

**PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT**

of

5438 Ferry Street, Niagara Falls, ON

**For:
1788618 Ontario Inc.**



January 18, 2023
Project: E-22-33-2

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PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

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5438 Ferry Street, Niagara Falls, ON

Prepared by **Hallex Environmental Ltd.** on behalf of:

1788618 Ontario Inc.

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A handwritten signature in black ink, appearing to read 'Kevin Christian'.

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EXECUTIVE SUMMARY

INTRODUCTION

Hallex Environmental Ltd. was retained by 1788618 Ontario Inc. to conduct a Phase Two Environmental Site Assessment (ESA) at 5438 Ferry Street, Niagara Falls, ON following the Phase One ESA completed by Hallex on August 30th, 2022 that identified the following Potentially Contaminating Activities (PCA)/Areas of Potential Environmental Concern (APEC):

- ***PCA-1/APEC-1: #30 Importation of Fill Material of Unknown Quality.*** As identified through the aerial photographs, three (3) single family dwellings were present from 1935 until 1965, when the dwellings were demolished. Fill material of unknown quality may have been placed within areas of the previous structures as well as, throughout the parking area, during subsequent redevelopment of the current site use. Target contaminants of concern to the soil include Metals (by ICP), Petroleum Hydrocarbons (PHCs), Benzene Toluene Ethylbenzene Xylene (BTEX), and Polycyclic Aromatic Hydrocarbons (PAHs).
- ***PCA-2/APEC-2: #28 Gasoline and Associated Products Storage in Fixed Tanks.*** One (1) historic and four (4) current Underground Storage Tanks (USTs) were noted in the FIPs and during site reconnaissance, at 5460 Stanley Avenue, west adjacent property to the study site. The presence of the USTs represents a PCA resulting in an on-site APEC. Target contaminants include PHCs, BTEX, and PAHs to have impacted the site's soil and/or groundwater.

The objectives of the Phase Two ESA were to determine the presence/absence of potential contaminants of concern within the soil. The presence of contaminants in the soil, if detected, would determine the need for further sampling and analyses of soil to delineate the extent of impact, and to satisfy the requirements of Ontario Regulation (O. Reg.) 153/04, amended by O. Reg. 511/09.

PHASE TWO ESA METHODS

Soil

Seven (7) boreholes, BH1 to BH7 were advanced on November 18th, 2022 and completed on November 24th, 2022 with BH1 and BH2 being converted to Monitoring Wells. Soil samples were collected at depth intervals of 0.6m or 1.5 m until they reached the maximum depth of 3.66m for BH3, BH4, BH6 and BH7 and maximum depth of 9.14m for BH1, BH2 and BH5.

Fourteen (14) samples were submitted to Paracel Laboratories Ltd. for analyses of PHCs, BTEX, PAHs, Metals (by ICP), EC/SAR/pH and Grain Size Analysis.

Groundwater

Two (2) monitoring wells, MW-1 and MW-2 were installed on November 18th, 2022. Four (4) monitoring wells were previously installed for geotechnical purposes, of which one (1), MW-4, was utilized for environmental purposes. These three (3) monitoring wells were purged and sampled for analyses of PHCs, BTEX, PAHs and Metals (by ICP).

Soil Results

Soil laboratory analytical data was compared with Ministry of the Environment, Conservation and Parks (MECP) Site Condition Standards (2011) Table 3 for Residential Land Use in a Non-Potable Groundwater Condition, fine textured soil. Exceedances were noted from one (1) borehole (BH4) in the material from depth ranges 0–0.61mbgs, for target contaminant group PAHs.

Parameter	O. Reg. 153/04 (2011) Table 3 Residential, fine	BH4 SS1
<i>Semi-Volatiles</i>		
Benzo[a] pyrene	0.3 ug/g dry	0.49
Fluoranthene	0.69ug/g dry	1.16

Groundwater Results

Groundwater laboratory analytical data was compared with groundwater criteria in the MECP Site Condition Standards (2011) Table 3: Residential/Park, Non-Potable Groundwater condition, fine textured soil. All groundwater samples met applicable site condition standards.

FINDINGS & CONCLUSIONS

The Phase Two Environmental Site Assessment at 5438 Ferry Street, Niagara Falls, ON revealed one (1) soil sample did not meet applicable MECP Site Condition Standards 2011 Table 3 for Residential Land Use in fine texture soil for target contaminants PAHs in BH4. The contaminants identified in the soil were predominantly within the east area of the site, associated with Fill material. Soil/ Fill, variously exhibiting pieces of brick, wood, concrete and asphalt encountered in borehole BH4 in APEC-1 in the south east area of the site, and extending throughout the study site as further evidenced in six (6) out of nine (9) geotechnical boreholes (BH2, BH3, BH4, BH5, BH6 and BH8). The Fill was documented in a depth range of 0 to 3mbgs.

No impact to soil or groundwater was identified on-site in APEC-2 related to off-site underground fuel storage.

Hallex therefore recommends additional Phase Two ESA work be conducted to delineate the extent and volumes of PAHs contamination in FILL at the site in order to develop the remedial plan required to enable site remediation before proceeding to Record of Site Condition filing.

LIST OF ACRONYMS

APEC	Area of Potential Environmental Concern
AST	Aboveground Storage Tank
BH	Borehole
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
COC	Contaminant of Concern
CSM	Conceptual Site Model
CSVC	Combustible Soil Vapour Concentration
EC	Electrical Conductivity
EPA	Environmental Protection Act
ESA	Environmental Site Assessment
GPR	Ground Penetrating Radar
<i>i</i>	Hydraulic Gradient
<i>k_h</i>	Hydraulic Conductivity
LEL	Lower Explosive Limit
masl	Metres above sea level
mbgs	Metres below ground surface
MECP	Ministry of the Environment, Conservation and Parks
MW	Monitoring Well
OC/OCP	Organochlorine Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PCA	Potentially Contaminating Activity
PCB	Polychlorinated Biphenyl
PCE	Perchloroethylene (tetrachloroethylene)
pH	Power of Hydrogen
PHC	Petroleum Hydrocarbons
ppm	Parts per million
QA/QC	Quality Assurance/Quality Control
QP	Qualified Person
RA	Risk Assessment
RSC	Record of Site Condition
SAR	Specific Absorption Rate
SCS	Site Condition Standard
SGWSS	Soil Groundwater and Sediment Standards
SVOC	Semi-Volatile Organic Compounds
TCLP	Toxicity Classification Leachate Procedure
UST	Underground Storage Tank
VOC	Volatile Organic Compounds

Potentially Contaminating Activities (PCAs)
Schedule D Table 2 of O. Reg 511/09



PCA#	Description	PCA#	Description
1	Acid and Alkali Manufacturing, Processing and Bulk Storage	31	Ink Manufacturing, Processing and Bulk Storage
2	Adhesives and Resins Manufacturing, Processing and Bulk Storage	32	Iron and Steel Manufacturing and Processing
3	Airstrips and Hangars Operation	33	Metal Treatment, Coating, Plating and Finishing
4	Antifreeze and De-icing Manufacturing and Bulk Storage	34	Metal Fabrication
5	Asphalt and Bitumen Manufacturing	35	Mining, Smelting and Refining; Ore Processing; Tailings Storage
6	Battery Manufacturing, Recycling and Bulk Storage	36	Oil Production
7	Boat Manufacturing	37	Operation of Dry-Cleaning Equipment (where chemicals are used)
8	Chemical Manufacturing, Processing and Bulk Storage	38	Ordnance Use
9	Coal Gasification	39	Paints Manufacturing, Processing and Bulk Storage
10	Commercial Autobody Shops	40	Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications
11	Commercial Trucking and Container Terminals	41	Petroleum-derived Gas Refining, Manufacturing, Processing and Bulk Storage
12	Concrete, Cement and Lime Manufacturing	42	Pharmaceutical Manufacturing and Processing
13	Cosmetics Manufacturing, Processing and Bulk Storage	43	Plastics (including Fibreglass) Manufacturing and Processing
14	Crude Oil Refining, Processing and Bulk Storage	44	Port Activities, including Operation and Maintenance of Wharves and Docks
15	Discharge of Brine related to oil and gas production	45	Pulp, Paper and Paperboard Manufacturing and Processing
16	Drum and Barrel and Tank Reconditioning and Recycling	46	Rail Yards, Tracks and Spurs
17	Dye Manufacturing, Processing and Bulk Storage	47	Rubber Manufacturing and Processing
18	Electricity Generation, Transformation and Power Stations	48	Salt Manufacturing, Processing and Bulk Storage
19	Electronic and Computer Equipment Manufacturing	49	Salvage Yard, including automobile wrecking
20	Explosives and Ammunition Manufacturing, Production and Bulk Storage	50	Soap and Detergent Manufacturing, Processing and Bulk Storage
21	Explosives and Firing Range	51	Solvent Manufacturing, Processing and Bulk Storage
22	Fertilizer Manufacturing, Processing and Bulk Storage	52	Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems
23	Fire Retardant Manufacturing, Processing and Bulk Storage	53	Tannery
24	Fire Training	54	Textile Manufacturing and Processing
25	Flocculants Manufacturing, Processing and Bulk Storage	55	Transformer Manufacturing, Processing and Use
26	Foam and Expanded Foam Manufacturing and Processing	56	Treatment of Sewage equal to or greater than 10,000 litres per day
27	Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	57	Vehicles and Associated Parts Manufacturing
28	Gasoline and Associated Products Storage in Fixed Tanks	58	Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners
29	Glass Manufacturing	59	Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products
30	Importation of Fill Material of Unknown Quality		

