L**
Boron, dissolved	7440-42-8	µg/L	**45000 µg/L**
Cadmium, dissolved	7440-43-9	µg/L	**2.7 µg/L**
Chromium, dissolved	7440-47-3	µg/L	**810 µg/L**
Cobalt, dissolved	7440-48-4	µg/L	**66 µg/L**
Copper, dissolved	7440-50-8	µg/L	**87 µg/L**
Dissolved mercury filtration location	----	-	--
Dissolved metals filtration location	----	-	--
Lead, dissolved	7439-92-1	µg/L	**25 µg/L**
Mercury, dissolved	7439-97-6	µg/L	**0.29 µg/L**
Molybdenum, dissolved	7439-98-7	µg/L	**9200 µg/L**
Nickel, dissolved	7440-02-0	µg/L	**490 µg/L**
Selenium, dissolved	7782-49-2	µg/L	**63 µg/L**
Silver, dissolved	7440-22-4	µg/L	**1.5 µg/L**
Sodium, dissolved	7440-23-5	µg/L	**2300000 µg/L**
Thallium, dissolved	7440-28-0	µg/L	**510 µg/L**
Uranium, dissolved	7440-61-1	µg/L	**420 µg/L**
Vanadium, dissolved	7440-62-2	µg/L	**250 µg/L**
Zinc, dissolved	7440-66-6	µg/L	**1100 µg/L**
Speciated Metals			
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	µg/L	**140 µg/L**
Volatile Organic Compounds			
Acetone	67-64-1	µg/L	**130000 µg/L**
Benzene	71-43-2	µg/L	**44 µg/L**
Bromodichloromethane	75-27-4	µg/L	**85000 µg/L**
Bromoform	75-25-2	µg/L	**380 µg/L**

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-Al l						
Volatile Organic Compounds - Continued									
Bromomethane	74-83-9	µg/L	**5.6 µg/L**						
BTEX, total	----	µg/L	**--**						
Carbon tetrachloride	56-23-5	µg/L	**0.79 µg/L**						
Chlorobenzene	108-90-7	µg/L	**630 µg/L**						
Chloroform	67-66-3	µg/L	**2.4 µg/L**						
Dibromochloromethane	124-48-1	µg/L	**82000 µg/L**						
Dibromoethane, 1,2-	106-93-4	µg/L	**0.25 µg/L**						
Dichlorobenzene, 1,2-	95-50-1	µg/L	**4600 µg/L**						
Dichlorobenzene, 1,3-	541-73-1	µg/L	**9600 µg/L**						
Dichlorobenzene, 1,4-	106-46-7	µg/L	**8 µg/L**						
Dichlorodifluoromethane	75-71-8	µg/L	**4400 µg/L**						
Dichloroethane, 1,1-	75-34-3	µg/L	**320 µg/L**						
Dichloroethane, 1,2-	107-06-2	µg/L	**1.6 µg/L**						
Dichloroethylene, 1,1-	75-35-4	µg/L	**1.6 µg/L**						
Dichloroethylene, cis-1,2-	156-59-2	µg/L	**1.6 µg/L**						
Dichloroethylene, trans-1,2-	156-60-5	µg/L	**1.6 µg/L**						
Dichloromethane	75-09-2	µg/L	**610 µg/L**						
Dichloropropane, 1,2-	78-87-5	µg/L	**16 µg/L**						
Dichloropropylene, cis+trans-1,3-	542-75-6	µg/L	**5.2 µg/L**						
Dichloropropylene, cis-1,3-	10061-01-5	µg/L	**--**						
Dichloropropylene, trans-1,3-	10061-02-6	µg/L	**--**						
Ethylbenzene	100-41-4	µg/L	**2300 µg/L**						
Hexane, n-	110-54-3	µg/L	**51 µg/L**						
Methyl ethyl ketone [MEK]	78-93-3	µg/L	**470000 µg/L**						
Methyl isobutyl ketone [MIBK]	108-10-1	µg/L	**140000 µg/L**						
Methyl-tert-butyl ether [MTBE]	1634-04-4	µg/L	**190 µg/L**						
Styrene	100-42-5	µg/L	**1300 µg/L**						
Tetrachloroethane, 1,1,1,2-	630-20-6	µg/L	**3.3 µg/L**						
Tetrachloroethane, 1,1,2,2-	79-34-5	µg/L	**3.2 µg/L**						
Tetrachloroethylene	127-18-4	µg/L	**1.6 µg/L**						
Toluene	108-88-3	µg/L	**18000 µg/L**						
Trichloroethane, 1,1,1-	71-55-6	µg/L	**640 µg/L**						
Trichloroethane, 1,1,2-	79-00-5	µg/L	**4.7 µg/L**						
Trichloroethylene	79-01-6	µg/L	**1.6 µg/L**						
Trichlorofluoromethane	75-69-4	µg/L	**2500 µg/L**						
Vinyl chloride	75-01-4	µg/L	**0.5 µg/L**						
Xylene, m+p-	179601-23-1	µg/L	**--**						
Xylene, o-	95-47-6	µg/L	**--**						

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-All						
Volatile Organic Compounds - Continued									
Xylenes, total	1330-20-7	µg/L	**4200 µg/L**						
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	%	--						
Difluorobenzene, 1,4-	540-36-3	%	--						
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	µg/L	**600 µg/L**						
Acenaphthylene	208-96-8	µg/L	**1.8 µg/L**						
Anthracene	120-12-7	µg/L	**2.4 µg/L**						
Benz(a)anthracene	56-55-3	µg/L	**4.7 µg/L**						
Benzo(a)pyrene	50-32-8	µg/L	**0.81 µg/L**						
Benzo(b+j)fluoranthene	n/a	µg/L	**0.75 µg/L**						
Benzo(g,h,i)perylene	191-24-2	µg/L	**0.2 µg/L**						
Benzo(k)fluoranthene	207-08-9	µg/L	**0.4 µg/L**						
Chrysene	218-01-9	µg/L	**1 µg/L**						
Dibenz(a,h)anthracene	53-70-3	µg/L	**0.52 µg/L**						
Fluoranthene	206-44-0	µg/L	**130 µg/L**						
Fluorene	86-73-7	µg/L	**400 µg/L**						
Indeno(1,2,3-c,d)pyrene	193-39-5	µg/L	**0.2 µg/L**						
Methylnaphthalene, 1+2-	----	µg/L	**1800 µg/L**						
Methylnaphthalene, 1-	90-12-0	µg/L	**1800 µg/L**						
Methylnaphthalene, 2-	91-57-6	µg/L	**1800 µg/L**						
Naphthalene	91-20-3	µg/L	**1400 µg/L**						
Phenanthrene	85-01-8	µg/L	**580 µg/L**						
Pyrene	129-00-0	µg/L	**68 µg/L**						
Chrysene-d12	1719-03-5	%	--						
Naphthalene-d8	1146-65-2	%	--						
Phenanthrene-d10	1517-22-2	%	--						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON153/04 Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)