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1.0 INTRODUCTION

1.1 Project Objectives

Hallex Environmental Ltd. was retained by 1788618 Ontario Inc. (hereinafter referred to as the “client”) to conduct a Phase Two Environmental Site Assessment (ESA) at 5438 Ferry Street, Niagara Falls, ON (hereinafter referred to as the “study site”). The objectives of the Phase Two ESA were to determine the presence/absence of potential contaminants of concern within the soil associated with possible historic fill material of unknown quality and historic off-site underground storage tanks (USTs). A Potentially Contaminating Activity (PCA) listed in Schedule D, Table 2, of O. Reg. 511/09, thus results in an Areas of Potential Environmental Concern (APEC) triggering the Phase Two ESA.

The presence of contaminants in the soil, if detected, would determine the need for further sampling and analyses to delineate the extent of the impact, and to satisfy the requirements of Ontario Regulation (O. Reg.) 153/04, as amended. The PCAs/APECs, identified in the Phase One ESA (Hallex, 2022) are shown on Figure 1.

1.2 Limitations and Exceptions of Assessment

This report was prepared by Hallex Environmental Ltd. (hereinafter referred to as “Hallex”) for the client. The material in it reflects Hallex’s best judgment based on the information discovered at the time of preparation and within the scope of work. The investigative procedures, and format of this report, generally follow the guidelines established in: O. Reg. 511/09 per Part XV.1 of the Environmental Protection Act. Any information presented concerning materials at the site is based on information gathered at the bore hole locations only. There may be materials and/or subsurface soil and/or groundwater conditions on-site which are not represented by these investigations. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Hallex Environmental Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

1.3 Site Description

Municipal address:	5438 Ferry Street, Niagara Falls, ON
Client(s):	1788618 Ontario Inc.
UTM coordinates:	Zone: 17T, Northing: 4,772,524.17 Easting: 655,933.65
Elevation:	188 masl
Approx. site area:	3,702 m ²

1.4 Current and Proposed Future Uses

As of November 25th, 2022, the study site was commercial land use. One (1) restaurant, Bravo Pizzeria and Grill, is present on the north-west corner of the study site. Future plans include demolishing current building and developing a residential Condominium.

1.5 Applicable Site Condition Standard

The Soil, Ground Water and Sediment Standards (SGWSS) that would be applicable to the subject site as per O. Reg. 153/04, as amended, are based on site sensitivity analyses. Site sensitivity is determined based on conformance or non-conformance with shallow soil conditions (<2 m to bedrock), soil pH, proximity to an “Area of Natural Significance”, the presence of a water body on-site or within 30 meters of the subject property, and the site and adjacent lands groundwater conditions being either potable or non-potable. The ‘Full Depth Generic’ standards would apply to a ‘non-sensitive site’, with further distinctions made based on potable or non-potable groundwater conditions, and coarse or fine soil texture. A ‘Sensitive Site’ would require application of generic standards, other than ‘Full Depth’, based on the specific sensitivity.

5438 Ferry Street, Niagara Falls, ON – Site Sensitivity Analysis

The rationale for the selection of SGWSS criteria for the subject property included:

- Intended Property Use: **Residential Use**
- Soil Texture: **Medium/Fine (grain size texture by Paracel laboratories Ltd.)**
- Adjacent to a designated area of natural significance: **No**
- Within 30 m of a water body: **No**
- Groundwater condition: **non-potable**
- Depth to bedrock: **Not encountered at maximum borehole depth of 9.14 metres.** Bedrock was encountered at 18.6 mbgs in geotechnical borehole BH.
- Soil pH: **7.68 average**, ranged from 7.59-7.87

Applicable Regulatory Criteria

O. Reg. 153/04 Ministry of the Environment, Conservation and Parks (MECP) Site Condition Standards Table 3 for Residential Land Use in a Non-Potable Ground Water Condition, fine textured soil, was applied to the subject site, based on conditions observed at the time of the site assessment.

1.6 Previous Environmental Reports

A Phase One Environmental Site Assessment report drafted by Hallex Environmental, August 30th, 2022. Conclusions are summarized below:

One (1) historic on-site and one (1) off-site PCA resulting in two (2) APECs with the potential to have impacted the study site’s soil and groundwater.

- **PCA-1/APEC-1: #30 Importation of Fill Material of Unknown Quality.** As identified through the aerial photographs, three (3) single family dwellings were present from 1935 until 1965, when the dwellings were demolished. Fill material of unknown quality may have been placed within areas of the previous structures as well as, throughout the parking area, during subsequent redevelopment of the current site use. Target contaminants of concern to the soil include Metals (by ICP), Petroleum Hydrocarbons (PHCs), Benzene Toluene Ethylbenzene Xylene (BTEX), and Polycyclic Aromatic Hydrocarbons (PAHs).
- **PCA-2/APEC-2: #28 Gasoline and Associated Products Storage in Fixed Tanks.** One (1) historical and four (4) current Underground Storage Tanks (USTs) were noted in the FIPs and during site reconnaissance, at 5460 Stanley Avenue, west adjacent property to the study site. The presence of the USTs represents a PCA resulting in an on-site APEC. Target contaminants include PHCs, BTEX, and PAHs to have impacted the site's soil and/or groundwater.

Fifteen (15) additional PCAs were noted within 250 m of the Study Site, however it is unlikely that any contaminants migrating off-site would present an on-site APEC at the study site due to the distance to the site and interpreted groundwater flow direction away from the site.

2.0 INVESTIGATION METHODS

2.1 Borehole Drilling

Davis Drilling utilized a truck mounted CME-75 Direct Push drilling system for borehole sampling and monitoring well installations. Preparation for borehole sampling was initiated via requests for demarcation of underground utilities by Ontario One Call: for Bell, cable, hydro, natural gas, water, sewer and private locates. All services were cleared within the designated work areas.

2.2 Soil Investigation

Seven (7) boreholes, BH1 to BH7 were advanced across the property (within APEC areas) on November 18th, 2022 and November 24th, 2022. Borehole locations are shown in Figure 1 and borehole logs are contained in Appendix A. Soil samples were collected at depth intervals of 0.61 or 1.5m to a maximum depth of 3.66m for BH3, BH4, BH6 and BH7, and maximum depth of 9.14mbgs for BH1, BH2 and BH5.

2.2.1 Soil: Sampling

Each sample was placed in a 250 ml glass jar with a Teflon lined lid, filled to zero head-space, sealed, and placed in a cooler for transportation. Concurrently, a 12 ml soil sample was collected with a disposable syringe and placed inside a 40 ml vial containing methanol for field preservation of Petroleum Hydrocarbons F1-F4 (PHCs) and Benzene, Toluene, Ethylbenzene, Xylene (BTEX). A portion of each sample was placed in a plastic bag and allowed to warm to approximately 20° C for headspace combustible vapour measurement using an E-34102 Portable Multi-Gas Detection Eagle Series (Eagle). Each sample was logged for colour, texture, structure, moisture, and visual and olfactory evidence of contamination. Additionally, textural identification of soil, through hand soil textural techniques, including the ‘squeeze test’ and ‘ribbon test’ was conducted on soil from each stratum identified.

2.3 Field Screening Combustible Soil Vapour Survey

On-site field screening measurements were conducted utilizing the Eagle, capable of measuring hydrocarbon Combustible Soil Vapour Concentrations (CSVC’s) from 1 part per million (ppm) to 100% Lower Explosive Limit (LEL). The readings from the Eagle were utilized to indicate the presence or absence of Volatile Organic Compounds (VOC’s) within the field samples. The samples with the highest combustible vapour concentration readings were chosen, in addition to other select samples, as determined by the QP, for laboratory analyses. The combustible soil vapour readings are indicated on the borehole logs in Appendix A and tabulated in Section 3.2.

2.4 Combustible Soil Vapour Concentrations

The field combustibility soil vapour concentrations are tabulated below, exhibiting a concentration range of 0 to 10 ppm (parts per million). Ten (10) worst case samples were chosen for laboratory submission to Paracel Laboratories Ltd. under chain of custodies #67790, 67791, 67792, 136523 & 136525 on November 25th, 2022 for analyses of PHCs (F1-F4), BTEX, PAHs, EC/SAR/pH, Metals (by ICP) and Grain Size Texture. All other samples were stored at the laboratory for later analyses, if required, for delineation of contaminants.

Borehole #/ ID	Date Sampled	Depth (m bgs)	CSVC (PPM)	APEC-#	Parameters Analyzed	
BH1	November 18 th , 2022	SS1	0-0.6	0.9	2	
		SS2	0.76-1.37	0.7	2	
		SS3	1.53-2.13	1.4	2	
		SS4	2.29-2.89	1.1	2	
		SS5	3.05-3.66	1.1	2	
		SS6	3.81-4.42	0.9	2	
		SS7	4.57-5.18	0.6	2	
		SS8	5.33-5.94	1.1	2	PHC/BTEX, PAH, Metals and pH
		SS8a	5.33-5.94	1.1	2	PHC/BTEX, PAH, Metals and pH
		SS9	6.1-6.71	0.4	2	
		SS10	6.85-7.46	0.8	2	
		SS11	7.62- 8.23	0.6	2	
SS12	8.38-8.99	0.7	2			
BH2	November 18 th , 2022	SS1	0-0.6	0.6	2	
		SS2	0.76-1.37	1.2	2	
		SS3	1.53-2.13	0.5	2	Grain Size Analysis
		SS4	2.29-2.89	1.1	2	
		SS5	3.05-3.66	0.5	2	
		SS6	3.81-4.42	0.6	2	
		SS7	4.57-5.18	0.5	2	
		SS8	5.33-5.94	0.9	2	
		SS9	6.1-6.71	0.9	2	PHC/BTEX, PAH, Metals and pH
		SS10	6.85-7.46	0.8	2	
		SS11	7.62-8.23	0.7	2	
		SS12	8.38-8.99	0.8	2	
BH3	November 18 th , 2022	SS1	0-0.6	0.8	1	
		SS2	1.53-2.13	1.0	1	PHC/BTEX, PAHs, Metals and pH
		SS3	2.29-2.89	0.5	1	
BH4	November 18 th , 2022	SS1	0-0.6	0.7	1	PHC/BTEX, PAHs, Metals and pH

Borehole #/ ID	Date Sampled	Depth (m bgs)	CSVC (PPM)	APEC-#	Parameters Analyzed
	SS2	1.53-2.13	0.5	1	PAHs
	SS3	2.29-2.89	0.8	1	pH
BH5	SS1	0-0.6	10	2	
	SS2	1.53-2.13	25	2	pH, EC, SAR and Grain Size Analysis
	SS3	3.05-3.66	20	2	
	SS4	4.57-5.18	70	2	Grain Size Analysis
	SS5	6.1-6.71	15	2	PHC/BTEX, PAH, Metals and pH
	SS6	7.62-8.23	40	2	
	SS7	8.38-8.99	45	2	PHC/BTEX, PAH and Metals
BH6	-1	0-0.6	15	1	pH
	-2	1.53-2.13	10	1	
	-3	2.43-3.05	5	1	PHC/BTEX, PAH and Metals
BH7	-1	0-0.6	20		
	-2	1.53-2.13	25		
	-3	2.43-3.05	25		

Highlighted sample ID's above depict the samples chosen for submission to the lab.

2.5 Monitoring Wells Installation

Two (2) monitoring wells MW-1 and MW-2, were installed into designated boreholes on November 18th, 2022 to a depth of 9.144 mbgs for MW-1 and MW-2, respectively. The monitoring well locations are shown on Figure 1 and the field logs are in Appendix A.

The wells were constructed to MECP recognized industry standards and as required by O. Reg. 903, consisted of a 2-inch diameter slotted PVC screen surrounded by silica sand, attached beneath a solid 2-inch diameter PVC riser, surrounded by bentonite grout to ensure a seal between ground surface and the well screen. Each well was fitted with a metal protective flush-mount casing. A watterra manual lift pump was installed into each well to allow for purging and development, rising head hydraulic conductivity tests, and subsequent groundwater sample collection.

2.5.1 Existing Monitoring Wells

Three (3) monitoring wells were previously installed by another Environmental Consulting company prior to the current owner purchasing the property. The three (3) wells were installed to a depth of 5.515 mbgs. However, the groundwater was below this depth, therefore all three (3) wells were dry, therefore was included as part of this investigation.

Four (4) monitoring wells were installed for Geotechnical purposes by Terraprobe, of which only one (1), MW-4, was utilized for environmental purposes. MW-4 was installed to a depth of 9.6mbgs with groundwater levels at 5.9 mbgs.

2.6 Groundwater Sampling

Groundwater samples were collected with a low-flow peristaltic pump with new low-flow tubing, silicone, and metal filters for each monitoring well. Groundwater samples were collected in standard sized amber glass jars, vials and plastic jars as per analytical protocol (O. Reg. 153/04), filled to zero head-space, sealed, and placed in a cooler for transportation.

Sample ID	Dates	Laboratory Analyses
MW-1	Sampled and submitted on December 1 st , 2022 chain of custody number #67803	PHCs (F1-F4), BTEX, PAHs and Metals
MW-2		PHCs (F1-F4), BTEX, PAHs and Metals
MW-4		PHCs (F1-F4), BTEX, PAHs and Metals

2.7 Free Product Investigation

Free product was not monitored in any of the wells during the Phase Two investigation.

2.8 Residue Management Procedures

Soil cuttings and purged water, as well as all fluids used for equipment cleaning were temporarily stored on-site in sealed 55-gallon steel drums.

2.9 Quality Assurance and Quality Control Measures

Hallex conducted Quality Assurance/Quality Control (QA/QC) measures throughout all stages of the assessment to verify sampling procedures and results, including blind duplicate groundwater samples to verify sampling procedures and results. Davis Drilling pre-cleaned the set of augers and hollow stem spoons prior to arriving on-site. The split spoon sampler was decontaminated prior to and in between taking samples by scrubbing with a wire brush and washing in a water solution.

Decontamination of equipment and sampling tools was carried out during field work, as well as appropriate precautions, including new nitrile gloves, to minimize potential cross-contamination between samples and boreholes.

Soil sampling was implemented according to *Protocol for Analytical Methods Used in the Assessment of Properties Under Part XV.1 of the Environmental Protection Act* (March 9, 2004 as amended as of July 1, 2011). Chain of Custody reports were completed for all samples submitted for analyses to keep track of

samples collected and to ensure that all parties involved were properly informed as to the nature of the samples.

Instruments and all their associated components are checked daily prior to field use, and annual equipment servicing and maintenance is conducted by Enviro Measure Inc. to ensure the equipment remains properly calibrated and functioning.

3.0 REVIEW AND EVALUATION

3.1 Soil Conditions

Soil conditions were determined through field investigative measures including the use of analytical equipment, determination of stratigraphy including analysis of moisture, odours, colour, texture, etc. and combustible soil vapor concentration results.