T3-NPGW-C-All 153 T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2408478**	Page	: 1 of 8
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087-102	Date Samples Received	: 11-Apr-2024 15:14
PO	: ----	Issue Date	: 18-Apr-2024 17:38
C-O-C number	: 20-1047526		
Sampler	: LB		
Site	: 4094 TOMKAN RD		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] BH201	E235.Cl	11-Apr-2024	15-Apr-2024	28 days	4 days	✓	16-Apr-2024	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] DUP-1	E235.Cl	11-Apr-2024	15-Apr-2024	28 days	4 days	✓	16-Apr-2024	28 days	5 days	✓
Cyanides : WAD Cyanide										
HDPE - total (sodium hydroxide) BH201	E336	11-Apr-2024	17-Apr-2024	14 days	6 days	✓	17-Apr-2024	14 days	6 days	✓
Cyanides : WAD Cyanide										
HDPE - total (sodium hydroxide) DUP-1	E336	11-Apr-2024	17-Apr-2024	14 days	6 days	✓	17-Apr-2024	14 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) BH201	E509	11-Apr-2024	15-Apr-2024	28 days	4 days	✓	15-Apr-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) DUP-1	E509	11-Apr-2024	15-Apr-2024	28 days	4 days	✓	15-Apr-2024	28 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) BH201	E421	11-Apr-2024	12-Apr-2024	180 days	1 days	✓	12-Apr-2024	180 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
DUP-1	E421	11-Apr-2024	12-Apr-2024	180 days	1 days	✓	12-Apr-2024	180 days	1 days	✓
Physical Tests : Conductivity in Water										
HDPE [ON MECP]										
BH201	E100	11-Apr-2024	15-Apr-2024	28 days	4 days	✓	17-Apr-2024	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE [ON MECP]										
DUP-1	E100	11-Apr-2024	15-Apr-2024	28 days	4 days	✓	17-Apr-2024	28 days	6 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP]										
BH201	E108	11-Apr-2024	15-Apr-2024	14 days	4 days	✓	17-Apr-2024	14 days	6 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP]										
DUP-1	E108	11-Apr-2024	15-Apr-2024	14 days	4 days	✓	17-Apr-2024	14 days	6 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
BH201	E641A	11-Apr-2024	15-Apr-2024	14 days	4 days	✓	15-Apr-2024	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Water by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
DUP-1	E641A	11-Apr-2024	15-Apr-2024	14 days	4 days	✓	15-Apr-2024	40 days	0 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
BH201	E532A	11-Apr-2024	----	----	----		12-Apr-2024	28 days	1 days	✓
Speciated Metals : Dissolved Hexavalent Chromium (Cr VI) by IC										
HDPE - dissolved (NaOH+Buf) [ON MECP]										
DUP-1	E532A	11-Apr-2024	----	----	----		12-Apr-2024	28 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH201	E611D	11-Apr-2024	11-Apr-2024	14 days	0 days	✓	11-Apr-2024	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) DUP-1	E611D	11-Apr-2024	11-Apr-2024	14 days	0 days	✓	11-Apr-2024	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH205	E611D	10-Apr-2024	11-Apr-2024	14 days	1 days	✓	11-Apr-2024	14 days	1 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) TRIP BLANK	E611D	11-Apr-2024	11-Apr-2024	14 days	1 days	✓	11-Apr-2024	14 days	1 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Chloride in Water by IC	E235.Cl	1403622	1	17	5.8	5.0	✓
Conductivity in Water	E100	1403615	1	4	25.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1400994	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1402847	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1400136	1	20	5.0	5.0	✓
pH by Meter	E108	1403617	1	15	6.6	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1400027	2	20	10.0	5.0	✓
WAD Cyanide	E336	1400897	1	4	25.0	5.0	✓
Laboratory Control Samples (LCS)							
Chloride in Water by IC	E235.Cl	1403622	1	17	5.8	5.0	✓
Conductivity in Water	E100	1403615	1	4	25.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1400994	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1402847	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1400136	1	20	5.0	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1402713	1	7	14.2	5.0	✓
pH by Meter	E108	1403617	1	15	6.6	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1400027	1	20	5.0	5.0	✓
WAD Cyanide	E336	1400897	1	4	25.0	5.0	✓
Method Blanks (MB)							
Chloride in Water by IC	E235.Cl	1403622	1	17	5.8	5.0	✓
Conductivity in Water	E100	1403615	1	4	25.0	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1400994	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1402847	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1400136	1	20	5.0	5.0	✓
PAHs in Water by Hexane LVI GC-MS	E641A	1402713	1	7	14.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1400027	1	20	5.0	5.0	✓
WAD Cyanide	E336	1400897	1	4	25.0	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	1403622	1	17	5.8	5.0	✓
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A	1400994	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1402847	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1400136	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1400027	1	20	5.0	5.0	✓
WAD Cyanide	E336	1400897	1	4	25.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Waterloo	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
WAD Cyanide	E336 ALS Environmental - Waterloo	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hexavalent Chromium (Cr VI) by IC	E532A ALS Environmental - Waterloo	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. sample pretreatment involved field or lab filtration following by sample preservation.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs in Water by Hexane LVI GC-MS	E641A ALS Environmental - Waterloo	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 ALS Environmental - Waterloo	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.

ALS Canada Ltd.

QUALITY CONTROL REPORT

Work Order	: **WT2408478**	Page	: 1 of 13
Client	: Grounded Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087-102	Date Samples Received	: 11-Apr-2024 15:14
PO	: ----	Date Analysis Commenced	: 11-Apr-2024
C-O-C number	: 20-1047526	Issue Date	: 18-Apr-2024 17:38
Sampler	: LB		
Site	: 4094 TOMKAN RD		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Jeremy Gingras	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Niki Goebel	Inorganics Analyst	Waterloo Metals, Waterloo, Ontario
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Waterloo Inorganics, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1403615)											
WT2408475-007	Anonymous	Conductivity	----	E100	2.0	µS/cm	1070	1060	0.468%	10%	----
Physical Tests (QC Lot: 1403617)											
WT2408475-007	Anonymous	pH	----	E108	0.10	pH units	8.26	8.23	0.364%	4%	----
Anions and Nutrients (QC Lot: 1403622)											
WT2408475-007	Anonymous	Chloride	16887-00-6	E235.Cl	2.50	mg/L	109	109	0.332%	20%	----
Cyanides (QC Lot: 1400897)											
WT2408420-001	Anonymous	Cyanide, weak acid dissociable	----	E336	0.0020	mg/L	<2.0 µg/L	<0.0020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1400136)											
WT2408465-001	Anonymous	Antimony, dissolved	7440-36-0	E421	0.00100	mg/L	<1.00 µg/L	<0.00100	0	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00100	mg/L	1.85 µg/L	0.00170	0.00015	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00100	mg/L	366 µg/L	0.368	0.400%	20%	----
		Beryllium, dissolved	7440-41-7	E421	0.000200	mg/L	0.275 µg/L	0.000255	0.000020	Diff <2x LOR	----
		Boron, dissolved	7440-42-8	E421	0.100	mg/L	<100 µg/L	<0.100	0	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000500	mg/L	2.70 µg/L	0.00278	3.12%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00500	mg/L	<5.00 µg/L	<0.00500	0	Diff <2x LOR	----
		Cobalt, dissolved	7440-48-4	E421	0.00100	mg/L	9.58 µg/L	0.00964	0.00006	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00200	mg/L	3.43 µg/L	0.00343	0.000006	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000500	mg/L	<0.500 µg/L	<0.000500	0	Diff <2x LOR	----
		Molybdenum, dissolved	7439-98-7	E421	0.000500	mg/L	0.545 µg/L	0.000510	0.000035	Diff <2x LOR	----
		Nickel, dissolved	7440-02-0	E421	0.00500	mg/L	8.26 µg/L	0.00863	0.00037	Diff <2x LOR	----
		Selenium, dissolved	7782-49-2	E421	0.000500	mg/L	0.628 µg/L	0.000669	0.000041	Diff <2x LOR	----
		Silver, dissolved	7440-22-4	E421	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Sodium, dissolved	7440-23-5	E421	0.500	mg/L	86300 µg/L	89.1	3.14%	20%	----
		Thallium, dissolved	7440-28-0	E421	0.000100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		Uranium, dissolved	7440-61-1	E421	0.000100	mg/L	0.529 µg/L	0.000549	0.000019	Diff <2x LOR	----
		Vanadium, dissolved	7440-62-2	E421	0.00500	mg/L	<5.00 µg/L	<0.00500	0	Diff <2x LOR	----
		Zinc, dissolved	7440-66-6	E421	0.0100	mg/L	140 µg/L	0.149	5.88%	20%	----
Dissolved Metals (QC Lot: 1402847)											
WT2408478-001	BH201	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----
Speciated Metals (QC Lot: 1400994)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Speciated Metals (QC Lot: 1400994) - continued											
WT2408420-001	Anonymous	Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1400027)											
WT2408500-001	Anonymous	Dichloromethane	75-09-2	E611D	37.0	µg/L	<42.0	<37.0	5.0	Diff <2x LOR	----
WT2408500-001	Anonymous	Acetone	67-64-1	E611D	20	µg/L	122	112	10	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	0.94	0.93	0.01	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1400027) - continued											
WT2408500-001	Anonymous	Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1403615)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Anions and Nutrients (QCLot: 1403622)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Cyanides (QCLot: 1400897)						
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Dissolved Metals (QCLot: 1400136)						
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Dissolved Metals (QCLot: 1402847)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Speciated Metals (QCLot: 1400994)						
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0005	mg/L	<0.00050	----
Volatile Organic Compounds (QCLot: 1400027)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1400027) - continued						
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1400027) - continued						
Vinyl chloride	75-01-4	E611D	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1402713)						
Acenaphthene	83-32-9	E641A	0.01	µg/L	<0.010	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	<0.010	----
Anthracene	120-12-7	E641A	0.01	µg/L	<0.010	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	<0.010	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	<0.0050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	<0.010	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	<0.010	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	<0.010	----
Chrysene	218-01-9	E641A	0.01	µg/L	<0.010	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	<0.0050	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	<0.010	----
Fluorene	86-73-7	E641A	0.01	µg/L	<0.010	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	<0.010	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	<0.010	----
Naphthalene	91-20-3	E641A	0.05	µg/L	<0.050	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	<0.020	----
Pyrene	129-00-0	E641A	0.01	µg/L	<0.010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1403615)									
Conductivity	----	E100	1	µS/cm	1410 µS/cm	100	90.0	110	----
Physical Tests (QCLot: 1403617)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Anions and Nutrients (QCLot: 1403622)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	100	90.0	110	----
Cyanides (QCLot: 1400897)									
Cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	94.0	80.0	120	----
Dissolved Metals (QCLot: 1400136)									
Antimony, dissolved	7440-36-0	E421	0.0001	mg/L	0.05 mg/L	96.6	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.012 mg/L	104	80.0	120	----
Beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.005 mg/L	94.3	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	91.9	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	101	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.012 mg/L	102	80.0	120	----
Cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.012 mg/L	98.8	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.012 mg/L	100	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	94.5	80.0	120	----
Molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.012 mg/L	94.4	80.0	120	----
Nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.025 mg/L	99.8	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	102	80.0	120	----
Silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.005 mg/L	93.0	80.0	120	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	105	80.0	120	----
Thallium, dissolved	7440-28-0	E421	0.00001	mg/L	0.05 mg/L	94.4	80.0	120	----
Uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0 mg/L	99.0	80.0	120	----
Vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.025 mg/L	102	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	101	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	94.0	80.0	120	----
Speciated Metals (QCLot: 1400994)									