3.1.1 Overburden Stratigraphy

The general overburden stratigraphy observed in boreholes BH1 to BH7 consisted of:

<u>Depth (avg.)</u>	<u>Description</u>
0 - 0.05 mbgs	Asphalt
0.05- 0.91 mbgs	Sandy Gravel FILL
0.91 – 3.045 mbgs	Reworked Red/Brown SILTY SAND with trace Gravel
3.045 – 9.144mbgs	Red/Brown SILTY SAND with trace Clay

Notes:

- Bedrock was not encountered at borehole maximum depth of 9.144 mbgs. Bedrock is at 18.6mbgs, as per the geotechnical boreholes, within the study site.
- Moisture increased at 5.13 to 8.99 mbgs increasing with depth.
- Colour changed gradually from brown to red/brown at 0.76 – 2.13mbgs.
- No Petroleum odour was noted in soil samples from any of the boreholes.

3.2 Soil Laboratory Results

Soil laboratory analytical data was compared with MECP site condition standards (2011) Table 3 Residential land use in a Non-Potable Groundwater situation, with fine textured soil. All soil samples met applicable site condition standards for Metals (by ICP), PHCs, and BTEX. The table below highlight the soil exceedances with complete laboratory analytical reports provided in Appendix C. Figure 2 illustrates the soil exceedances and Figure 4a and 4b depict the cross sections of the study site.

Polycyclic Aromatic Hydrocarbons (PAHs)

Soil laboratory analytical data was compared with MECP Site Condition Standards (2011) Table 3: Residential land use, fine textured soil. Exceedances were noted in samples from one (1) borehole (BH4 SS1) in the fill material from depth ranges 0– 0.61 mbgs, for target contaminant group PAHs.

Parameter	O. Reg. 153/04 (2011) Table 3 Residential, fine	BH4 SS1
Semi-Volatiles		
Benzo[a]pyrene	0.3 ug/g dry	0.49
Fluoranthene	0.69 ug/g dry	1.16

ND: Not Detected, N/A: Not Applicable, Highlights indicate exceedance to applicable regulation

3.3 Groundwater Conditions

Groundwater physical conditions were determined through field data collection, and subsequent calculations, including: hydraulic gradient, hydraulic conductivity/groundwater velocity, and groundwater elevations.

3.3.1 Hydraulic Gradient (i)

The hydraulic gradient was calculated between MW-1, MW-2, and MW-4 with the average across the site being $i = 0.020$, northeast.

Monitoring Well	i (m/m)
MW-2 to MW-1	0.009
MW-2 to MW-4	0.045
MW-1 to MW-4	0.008

3.3.2 Hydraulic Conductivity (k)

A rising-head hydraulic conductivity test was conducted in monitoring well MW-1 and MW-2 after purging, for calculations of hydraulic conductivity using the Bouwer-Rice method with results indicating MW-1 resulted in $k = 6.242E-07$ cm/sec and MW-2 resulted in $k = 1.401E-07$ cm/sec. See Appendix B for groundwater Calculations.

3.3.3 Groundwater Elevation

The groundwater levels in monitoring wells MW-1 to MW-4 were measured and recorded with a Solinst water-level meter before initial purging and monitoring after a recovery period to allow the wells to return to static level.

Monitoring Well	mbgs	masl
MW-1	6.493	183.01
MW-2	6.87	183.33
MW-4	6.78	182.80

mbgs= metres below ground surface, masl = metres above sea level

Groundwater elevation contours are plotted on Figure 5.

3.4 Groundwater Laboratory Results

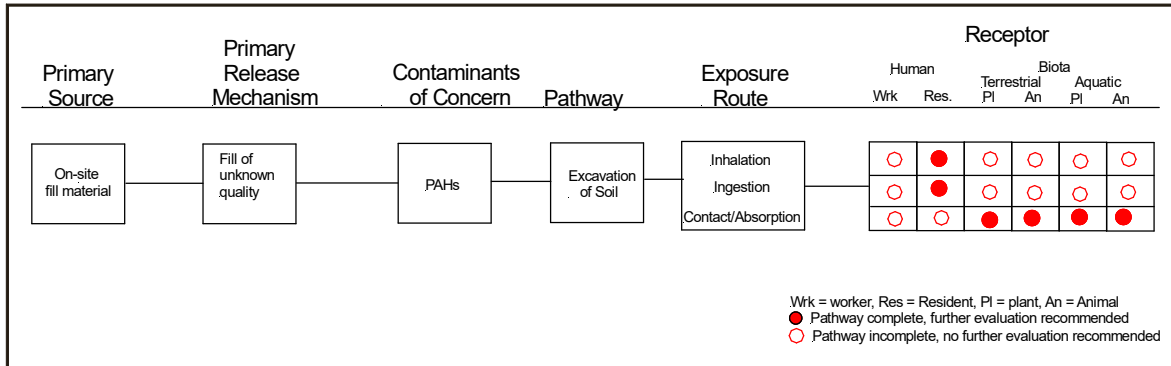
Groundwater laboratory analytical data was compared with groundwater criteria in the MECP Site Condition Standards (2011) Table 3: Residential, Non-Potable Groundwater condition, fine textured soil. All samples met the MECP Site Condition Standards. The groundwater laboratory analytical report is provided in Appendix C.

3.5 Laboratory Quality Assurance and Quality Control

Laboratory QA/QC measures adhering to the Ministry of the Environment's "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 2010" are standard procedure for Paracel Laboratories (accredited to the ISO/IEC 17025 Standard by CALA) in order to ensure that the standards of quality were met within the expected level of confidence.

4.0 PHASE TWO CONCEPTUAL SITE MODEL

The Conceptual Site Model (CSM) qualitatively considers the interaction of identified contaminants of concern, and the pathway(s) and exposure route(s) to receptors. Target contaminants PAHs were identified within the soil medium with potential migration pathways to human and/or biota receptors as follows.



6.0 CONCLUSIONS

The Phase Two Environmental Site Assessment at 5438 Ferry Street, Niagara Falls, ON revealed one (1) soil sample did not meet applicable MECP Site Condition Standards 2011 Table 3 for Residential Land Use in fine texture soil for target contaminants PAHs in BH4. The contaminants identified in the soil were predominantly within the east area of the site, associated with Fill material. Soil/ Fill, variously exhibiting pieces of brick, wood, concrete and asphalt encountered in borehole BH4 in APEC-1 in the south east area of the site, and extending throughout the study site as further evidenced in six (6) out of nine (9) geotechnical boreholes (BH2, BH3, BH4, BH5, BH6 and BH8). The Fill was documented in a depth range of 0 to 3mbgs.

No impact to soil or groundwater was identified on-site in APEC-2 related to off-site underground fuel storage.

Hallex therefore recommends additional Phase Two ESA work be conducted to delineate the extent and volumes of PAHs contamination in FILL at the site in order to develop the remedial plan required to enable site remediation before proceeding to Record of Site Condition filing.

7.0 AUTHOR

Hallex Environmental Ltd. has conducted this Phase Two Environmental Site Assessment as permitted by Hallex Certificate of Authorization (#90252). The following employees authored the report:

Madison Calvert - Mr. Madison Calvert, ETFL, was the Environmental Technician for the project with approximately one year of experience in the environmental geoscience consulting field. Related project work includes Phase One & Phase Two ESAs, Remediation Planning & Supervision, D.S.&H.M. Surveys, Hydrogeological Assessments, Geotechnical Investigations

Nicole Metz - Ms. Nicole Metz, ETPD, ERPC, was the Project Coordinator for the project with over eight years of experience in the environmental consulting field. Some projects Mrs. Metz have worked on included: Phase One & Two Environmental Site Assessments, Site Remediation, groundwater and surface water sampling, underground or aboveground storage tank decommissioning, Designated Substance Surveys, Records of Site Condition Filing, Environmental Compliance Approvals, National Pollutant Release Inventory, and Hazardous Waste Information Network training.

Kevin Christian - Mr. Kevin Christian, M.Sc., P.Geo., a Professional Geoscientist (#0387) registered with the Association of Professional Geoscientists of Ontario, and a Qualified Person (Environmental Site Assessment & Risk Assessment) as per Ontario Regulations 153/04 and 511/09, has thirty years of experience in the environmental geoscience consulting industry conducting Phase One and Two ESA's, remedial planning, and site remediation supervision.

FIGURES

- Figure 1: PCA/ APEC Areas and Borehole & Monitoring Well Locations
- Figure 2: Soil Exceedances
- Figure 3: Groundwater Exceedances
- Figure 4a: Study Site Cross Section Location
- Figure 4b: Cross Section A-A', B-B'
- Figure 5: Groundwater Flow Contours



PCA-1/APEC-1:
 #30 Importation of Fill Material of Unknown Quality
PCA-2/APEC-2:
 #28 Gasoline and Associated Products Storage
 in Fixed Tanks



- Legend**
- Phase Two Property
 - Hallex Borehole Locations
 - Hallex Monitoring Well Locations
 - Existing Monitoring Well Locations
 - PCA-1/APEC-1
 - PCA-2
 - APEC-2

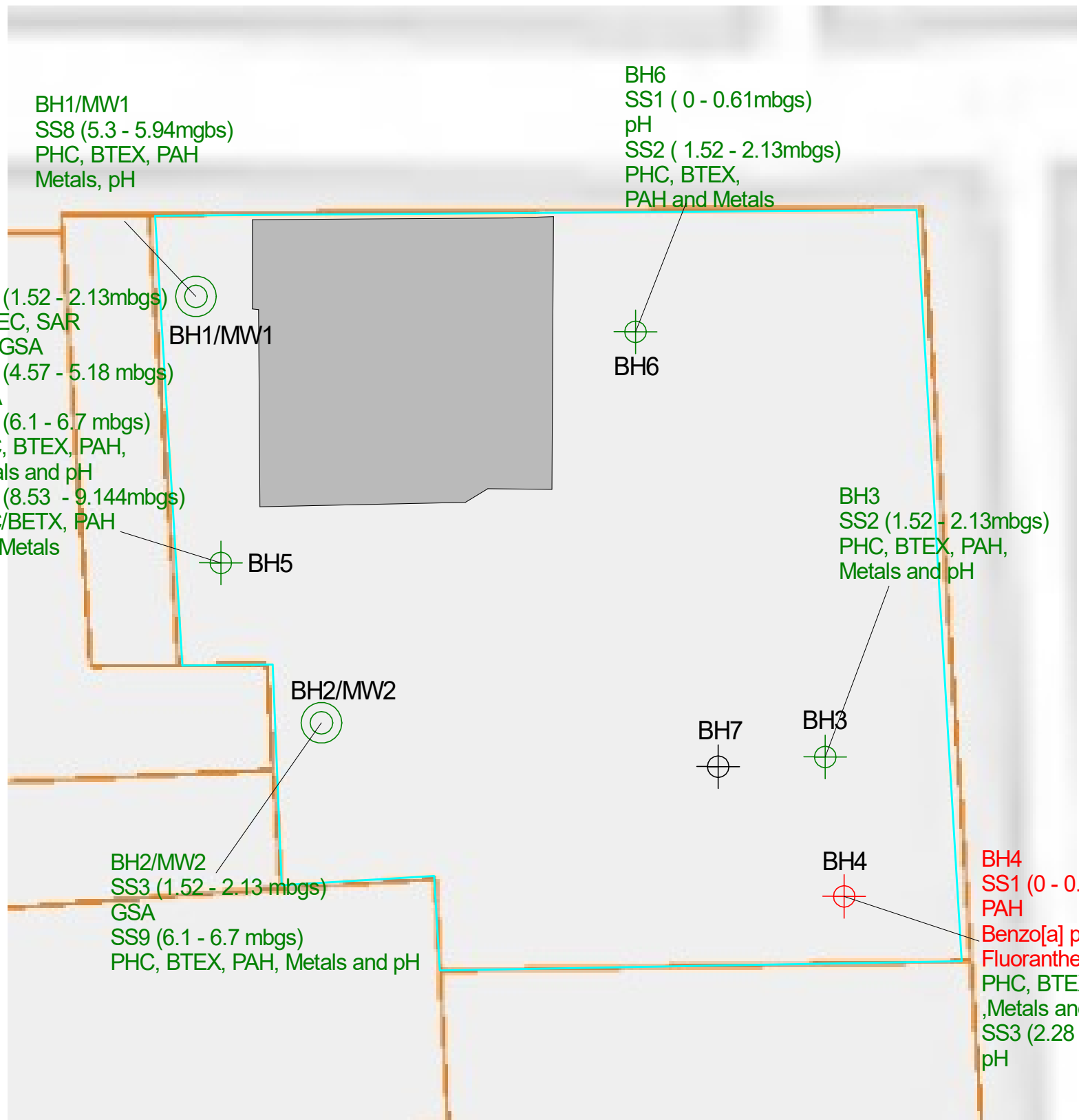
Client
 1788618 Ontario Inc.

Project
 Phase Two ESA
 5438 Ferry Street,
 Niagara Falls, ON

Figure Name
 PCA/APEC and
 Borehole &
 Monitoring Well
 Locations

Project E-22-33-2	Figure 1
Date January 2023	
Drafted: M. Calvert	
Reviewed: N. Metz	





BH1/MW1
 SS8 (5.3 - 5.94mgbs)
 PHC, BTEX, PAH
 Metals, pH

BH6
 SS1 (0 - 0.61mbgs)
 pH
 SS2 (1.52 - 2.13mbgs)
 PHC, BTEX,
 PAH and Metals

BH5
 SS2 (1.52 - 2.13mbgs)
 pH, EC, SAR
 and GSA
 SS4 (4.57 - 5.18 mbgs)
 GSA
 SS5 (6.1 - 6.7 mbgs)
 PHC, BTEX, PAH,
 Metals and pH
 SS7 (8.53 - 9.144mbgs)
 PHC/BETX, PAH
 and Metals

BH1/MW1

BH6

BH3
 SS2 (1.52 - 2.13mbgs)
 PHC, BTEX, PAH,
 Metals and pH

BH5

BH2/MW2

BH7

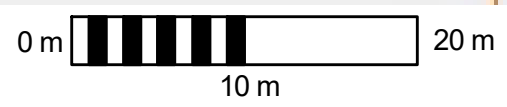
BH3


BH2/MW2
 SS3 (1.52 - 2.13 mbgs)
 GSA
 SS9 (6.1 - 6.7 mbgs)
 PHC, BTEX, PAH, Metals and pH


BH4

BH4
 SS1 (0 - 0.61)
 PAH
 Benzo[a] pyrene 0.3 vs. 0.49ug/g
 Fluoranthene 0.69 vs. 1.16ug/g
 PHC, BTEX,
 ,Metals and pH
 SS3 (2.28 - 2.8mbgs)
 pH

Inferred
 Groundwater
 Flow Direction







Legend

- Study Site
- Borehole
- Monitoring Well
- Building Footprint

Red exceeds Table 3 residential fine criteria
Green meets Table 3 residential fine criteria

Client
 1788618 Ontario Inc.