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Speciated Metals (QCLot: 1400994) - continued									
Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0005	mg/L	0.025 mg/L	104	80.0	120	----
Volatile Organic Compounds (QCLot: 1400027)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	109	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	93.0	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	113	60.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	120	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	98.4	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	108	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	109	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	95.0	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	96.8	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	92.2	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	86.6	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	98.1	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	116	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1400027) - continued									
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	129	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	100 µg/L	109	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	106	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	103	70.0	130	----
Polycyclic Aromatic Hydrocarbons (QCLot: 1402713)									
Acenaphthene	83-32-9	E641A	0.01	µg/L	0.526 µg/L	94.6	50.0	140	----
Acenaphthylene	208-96-8	E641A	0.01	µg/L	0.526 µg/L	91.3	50.0	140	----
Anthracene	120-12-7	E641A	0.01	µg/L	0.526 µg/L	88.6	50.0	140	----
Benz(a)anthracene	56-55-3	E641A	0.01	µg/L	0.526 µg/L	112	50.0	140	----
Benzo(a)pyrene	50-32-8	E641A	0.005	µg/L	0.526 µg/L	62.3	50.0	140	----
Benzo(b+j)fluoranthene	n/a	E641A	0.01	µg/L	0.526 µg/L	58.1	50.0	140	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.01	µg/L	0.526 µg/L	124	50.0	140	----
Benzo(k)fluoranthene	207-08-9	E641A	0.01	µg/L	0.526 µg/L	64.8	50.0	140	----
Chrysene	218-01-9	E641A	0.01	µg/L	0.526 µg/L	118	50.0	140	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.005	µg/L	0.526 µg/L	106	50.0	140	----
Fluoranthene	206-44-0	E641A	0.01	µg/L	0.526 µg/L	95.5	50.0	140	----
Fluorene	86-73-7	E641A	0.01	µg/L	0.526 µg/L	95.1	50.0	140	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	µg/L	0.526 µg/L	111	50.0	140	----
Methylnaphthalene, 1-	90-12-0	E641A	0.01	µg/L	0.526 µg/L	90.6	50.0	140	----
Methylnaphthalene, 2-	91-57-6	E641A	0.01	µg/L	0.526 µg/L	92.8	50.0	140	----
Naphthalene	91-20-3	E641A	0.05	µg/L	0.526 µg/L	92.1	50.0	140	----
Phenanthrene	85-01-8	E641A	0.02	µg/L	0.526 µg/L	95.5	50.0	140	----
Pyrene	129-00-0	E641A	0.01	µg/L	0.526 µg/L	98.4	50.0	140	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1403622)										
WT2408475-007	Anonymous	Chloride	16887-00-6	E235.Cl	513 mg/L	500 mg/L	102	75.0	125	----
Cyanides (QCLot: 1400897)										
WT2408420-001	Anonymous	Cyanide, weak acid dissociable	----	E336	0.113 mg/L	0.125 mg/L	90.4	75.0	125	----
Dissolved Metals (QCLot: 1400136)										
WT2408465-002	Anonymous	Antimony, dissolved	7440-36-0	E421	0.452 mg/L	0.5 mg/L	90.5	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.516 mg/L	0.5 mg/L	103	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Beryllium, dissolved	7440-41-7	E421	0.0482 mg/L	0.05 mg/L	96.5	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.457 mg/L	0.5 mg/L	91.4	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.0492 mg/L	0.05 mg/L	98.3	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.122 mg/L	0.125 mg/L	97.7	70.0	130	----
		Cobalt, dissolved	7440-48-4	E421	0.119 mg/L	0.125 mg/L	95.3	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.116 mg/L	0.125 mg/L	93.3	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.215 mg/L	0.25 mg/L	86.1	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E421	0.114 mg/L	0.125 mg/L	91.3	70.0	130	----
		Nickel, dissolved	7440-02-0	E421	0.234 mg/L	0.25 mg/L	93.8	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.506 mg/L	0.5 mg/L	101	70.0	130	----
		Silver, dissolved	7440-22-4	E421	0.0434 mg/L	0.05 mg/L	86.8	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Thallium, dissolved	7440-28-0	E421	0.427 mg/L	0.5 mg/L	85.4	70.0	130	----
		Uranium, dissolved	7440-61-1	E421	0.00228 mg/L	0.002 mg/L	91.4	70.0	130	----
		Vanadium, dissolved	7440-62-2	E421	0.249 mg/L	0.25 mg/L	99.7	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.240 mg/L	0.25 mg/L	95.9	70.0	130	----
Dissolved Metals (QCLot: 1402847)										
WT2408478-003	DUP-1	Mercury, dissolved	7439-97-6	E509	0.0000926 mg/L	0 mg/L	92.6	70.0	130	----
Speciated Metals (QCLot: 1400994)										
WT2408420-001	Anonymous	Chromium, hexavalent [Cr VI], dissolved	18540-29-9	E532A	0.0421 mg/L	0.04 mg/L	105	70.0	130	----
Volatile Organic Compounds (QCLot: 1400027)										
WT2408500-001	Anonymous	Acetone	67-64-1	E611D	ND µg/L	----	ND	60.0	140	----
		Benzene	71-43-2	E611D	97.5 µg/L	100 µg/L	97.5	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Bromoform	75-25-2	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Bromomethane	74-83-9	E611D	83.1 µg/L	100 µg/L	83.1	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Chlorobenzene	108-90-7	E611D	96.2 µg/L	100 µg/L	96.2	60.0	140	----
		Chloroform	67-66-3	E611D	108 µg/L	100 µg/L	108	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1400027) - continued										
WT2408500-001	Anonymous	Dibromochloromethane	124-48-1	E611D	97.1 µg/L	100 µg/L	97.1	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	99.4 µg/L	100 µg/L	99.4	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	98.2 µg/L	100 µg/L	98.2	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	64.6 µg/L	100 µg/L	64.6	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	79.9 µg/L	100 µg/L	79.9	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	100 µg/L	100 µg/L	100	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	92.4 µg/L	100 µg/L	92.4	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	98.3 µg/L	100 µg/L	98.3	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	92.4 µg/L	100 µg/L	92.4	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	94.5 µg/L	100 µg/L	94.5	60.0	140	----
		Ethylbenzene	100-41-4	E611D	93.0 µg/L	100 µg/L	93.0	60.0	140	----
		Hexane, n-	110-54-3	E611D	96.6 µg/L	100 µg/L	96.6	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	97 µg/L	100 µg/L	97.4	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	91 µg/L	100 µg/L	91.1	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	94.1 µg/L	100 µg/L	94.1	60.0	140	----
		Styrene	100-42-5	E611D	91.5 µg/L	100 µg/L	91.5	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	113 µg/L	100 µg/L	113	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Toluene	108-88-3	E611D	94.0 µg/L	100 µg/L	94.0	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Trichloroethylene	79-01-6	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	92.5 µg/L	100 µg/L	92.5	60.0	140	----
		Vinyl chloride	75-01-4	E611D	76.1 µg/L	100 µg/L	76.1	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	197 µg/L	200 µg/L	98.4	60.0	140	----
		Xylene, o-	95-47-6	E611D	96.5 µg/L	100 µg/L	96.5	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1047526

Page 1 of 1

ALS www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division Waterloo
Work Order Reference
WT2408478

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Grounded Eng
Contact:	Emma Leet
Phone:	647-264-7460
	Company address below will appear on the final report
Street:	1 Banigan Dr
City/Province:	Toronto / ON
Postal Code:	M4H 1G3
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: eleet@groundedeng.ca
Email 2:
Email 3:

Invoice Recipients

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax:
Email 2:

Turnaround Time (TAT) Requested

- ☐ Routine [R] if received by 3pm M-F - no surcharges apply
- ☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
- ☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
- ☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
- ☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
- ☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests.

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

ALS Account # / Quote #:
Job #: 22-087-102
PO / AFE:
LSD: 4094 Tomken Rd

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#:
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (ALS use only):

ALS Contact: Sampler: LB

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Analysis Request: Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P)																SAMPLES ON HOLD	EXTENDED STORAGE REQU	SUSPECTED HAZARD (see n
						F	MET	PAH	VOC																
	BH 201	11-Apr-24	19:00	GW	9	X	X	X																
	BH 205	10 Apr-24	14:00	↓	2			X																
	DUP-1	11-Apr-24	12:00	↓	9	X	X	X																
	TRIP BLANK				2			X																

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

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

O-Reg 153/04, Table 3 RPI CT

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☒ ICE ☒ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
9.8				8.5			

SHIPMENT RELEASE (client use)

Released by: LB Date: 04/11/24 Time: 3:00

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: Karan Date: 4/11/2024 Time: 15:14

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: Date: 11-Apr-24 Time: 18:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

HW-057 OR-944 MM-485 GC-745 SC-698 CN-739 TL

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WT2409014**	Page	: 1 of 6
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087	Date Samples Received	: 17-Apr-2024 09:45
PO	: ----	Date Analysis Commenced	: 18-Apr-2024
C-O-C number	: 20-1085021	Issue Date	: 19-Apr-2024 09:13
Sampler	: CLIENT		
Site	: ----		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Sarah Birch	VOC Section Supervisor	VOC, Waterloo, Ontario

No Breaches Found

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
µg/L	micrograms per litre

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH208	TRIP BLANK	----	----	----	----	----
				Sampling date/time	16-Apr-2024 12:15	16-Apr-2024 00:00	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					WT2409014-001	WT2409014-002	--------	--------	--------	--------	--------
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	µg/L		<20	<20	----	----	----	----	----
Benzene	71-43-2	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Bromoform	75-25-2	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Bromomethane	74-83-9	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	µg/L		<0.20	<0.20	----	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Chloroform	67-66-3	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	µg/L		<0.20	<0.20	----	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	µg/L		<1.0	<1.0	----	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	µg/L		<0.30	<0.30	----	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	µg/L		<0.30	<0.30	----	----	----	----	----
Ethylbenzene	100-41-4	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Hexane, n-	110-54-3	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	µg/L		<20	<20	----	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	µg/L		<20	<20	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH208	TRIP BLANK	----	----	----	----	----
				Sampling date/time	16-Apr-2024 12:15	16-Apr-2024 00:00	----	----	----	----	----
				Sub-Matrix	Water	Water	----	----	----	----	----
					WT2409014-001	WT2409014-002	--------	--------	--------	--------	--------
Volatile Organic Compounds											
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Styrene	100-42-5	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Toluene	108-88-3	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Vinyl chloride	75-01-4	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	µg/L		<0.40	<0.40	----	----	----	----	----
Xylene, o-	95-47-6	E611D/WT	µg/L		<0.30	<0.30	----	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	µg/L		<0.50	<0.50	----	----	----	----	----
BTEX, total	----	E611D/WT	µg/L		<1.0	<1.0	----	----	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		101	100	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		95.4	95.1	----	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-AI I						
Volatile Organic Compounds									
Acetone	67-64-1	µg/L	**130000 µg/L**						
Benzene	71-43-2	µg/L	**44 µg/L**						
Bromodichloromethane	75-27-4	µg/L	**85000 µg/L**						
Bromoform	75-25-2	µg/L	**380 µg/L**						
Bromomethane	74-83-9	µg/L	**5.6 µg/L**						
BTEX, total	----	µg/L	**--**						
Carbon tetrachloride	56-23-5	µg/L	**0.79 µg/L**						
Chlorobenzene	108-90-7	µg/L	**630 µg/L**						
Chloroform	67-66-3	µg/L	**2.4 µg/L**						
Dibromochloromethane	124-48-1	µg/L	**82000 µg/L**						
Dibromoethane, 1,2-	106-93-4	µg/L	**0.25 µg/L**						
Dichlorobenzene, 1,2-	95-50-1	µg/L	**4600 µg/L**						
Dichlorobenzene, 1,3-	541-73-1	µg/L	**9600 µg/L**						
Dichlorobenzene, 1,4-	106-46-7	µg/L	**8 µg/L**						
Dichlorodifluoromethane	75-71-8	µg/L	**4400 µg/L**						
Dichloroethane, 1,1-	75-34-3	µg/L	**320 µg/L**						
Dichloroethane, 1,2-	107-06-2	µg/L	**1.6 µg/L**						
Dichloroethylene, 1,1-	75-35-4	µg/L	**1.6 µg/L**						
Dichloroethylene, cis-1,2-	156-59-2	µg/L	**1.6 µg/L**						
Dichloroethylene, trans-1,2-	156-60-5	µg/L	**1.6 µg/L**						
Dichloromethane	75-09-2	µg/L	**610 µg/L**						
Dichloropropane, 1,2-	78-87-5	µg/L	**16 µg/L**						
Dichloropropylene, cis+trans-1,3-	542-75-6	µg/L	**5.2 µg/L**						
Dichloropropylene, cis-1,3-	10061-01-5	µg/L	**--**						
Dichloropropylene, trans-1,3-	10061-02-6	µg/L	**--**						
Ethylbenzene	100-41-4	µg/L	**2300 µg/L**						
Hexane, n-	110-54-3	µg/L	**51 µg/L**						
Methyl ethyl ketone [MEK]	78-93-3	µg/L	**470000 µg/L**						
Methyl isobutyl ketone [MIBK]	108-10-1	µg/L	**140000 µg/L**						
Methyl-tert-butyl ether [MTBE]	1634-04-4	µg/L	**190 µg/L**						
Styrene	100-42-5	µg/L	**1300 µg/L**						
Tetrachloroethane, 1,1,1,2-	630-20-6	µg/L	**3.3 µg/L**						
Tetrachloroethane, 1,1,2,2-	79-34-5	µg/L	**3.2 µg/L**						
Tetrachloroethylene	127-18-4	µg/L	**1.6 µg/L**						
Toluene	108-88-3	µg/L	**18000 µg/L**						
Trichloroethane, 1,1,1-	71-55-6	µg/L	**640 µg/L**						

Analyte	CAS Number	Unit	ON153/04 T3-NPGW-C-All						
Volatile Organic Compounds - Continued									
Trichloroethane, 1,1,2-	79-00-5	µg/L	**4.7 µg/L**						
Trichloroethylene	79-01-6	µg/L	**1.6 µg/L**						
Trichlorofluoromethane	75-69-4	µg/L	**2500 µg/L**						
Vinyl chloride	75-01-4	µg/L	**0.5 µg/L**						
Xylene, m+p-	179601-23-1	µg/L	--						
Xylene, o-	95-47-6	µg/L	--						
Xylenes, total	1330-20-7	µg/L	**4200 µg/L**						
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	%	--						
Difluorobenzene, 1,4-	540-36-3	%	--						

Please refer to the General Comments section for an explanation of any qualifiers detected.