Project
 Phase Two ESA
 5438 Ferry Street
 Niagara Falls, ON

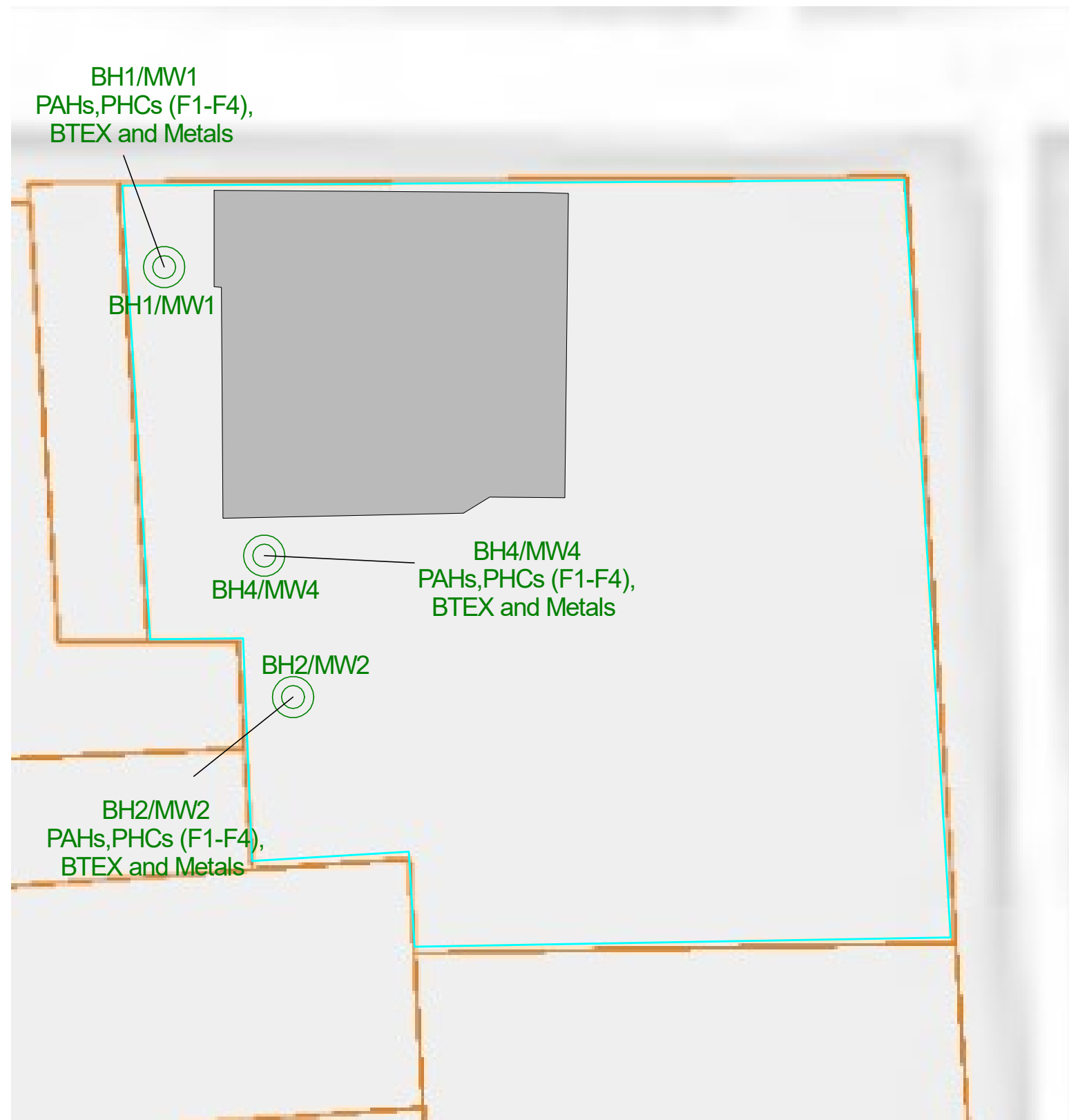
Figure Name
 Soil Exceedances

Project
E-22-33-2

Date
January 2023

Drafted: M. Calvert
Reviewed: N. Metz

Figure
2



Inferred
Groundwater
Flow Direction



Legend

- Study Site
- Borehole
- Monitoring Well
- ↗ Inferred Groundwater Flow Direction

Red exceeds Table 3 residential fine criteria
Green meets Table 3 residential fine criteria

Client

1788618 Ontario Inc.

Project

Phase Two ESA
5438 Ferry Street,
Niagara Falls, ON

Figure Name

Groundwater Exceedances

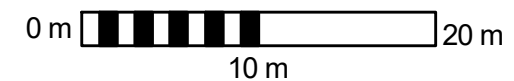
Project E-22-33-2

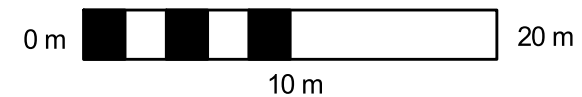
Date January 2023

Drafted: M. Calvert
Reviewed: N. Metz






Figure

3





Legend

-  Study Site
-  Borehole
-  Monitoring Well
-  A - A'
-  B - B'

Client

1788618 Ontario Inc.

Project

Phase Two ESA
5438 Ferry Street,
Niagara Falls, ON

Figure Name

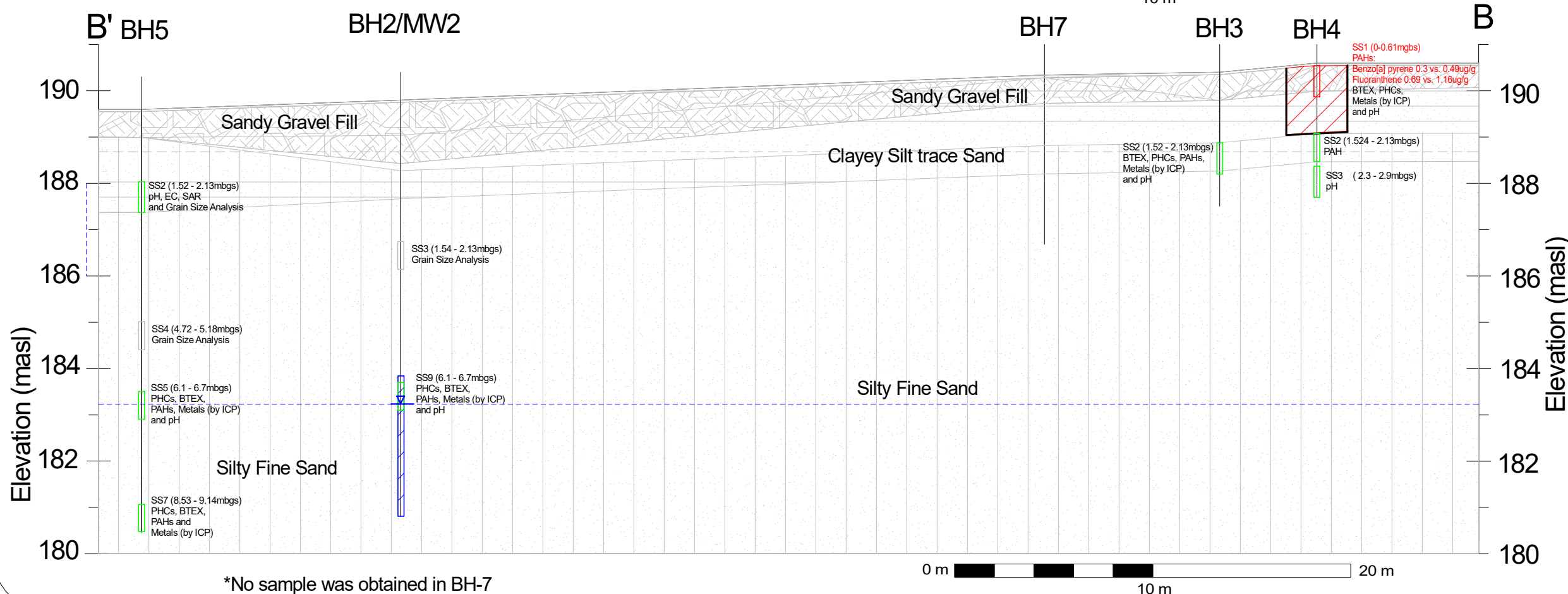
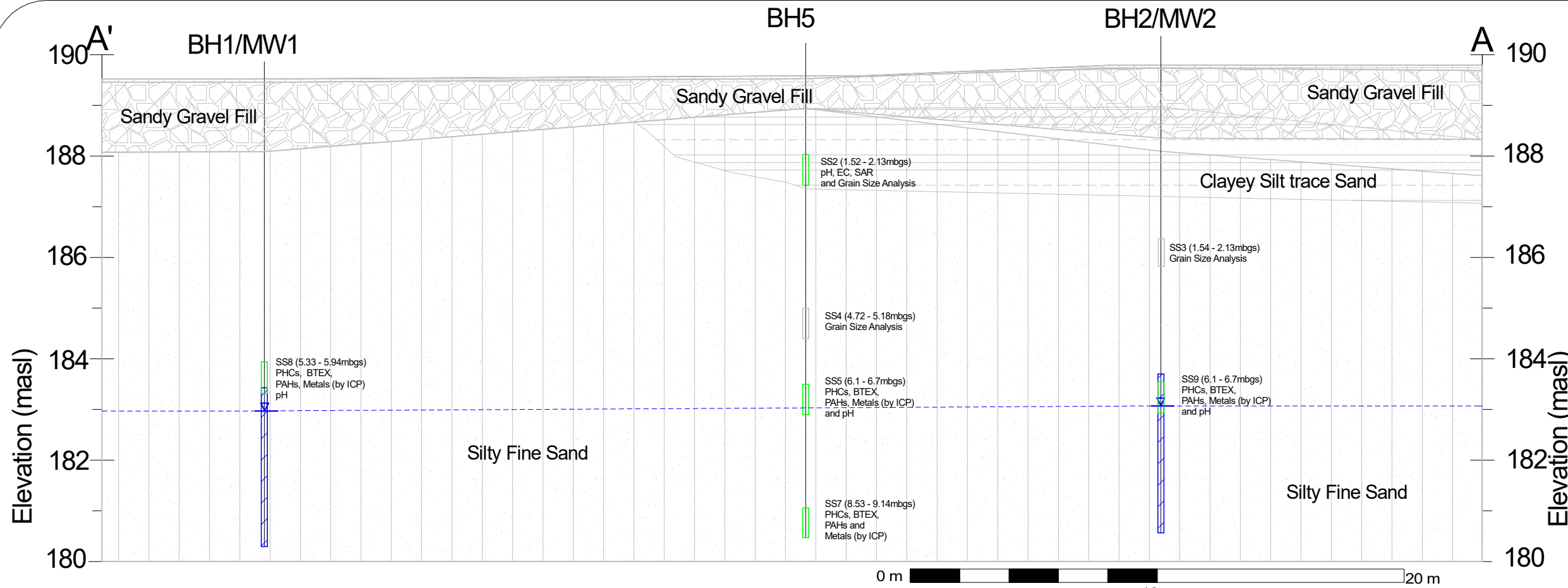
Study Site Cross
Section Locations
(A-A', B-B')