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T3-NPGW-C-All	153 T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2409014**	Page	: 1 of 5
Client	: **Grounded Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087	Date Samples Received	: 17-Apr-2024 09:45
PO	: ----	Issue Date	: 19-Apr-2024 09:13
C-O-C number	: 20-1085021		
Sampler	: CLIENT		
Site	: ----		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / **Container / Client Sample ID(s)**	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) BH208	E611D	16-Apr-2024	18-Apr-2024	14 days	2 days	✓	18-Apr-2024	14 days	2 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) TRIP BLANK	E611D	16-Apr-2024	18-Apr-2024	14 days	3 days	✓	18-Apr-2024	14 days	3 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1408352	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1408352	1	20	5.0	5.0	✓
Method Blanks (MB)							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1408352	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1408352	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.

QUALITY CONTROL REPORT

Work Order	: **WT2409014**	Page	: 1 of 10
Client	: Grounded Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Emma Leet	Account Manager	: Amanda Overholster
Address	: 1 Banigan Drive Toronto ON Canada M4H 1G3	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 647 264 7932	Telephone	: 1 416 817 2944
Project	: 22-087	Date Samples Received	: 17-Apr-2024 09:45
PO	: ----	Date Analysis Commenced	: 18-Apr-2024
C-O-C number	: 20-1085021	Issue Date	: 19-Apr-2024 09:14
Sampler	: CLIENT		
Site	: ----		
Quote number	: 2024 SOA Pricing		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Sarah Birch	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1408352)											
WT2409014-001	BH208	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1408352) - continued											
WT2409014-001	BH208	Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1408352)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1408352) - continued						
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	<0.50	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1408352)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	130	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	98.6	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	88.6	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	116	60.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	103	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	93.9	70.0	130	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	108	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	95.4	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	95.2	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	95.4	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	92.8	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	115	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	115	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	96.1	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	96.3	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	94.9	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	120	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	107	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	94.0	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	91.6	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	98.1	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	115	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	97.2	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	93.6	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1408352) - continued									
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	104	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.5	µg/L	100 µg/L	106	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	93.2	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	92.6	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1408352)										
WT2409014-001	BH208	Acetone	67-64-1	E611D	117 µg/L	100 µg/L	117	60.0	140	----
		Benzene	71-43-2	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	113 µg/L	100 µg/L	113	60.0	140	----
		Bromoform	75-25-2	E611D	90.3 µg/L	100 µg/L	90.3	60.0	140	----
		Bromomethane	74-83-9	E611D	115 µg/L	100 µg/L	115	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	113 µg/L	100 µg/L	113	60.0	140	----
		Chlorobenzene	108-90-7	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Chloroform	67-66-3	E611D	114 µg/L	100 µg/L	114	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	99.0 µg/L	100 µg/L	99.0	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	112 µg/L	100 µg/L	112	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	111 µg/L	100 µg/L	111	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	123 µg/L	100 µg/L	123	60.0	140	----
		Dichloromethane	75-09-2	E611D	114 µg/L	100 µg/L	114	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Ethylbenzene	100-41-4	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Hexane, n-	110-54-3	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Styrene	100-42-5	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	121 µg/L	100 µg/L	121	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	109 µg/L	100 µg/L	109	60.0	140	----
		Toluene	108-88-3	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Trichloroethylene	79-01-6	E611D	114 µg/L	100 µg/L	114	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	113 µg/L	100 µg/L	113	60.0	140	----
		Vinyl chloride	75-01-4	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	211 µg/L	200 µg/L	105	60.0	140	----
		Xylene, o-	95-47-6	E611D	104 µg/L	100 µg/L	104	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 - 1085021

Page 1 of 1

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division
Waterloo
Work Order Reference
WT2409014

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Groundwater Env Inc
Contact:	Emma Litt
Phone:	647-264-7960
	Company address below will appear on the final report
Street:	1 Bunnan Dr
City/Province:	Toronto ON
Postal Code:	M4H 1G3
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A
☑ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax: elliott@groundwaterenv.ca
Email 2:
Email 3:

Invoice Recipients

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax:
Email 2:

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additi may apply to rush requests on weekends, statutory holidays and non-ro

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please c

Project Information

ALS Account # / Quote #:
Job #: 22-087
PO / AFE:
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (ALS use only): TB

ALS Contact: Sampler:

Analysis Re

Indicate Filtered (F), Preserved (P) or Filtered an

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	O.Reg 153/04 VOCs	SAMPLES ON HOLD	EXTENDED STORAGE RE	SUSPECTED HAZARD (se
	BH208	16-04-24	12:15	GW	2	X			
	Trip Blank				2	X			

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

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

O.Reg 153/04 Table 3 RPI CT

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				6.6			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
BJW	04/16/24	18:00

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
AP	17 APR 24	09:45

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

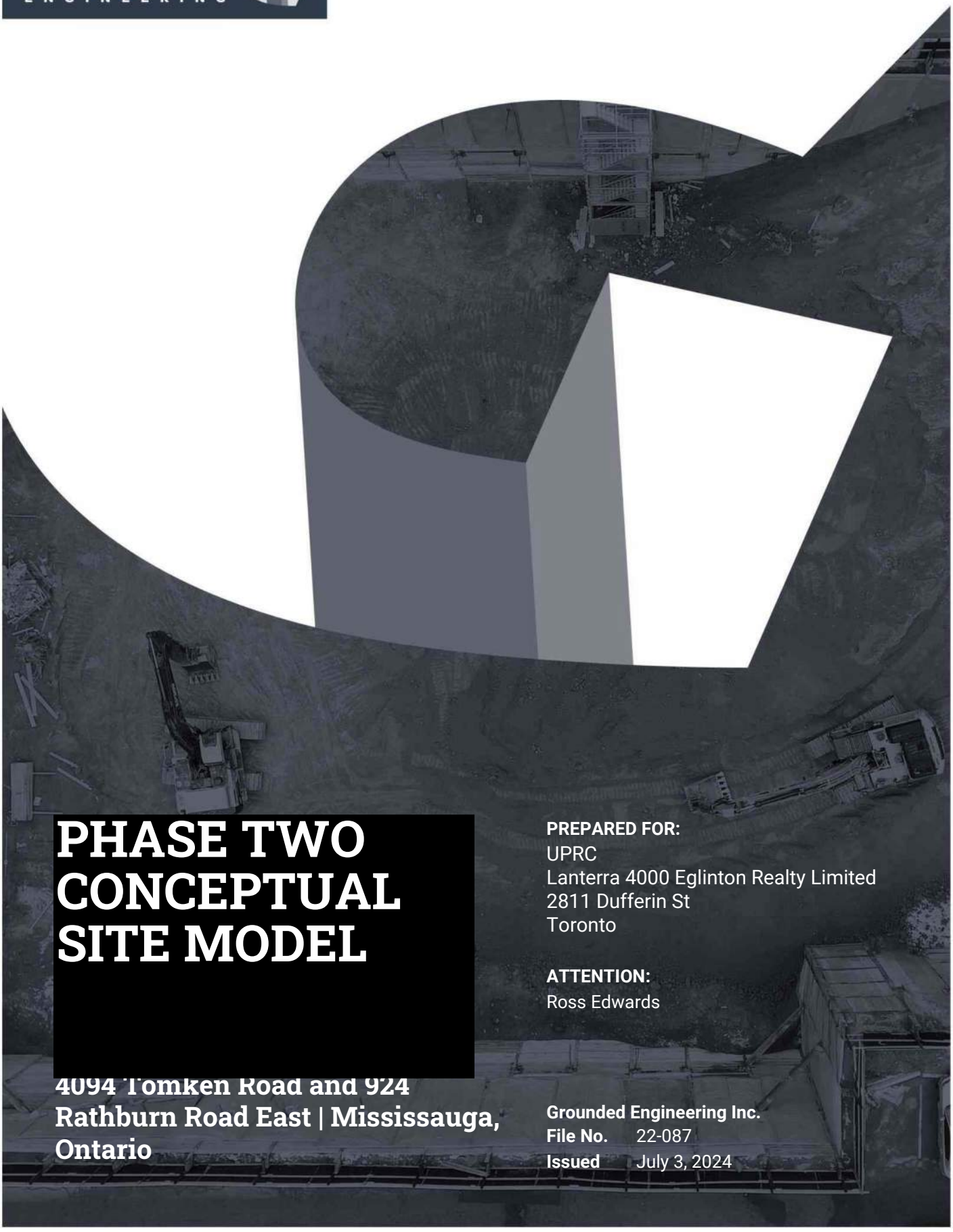
REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CA VW-078

APPENDIX F



PHASE TWO CONCEPTUAL SITE MODEL

4094 Tomken Road and 924 Rathburn Road East | Mississauga, Ontario

PREPARED FOR:
UPRC
Lanterra 4000 Eglinton Realty Limited
2811 Dufferin St
Toronto

ATTENTION:
Ross Edwards

Grounded Engineering Inc.
File No. 22-087
Issued July 3, 2024

TABLE OF CONTENTS

FIGURES

TABLES

1 Introduction

UPRC retained Grounded Engineering Inc. to complete a Phase Two Environmental Site Assessment (ESA) of the property located at 4094 Tomken Road and 924 Rathburn Road East, Mississauga, Ontario (Property). The Phase Two ESA was conducted to investigate the Areas of Potential Environmental Concern (APECs) that have been identified on the Property. The site location is presented in Figure 1.

1.1 Site Description

The Property generally is rectangular in shape, with an approximate area of 1.35 ha. The Property is bounded by Tomken Road (on the northeast) and Rathburn Road East (on the northwest). The site is currently developed with two buildings on the Property with an underground parking lot and surficial parking lot and landscaping. The Phase Two ESA has been prepared for due diligence and in accordance with Ontario Regulation (O. Reg.) 153/04.

1.2 Property Ownership

The Property information is provided below:

Municipal Address	4094 Tomken Road and 924 Rathburn Rd E, Mississauga, Ontario
Legal Description	**4094 Tomken Road** Part 0002 - Part Block 100 Plan M361 Part 0003 - Part Lot 9 Con NDS **924 Rathburn Road East** PIN to be confirmed by client
PIN(s)	**4094 Tomken Road** Part 0002 - 13310-0002 (LT) Part 0003 - 13310-0003 (LT) **924 Rathburn Road East** PIN to be confirmed by client
Current Land Use	Institutional and residential
Property Owner Information	Trustees of the Westminster Congregation of The United Church of Canada
Person who has engaged the Qualified Person to conduct the Phase One ESA	Ross Edwards, Kindred Works

1.3 Summary of Previous Investigations

Title	Phase I Environmental Site Assessment, Westminster United Church – 4094 Tomken Road and 924 Rathburn Road East, Mississauga, Ontario
Report Date	April 26, 2024

Prepared By	Grounded Engineering
Prepared for	UPRC
Description of Data, Analysis or Findings	• The Phase I was completed for the purposes of due diligence for refinancing the Property. • The Phase I ESA was generally completed in accordance with Reg. 153/04. • At the time of the site inspection complete on September 1, 2023, the Property was occupied by a church and a residential building with underground and surficial parking as well as landscaped areas. The Property was reportedly heated by a natural gas-fired boilers and HVAC units. • The report identified the following APEC causing PCAs: • Importation of fill of an unknown quality for grading and backfilling purposes • Application of salt on the walkways and parking areas for de-icing purposes. • Historical application of pesticides for agricultural purposes identified on the southwest portion of the Property. • Operational same day dry cleaner located off site to the northwest of the Property.

2 Information from the Phase One Environmental Site Assessment

2.1 Areas Where Potential Contaminating Activity Has Occurred

Potential Contaminating Activity (PCAs) were identified in the Phase I ESA completed for the Property. The information regarding whether the PCAs have the potential to cause Areas of Potential Environmental Concerns (APECs) is provided below.

Location of PCA	PCA	APEC (Yes/No)	Rationalization
Phase I Property	#30 - Importation of Fill Material of Unknown Quality	Yes (APEC #1)	The 1992 aerial photo identified a new building and parking lot on the property. Fill may have been used for historical grading purposes and to backfill the previous buildings footprints.
Phase I Property	Other 1 - De-icing Activities	Yes (APEC #2)	The Property has surficial parking on site and landscaped grass area bound by municipal road with accompany sidewalks. During the winter months, salt is applied to the roads, sidewalks, and parking lot for de-icing purpose. This PCA contributes to an APEC.

Location of PCA	PCA	APEC (Yes/No)	Rationalization
Phase I Property Southwest Portion of Property	#40 – Pesticides (including Herbicides, Fungicides, and anti-fouling Agents) Manufacturing, Processing, Bulk Storage and Large – Scale Applications	Yes (APEC #3)	The 1954 to 1992 aerial photos identified potential agricultural use on the southwest portion of the Property. This PCA contributes to an APEC.
Phase I Property Northwest Portion of Property	#28 – Gasoline and Associated Products Storage in Fixed Tanks	No	The Phase I site reconnaissance identified one AST containing diesel on the northwest corner of the apartment building on the Property. When the diesel tank was inspected a small, leak was observed on the concrete floor (contained). From the visual inspection there was no evidence that the storage tank would have impacted the soil and ground water on the Property. Photos of the tank are provided in appendix J. It is the opinion of the QP that this PCA does not contribute to an APEC.
925 Rathburn Road East Tomken Cleaners (165 m northwest)	#37 – Operation of Dry Cleaning Equipment (where chemicals are used)	Yes (APEC #4)	The ERIS report, city directory and Phase I Study area inspection displayed evidence of an operational dry cleaners located at 925 Rathburn Road East. Based on the location of the drycleaner, the flow direction of ground water and of nature of contaminant, this PCA contributes to an APEC.
925 Rathburn Road East (125 m northwest, in front of No Frills)	Other 2 – Ontario Spills	No	Based on the volume of the spill and the pathway of the material spilled it is in the opinion of the QP that this PCA does not contribute to an APEC.

The locations of the PCAs and APECs are shown on Figure 2. The PCAs that were deemed to cause APECs are listed in Section 2.2 below.

2.2 Areas of Potential Environmental Concern

The following APECs resulting from PCAs were identified below and shown on Figure 2.

Areas of Potential Environmental Concern (APECs)	Location of APECs on Phase One Property	PCA	Contaminants of Potential Concern (CoPCs)	Media Potentially Impacted (Ground Water, soil and/or sediment)
APEC 1	Entire Property	#30 - Importation of Fill Material of Unknown Quality	Metals Sb, As, Se B-HWS CN- Cr(VI) Hg Low or high pH PAHs	Soil
APEC 2	Entire Property	Other 1 - De-icing Activities	EC/SAR Cl-/Na+	Soil Ground Water
APEC 3	Southwest Portion of Property	#40 – Pesticides (including Herbicides, Fungicides, and anti-fouling Agents) Manufacturing, Processing, Bulk Storage and Large – Scale Applications	OCs	Soil
APEC 4	Northwest Portion of Property	#37 – Operation of Dry Cleaning Equipment (where chemicals are used)	VOCs	Ground Water

2.3 Subsurface Structures and Utilities

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

- Gas
- Hydro
- Sewer
- Water

It is possible that the bedding materials for the underground utilities could serve as preferential pathways for the migration of CoPCs; however, as the stabilized ground water levels are approximately 2.2 to 7.0 m below ground surface, it is unlikely that the utilities will intersect the ground water table and affect the distribution and transportation of contaminants beneath the Property.

3 Physical Setting of the Phase Two Property

3.1 Stratigraphy

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

3.1.1 Geological Units

Geological Units	Elevation Range (mASL)	Description	Hydrogeological Function
Pavement Structure/ Topsoil	139.3 to 136.4	BH2, BH3, BH201, BH202, BH203 and BH208 encountered a pavement structure consisting of 75 to 150 mm asphaltic concrete underlain by 75 mm of aggregate. BH1, BH204, 205, 206 and BH207 encountered 50 mm to 600 mm of topsoil.	
Earth Fill	138.7 to 136.3 0.6 to 2.1 m thick	Earth fill was encountered at the borehole locations and underlying the pavement structure in BH2, BH3, BH201, BH202, BH203 and BH208. The Earth Fill extended to a depth of 0.8 to 2.3 mBGS (Elev. 137.3 to 135.1mASL). The Earth Fill generally consisted of clayey silt with varying amounts of sand and gravel. The earth fill likely drains into the catch basins onsite or storm water systems adjacent to the Property.	Unconfined surficial aquifer
Native Glacial Till	137.3 to 135.1 0.7 to 3.1 m thick	Underlying the fill materials, glacial till was encountered in the borehole locations. The glacial till extended to a depth of 3.0 to 4.6 mBGS (Elev. 135.8 to 133.3 mASL) and consisted of clayey silt with trace to some sand and trace to some gravel in the borehole locations except for BH207, where the composition of the glacial till consisted of silt with some clay, some gravel, and some sand.	Aquitard
Bedrock	135.8 to 133.3	Bedrock was encountered at the boreholes. The depth of the bedrock ranged between 3.0 to 4.6 mBGS (Elev. 135.8 to 133.3 mASL). Bedrock cores were recovered at BH1, BH201, BH205 and BH208. The bedrock beneath the site is the Georgian Bay Formation, which comprises thin to medium bedded grey shale and limestone of Ordovician age.	Confined bedrock aquifer

3.2 Approximate Depth to Water Table

Seven (7) monitoring wells have been installed by Grounded. The monitoring wells were located within the APECs identified in the Phase I ESA (March 2024, Grounded Engineering) for the Property. Screened intervals of the monitoring wells were selected for the collection of ground water samples within the desired stratum.