Project
E-22-33-2

Date
January 2023

Drafted: M. Calvert
Reviewed: N. Metz

Figure
4a



*No sample was obtained in BH-7

A-A' B-B'

LEGEND

- ▽ Interpreted Groundwater Level
- Asphalt
- Sand
- Silt
- Clay
- Fill
- Soil Sample Location
- Historic Building Footprint
- Well Screen

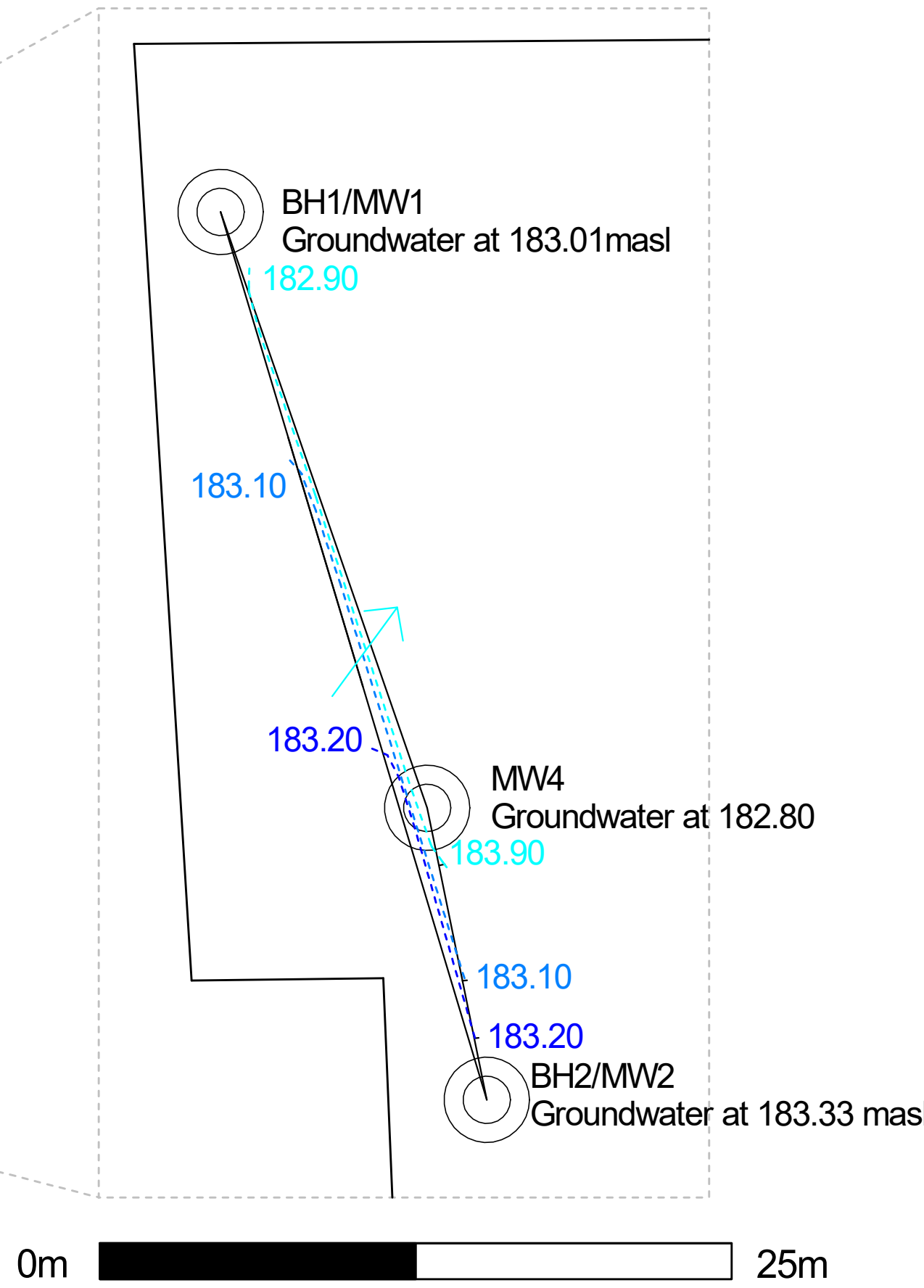
* Green indicates sample meets Table 3, Res criteria
 * Red indicates sample exceeds Table 3, Res criteria

CLIENT:
1788618 Ontario Inc.

PROJECT:
Phase Two ESA
5438 Ferry Street,
Niagara Falls, ON

FIGURE NAME:
Cross Sections:
A - A' and B - B'

PROJECT: E-22-33-2	FIGURE 4b
DATE: January 2023	
Drafted: M. Calvert Reviewed: N. Metz	



Legend

- Phase Two Property Boundary
- Monitoring Well Location
- Borehole Location
- Groundwater Contour
- ↗ Groundwater Flow Direction

Client
1788618 Ontario Inc.

Project
Phase Two ESA
5438 Ferry Street,
Niagara Falls, ON

Figure Name
Groundwater Flow Contours

Project E-22-33-2	5
Date January 2023	
Drafted: N. Metz Reviewed: K.C.	