Eight (8) ground water level measurements were conducted by Grounded Engineering Inc. in the accessible wells installed by Grounded Engineering Inc. using a Solinst interface probe on the following dates:

- June 14, 2022
- June 27, 2022
- July 29, 2022
- August 18, 2022
- April 9, 2024
- April 10, 2024
- April 16, 2024
- April 26, 2024

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

- *Geodetic Ground Elevation (mASL) – Measured Depth to Water Table (m) + Stick up of Well (m) = Ground Water Elevation (mASL)*

The ground water levels/elevations are presented in Table 1 and Figure 5. The shallowest ground water depth was measured at 2.2 mBGS (136.5 mASL) and was observed at BH207 located on the northeastern portion of the Property on April 26, 2024.

Based on the ground water measurements, ground water is encountered at a depth of approximately 2.2 to 7.0 mBGS (136.5 to 131.2 mASL) and is interpreted to flow locally to the northwest. Regional ground water flow is expected to flow to the northwest towards Little Etobicoke creek and regionally southeast to Lake Ontario. Ground water contours are presented in Figure 5.

Additional ground water data may be required to assess seasonal variability in ground water elevation and flow direction.

3.3 Site Hydrogeological Characteristics

Horizontal Hydraulic Gradients	The average horizontal hydraulic gradient at the Property was determined to be approximately 0.04.

Vertical Hydraulic Gradients	Based on the location and depths of the installed monitoring wells, the vertical gradient could not be calculated.
Hydraulic Conductivity (K)	• Fill: 1.0 x 10-5 m/s • Clayey Silt Till: 5.0 x 10-9 m/s • Bedrock: 1.0 x 10-6 m/s

3.4 Approximate Depth to Bedrock

Georgian Bay Shale formation bedrock was encountered in boreholes 1, 2, 3, 201 and 203-208. Bedrock was encountered at elevations ranging from135.8 to 133.3 mASL, 3.0 to 4.6 mBGS..

3.5 O.Reg. 153/04 Section 35 (Potable/Non-potable Ground Water)

Section 35(2) of the Regulation does not apply to the Phase Two Property based on the following rationale:

- The Property, and all other properties located, in whole or in part, within 250 metres of the boundaries of the property, are supplied by a municipal drinking water system, as defined in the Safe Drinking Water Act, 2002.
- The record of site condition does not specify agricultural or other use as the type of property use for which the record of site condition is filed.
- The Property is not located in an area designated in the municipal official plan as a well-head protection area or other designation identified by the municipality for the protection of ground water.
- Neither the Property nor any of the properties in the Phase One study area has a well used or intended for use as a source of water for human consumption or agriculture.
- The owner has given the clerk of the municipality (City of Toronto) written notice of intention to apply the standards in preparing a record of site condition for the property, and the municipality has given written notice to the owner that it does not object to the application of the standards,

3.6 O.Reg. 153/04 Section 41 (Site Sensitivity)

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

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

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

3.7 O.Reg. 153/04 Section 43.1

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

- The Property is not considered a shallow soil property; or
- The Property does not include all or part of a water body and is not adjacent to a water body and does not include land that is within 30 m of a water body.

3.8 Areas On, In or Under the Phase Two Property Where Excess Soil is Finally Placed

No excess soils have been imported or placed on, in or under the Phase Two Property since the site reconnaissance completed for the Phase One ESA on April 30, 2023.

3.9 Proposed Buildings

The current property use is institutional and residential, as defined by O. Reg. 153/04.

We understand that the Phase Two Property will be developed with two high-rise residential structures with three levels of underground parking . The property use will remain residential and institutional, as defined by the O. Reg. 153/04.

4 Contamination On, In, or Under the Phase Two Property

4.1 Applicable Site Condition Standard

The applicable site condition standard for the Phase Two Property is determined to be Table 3 Full-Depth Generic Site Condition Standard for Use in Non-Potable Ground Water Condition with coarse-textured soil for a residential/parkland/institutional use due to the following reasons:

Current Property Use	Residential and Institutional
Future Property Use	Residential and Institutional
Soil Texture	Coarse, based on grain size analysis performed on the soil

Potable Water Source	Municipal service obtained from Lake Ontario (surface water-based)
Bedrock Depth	Bedrock is located at a depth of greater than 2 m.
Property located within 30 m of a surface water body (Yes/No)	No
Property located in or adjacent to a provincial park or an Area of Natural Significance (Yes/No)	No

Grounded Engineering Inc. did not notify Peel Region of the intention to use non-potable ground water standards for the investigation as the Phase Two has been prepared for due diligence purposes.

4.2 Media Investigated

Grounded Engineering Inc. conducted the following specific subsurface work at the Property:

Boreholes and Monitoring Wells	Grounded 2022 Investigation: • Advanced 3 boreholes to depths of 5.5 to 10.1 m below ground surface (m bgs) • Installed 3 monitoring wells Grounded 2024 Investigation: • Advancing of 7 boreholes to depths of 3.4 to 16.5 m below ground surface (m bgs) • Installation of 4 monitoring wells

Parameters Investigated for Soil	• Metals (M)
	• Hydride-forming Metals (H-M)
	  ○ Antimony (Sb), Arsenic (As), Selenium (Se)
	• Other Regulated Parameters (ORPs)
	  ○ B-HWS, CN-, EC, SAR, Cr(VI), Hg
	• Polycyclic Aromatic Hydrocarbons (PAH)
	• Volatile Organic Compounds I (VOCs)
	• Trihalomethanes (THMs)

Parameters Investigated for Ground Water	• Metals
	• Hydride-forming Metals
	  ○ Sb, As, Se
	• Other Regulated Parameters
	  ○ Cr(VI), CN-, Hg, Cl-
	• Sodium (Na)

	• PAHs • VOC • THMs

- 6 soil samples were submitted for grain size analysis and soil classification.
- All boreholes and monitoring wells were surveyed to a geodetic benchmark.
- All monitoring wells were developed prior to sampling.
- Ground water level measurements were conducted in all accessible monitoring wells to determine ground water elevation on the Property

4.3 Sampling Rationale and Areas Where Contaminants are Present

The table below summarizes the APECs identified in the Phase I ESA, the borehole locations used to evaluate each APEC, and the findings with respect to any contaminant noted are also presented.

Areas of Potential Environmental Concern (APECs)	Location of APECs on Phase One Property	Potentially Contaminating Activities (PCAs)	Contaminants of Potential Concern (CoPCs)	Media Potentially Impacted (Ground Water, soil and/or sediment)	Borehole or Monitoring Well Associated	Exceedances
APEC 1	Entire Property	#30 – Importation of Fill Material of Unknown Quality	Metals Sb, As, Se CN- Cr(VI) Hg PAHs VOC	Soil & Ground Water	BH1-3 and 201-208	None
			B-HWS	Soil		
APEC 2	Entire Property	Other 1 – De - icing Activities	EC SAR	Soil	BH1-3 and 201-208	None
			Na Cl	Ground Water		
APEC 3	South Portion of the Property	#40 – Pesticides (including Herbicides, Fungicides, and anti-fouling Agents) Manufacturing, Processing,	OC	Soil	BH2, 3, 201, 202 and 203	None

Areas of Potential Environmental Concern (APECs)	Location of APECs on Phase One Property	Potentially Contaminating Activities (PCAs)	Contaminants of Potential Concern (CoPCs)	Media Potentially Impacted (Ground Water, soil and/or sediment)	Borehole or Monitoring Well Associated	Exceedances
		Bulk Storage and Large – Scale Applications				
APEC 4	Northwest Portion of the Property	#37 – Operation of Dry Cleaning Equipment (where chemicals are used)	VOCs	Ground Water	BH208	None

No exceedances were identified within the soil and ground water on the Property.

4.3.1 Location and Depth of Soil Samples

Sample ID	Depth		Stratum	APEC	Metals, H-Metals & ORPs	PAHs	VOCs	OCs
	mBGS	mASL						
Grounded Engineering Baseline Soil Investigation (2022)								
BH1 1B	0.2 - 0.6	137.7 - 137.3	Fill	1, 2 & 3	✓	✓		
BH1 SS2	0.8 - 1.4	137.1 - 136.5	Glacial Till	1, 2 & 3		✓	✓	✓
BH1 SS3	1.5 - 2.1	136.4 - 135.8	Glacial Till	1, 2 & 3	✓			
BH1 4B	2.4 - 2.7	135.5 - 135.2	Glacial Till	1, 2 & 3			✓	✓
BH2 2B	0.8 - 1.3	137.2 - 136.7	Glacial Till	1, 2 & 3		✓	✓	
BH2 SS3	1.5 - 2.1	136.5 - 135.9	Glacial Till	1, 2 & 3	✓			
BH2 4B	2.5 - 2.9	135.5 - 135.2	Glacial Till	1, 2 & 3	✓			
BH2 SS5	3.0 - 3.3	135.0 - 134.7	Glacial Till	1, 2 & 3		✓	✓	
BH3 SS2	0.8 - 1.4	137.4 - 136.8	Fill	1, 2 & 3			✓	
BH3 SS3	1.5 - 2.1	136.6 - 136.0	Glacial Till	1, 2 & 3	✓	✓		
BH3 SS4	2.3 - 2.9	135.9 - 135.3	Glacial Till	1, 2 & 3	✓	✓		✓
BH3 SS5	3.0 - 3.7	135.1 - 134.5	Glacial Till	1, 2 & 3			✓	
Phase Two ESA (2024)								
BH201 SS2	0.8 - 1.4	137.4 - 136.8	Fill	1, 2 & 3	✓	✓	✓	
BH204 SS1B	0.3 - 0.6	136.3 - 136.0	Fill	1 & 2	✓	✓		
BH204 SS2	0.8 - 1.4	135.8 - 135.2	Fill	1 & 2			✓	
BH205 SS2	0.8 - 1.4	137.4 - 136.8	Fill	1 & 2	✓	✓	✓	

Sample ID	Depth		Stratum	APEC	Metals, H-Metals & ORPs	PAHs	VOCs	OCs
	mBGS	mASL						
BH205 SS4	2.3 - 2.9	135.9 - 135.2	Glacial Till	1 & 2			✓	
BH206 SS1B	0.3 - 0.6	136.8 - 136.5	Fill	1 & 2	✓	✓	✓	
BH207 SS2	0.8 - 1.4	136.0 - 135.4	Fill	1 & 2	✓	✓	✓	
BH208 SS2	0.8 - 1.4	138.0 - 137.4	Fill	1 & 2	✓	✓		
BH208 SS3	1.5 - 2.1	137.3 - 136.7	Glacial Till	1 & 2			✓	

4.3.2 Location and Depth of Ground Water Samples

Sample ID	Screen Interval		Screen Strata	APEC Assessed	Metals, H-Metals	ORPs + Na	PAHs	VOCs
	mBGS	mASL						
BH201	13.5 - 16.5	124.7 - 121.7	Shale	1 and 2	✓	✓	✓	✓
BH205	12.5 - 15.6	125.6 - 122.5	Shale	1 and 2				✓
BH208	5.7 - 7.2	133.1 - 131.6	Bedrock	1, 2 and 4				✓

**Ground water samples were submitted for the following select ORPs: cyanide (CN-), mercury (Hg), hexavalent chromium (Cr(VI)), pH, chloride (Cl)*

4.4 Exemption of Exceedances (O.Reg. 153/04 Sec 49.1)

4.4.1 Exemption of Salt-Related Exceedances (Sec 49.1 (1))

Chemical analysis of the soil indicates that there are exceedances of the MECP Table 3 RPI Standards for Electrical Conductivity and Sodium Adsorption Ratio (salt related compound) within the upper soils.

The Property is bound by municipal roadways to the north Rathburn Road Eastand to the east Tomken Rd. The roadways have public sidewalks between the road and the Property boundary. The Property features construction vehicle traffic and car parking. The roadways, sidewalks, and parking area are all salted during the winter months for safety purposes.

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

The applicable site condition standard is exceeded at the Property solely because of the reason as stated above (application of salt for safety purposes during winter months). As per

O.Reg. 153/04 49.1 the applicable site condition standard is deemed not to be exceeded for the purpose of Part XV.1 of the Act.

4.5 Contaminants Associated with Each Area

No Contaminants of Concerns (CoCs) were associated with Areas of Potential Concerns (APECs) identified on the Property.

APEC 1	APEC 2	APEC 3	APEC 4
None	None	None	None

4.6 Medium in Which Contaminants are Associated

Fill, native soil and ground water were investigated as part of the Phase Two ESA investigation. No CoCs were identified in the following media for the contaminants listed.

Metals	H-Metals	ORPs	PAHs	BTEX	VOCs	THMs	PCBs *Soil only	OCs *Soil only
None	None	None	None	None	None	None	None	None

4.7 Information Known about Each Contaminated Area

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

4.8 Distribution of Contaminant

No contaminants were identified in the soil and ground water during the investigation. The cross sections of the Property are presented on Figures 6 to 8.

4.9 Reasons for Discharge of Contaminant

No contaminants were identified in the soil and ground water during the investigation. The cross sections of the Property are presented on Figures 6 to 8.

4.10 Migration of Contaminant

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

4.11 Climatic or Meteorological Influences on Migration

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

4.12 Soil Vapour Intrusion into Buildings

No contaminants were identified in the soil and ground water during the investigation.

4.13 Relevant Construction Features of Buildings

Building #	Above Grade Levels	Below Grade Levels	Use	Entry/Exits
1	1	2	Institutional	Entry from surficial parking lot and fire door exiting onto Tomken rd.
2	7	1	Residential	Entry and exit from fire door, main lobby and from the underground parking lot.

4.14 Building HVAC

Current and future HVAC systems present in any buildings on the Property will not affect the distribution and transport of contaminants because no volatile CoCs were identified.

4.15 Subsurface Structures and Utilities

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

- Gas
- Hydro
- Sewer
- Water

It is possible that the bedding materials for the underground utilities could serve as preferential pathways for the migration of CoPCs; however, as the stabilized ground water levels are

approximately 2.2 to 7.0 m below ground surface, it is unlikely that the utilities will intersect the ground water table and affect the distribution and transportation of contaminants beneath the Property.

5 Potential Exposures Pathways and Receptors

5.1 Description of All Components

A list of all risk-based components of potential exposure pathways and receptors are presented below and presented on Figures 10 and 11.

Potential Pathway	Description
GW1	Ground water for drinking water purposes
GW2	Ground water for protection from movement to indoor air
GW3	Ground water for protection of aquatic life
S1	Soil for protection of a residential receptor from direct contact with surface soil
S2	Soil for protection from direct soil contact for a lower frequency and intensity exposure than residential surface soil, such as commercial or industrial scenarios
S3	Soil for direct soil contact for a low-frequency, high-intensity, human health exposure scenario without children present that is protective of a worker digging in the soil
S-IA	Soil for protection of movement to indoor air and human exposure
S-OA	Soil for protection of movement to outdoor air and human exposure
S-Odour	Soil for protection of movement to outdoor air and human exposure
S-GW1	Soil for protection from movement to ground water for drinking water purposes
S-GW3	Soil for protection from movement to ground water and then to aquatic life
Plants and Soil Organisms	Soil for protection against adverse effects to plants and soil dwelling organisms
Mammals and Birds	Soil for protection against adverse effects through direct soil and food ingestion to mammals and birds

5.2 Receptor Human Health

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

5.3 Receptor Terrestrial Environment

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

5.4 Receptor Aquatic Environment

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

5.5 Summary of Potential Receptor Risks

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