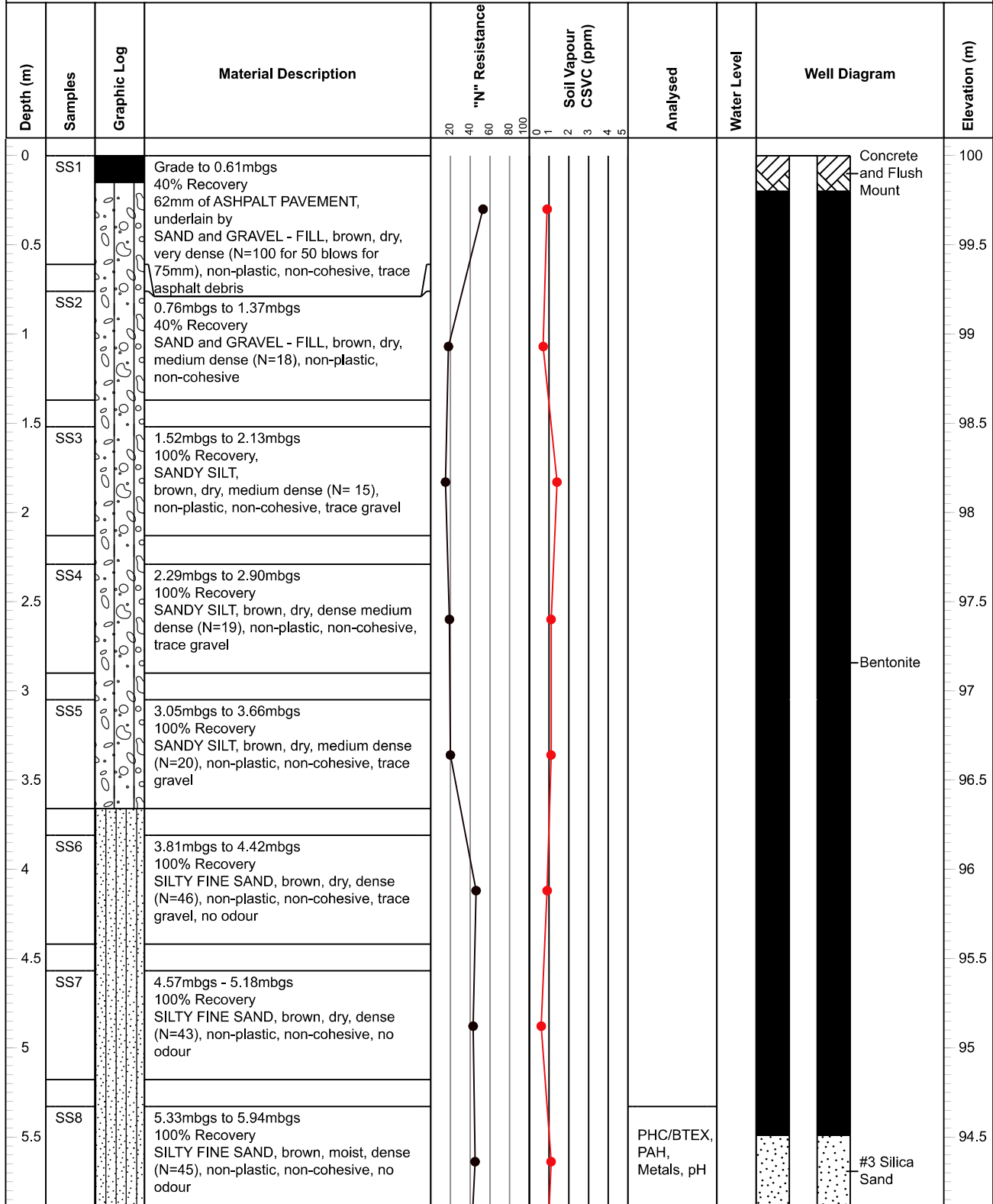
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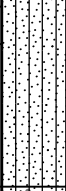
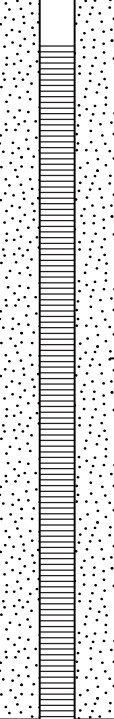
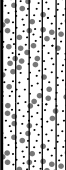
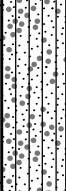
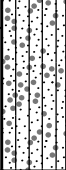
Field Logs

BOREHOLE LOG BH/MW-1-22

Project Number: E-22-32-2	Drill date: November 18th, 2022	Surface Elevation: 189.5 masl
Project: Phase Two ESA	Total depth: 9.114mbgs	Well Tag No.: A369540
Client: 1788618 Ontario Inc	Drilling contractor: Davis Drilling	
Address: 5438 Ferry Street, Niagara Falls ON	Drill rig: CME75 Truck Mount	

Comments: _____ **Logged by:** Connor Dodsworth
Reviewed by: K. Christian



Depth (m)	Samples	Graphic Log	Material Description	"N" Resistance	Soil Vapour CSVC (ppm)	Analysed	Water Level	Well Diagram	Elevation (m)
6	SS9		6.10mbgs to 6.71mbgs 100% Recovery SILTY FINE SAND, brown, moist, dense (N=38), non-plastic, non-cohesive, no odour, mottling	●	●		▽		94
6.5									93.5
7	SS10		6.86mbgs to 7.47mbgs 60% Recovery FINE SAND and SILT, brown, wet, dense (N=31), non-plastic, non-cohesive, no odour	●	●			93	
7.5								92.5	
8	SS11		7.62mbgs to 8.23mbgs 60% Recovery FINE SAND and SILT, brown, saturated, medium dense (N=24), non-plastic, non-cohesive, no odour	●	●			92	
8.5	SS12		8.38mbgs to 8.99mbgs 60% Recovery FINE SAND AND SILT, brown, saturated, medium dense(N=18), non-plastic, non-cohesive, no odour	●	●			91.5	
9			Borehole terminated at 8.99mbgs, installed 51mm x 1524mm screen from 6.10mbgs to 9.14mbgs, followed by sand to 5.49mbgs, followed by bentonite to 3.96mbgs, followed by cuttings to 1.52mbgs Followed by Bentonite to 0.305mbgs. Fitted with 51mm J-Plug and well fitted with protective flush mount						91
9.5									90.5
10									90
10.5									89.5
11									89
11.5									88.5
12									88
12.5									87.5
13									87

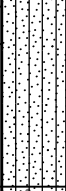


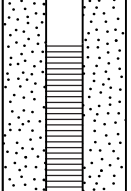
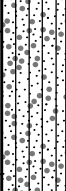


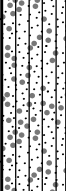


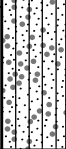


BOREHOLE LOG BH/MW-2-22

Project Number: E-22-32-2 Project: Phase Two ESA Client: 1788618 Ontario Inc Address: 5438 Ferry Street, Niagara Falls ON	Drill date: November 18th, 2022 Total depth: 9.114mbgs Drilling contractor: Davis Drilling Drill rig: CME75 Truck Mount	Surface Elevation: 190.2 masl Well Tag No.: A369540
--	--	--

Comments: Weather Conditions: Clear, 2°C **Logged by:** Connor Dodsworth
Reviewed by: K. Christian

Depth (m)	Samples	Graphic Log	Material Description	"N" Resistance		Soil Vapour CSV (ppm)	Analysed	Water Level	Well Diagram	Elevation (m)
				20	40					
0	SS1		Grade to 0.61mbgs 5% Recovery 50mm of ASPHALT PAVEMENT, underlain by SAND and GRAVEL - FILL, grey, dry, loose (N=10), non-plastic, non-cohesive, trace asphalt debris, no odour	20	40	1			Concrete and Flush Mount	100
0.5										99.5
1	SS2		0.76mbgs to 1.37mbgs >5% Recovery SAND and GRAVEL FILL, brown, dry, loose(N=5), non-plastic, non-cohesive, trace clay	40	60	1				99
1.5										98.5
2	SS3		1.52mbgs to 2.13mbgs 100% Recovery SILTY MEDIUM SAND, some FINE SAND, some Gravel, grey to brown, dry, medium dense (N=13), non-plastic, non-cohesive, some gravel, no odour	60	80	1	GSA			98
2.5										97.5
3	SS4		2.29mbgs to 2.90mbgs 100% Recovery SILTY MEDIUM SAND some FINE SAND, reddish brown, dry, medium dense (N=30), non-plastic, non-cohesive, trace gravel, no odour	80	100	1			Bentonite	97
3.5										96.5
4	SS5		3.05mbgs to 3.66mbgs 100% Recovery SILTY MEDIUM SAND some FINE SAND, reddish brown, dry, very dense(N=55), non-plastic, non-cohesive, some gravel, no odour	100		1				96
4.5										95.5
5	SS6		3.81mbgs to 4.42mbgs 100% Recovery SILTY MEDIUM SAND / SANDY SILT, brown, dry, very dense (N=63), non-plastic, non-cohesive no odour			1				95
5.5										94.5
	SS7		4.57mbgs - 5.18mbgs 100% Recovery SILTY FINE SAND, brown, dry, dense (N=43), non-plastic, non-cohesive, no odour			1				
	SS8		5.33mbgs to 5.94mbgs 70% Recovery SILTY FINE SAND, brownish red, moist, dense (N=45), non-plastic, non-cohesive, no odour			1			#3 Silica Sand	

BOREHOLE LOG BH/MW-2-22

Depth (m)	Samples	Graphic Log	Material Description	"N" Resistance	Soil Vapour CSVC (ppm)	Analysed	Water Level	Well Diagram	Elevation (m)
6	SS9		6.10mbgs to 6.71mbgs 80% Recovery SILTY FINE SAND, brownish red, wet, dense(N=38), non-plastic, non-cohesive, no odour, mottling			PHCs/BTEX PAHs, Metals, pH	▽		94
6.5			93.5						
7	SS10		6.86mbgs to 7.47mbgs 60% Recovery FINE SAND and SILT, brownish red, wet, dense(N=31), non-plastic, non-cohesive, no odour					93	
7.5								92.5	
8	SS11		7.62mbgs to 8.23mbgs 60% Recovery FINE SAND and SILT, brown, very wet, dense (N=34), non-plastic, non-cohesive, no odour					#3 Silica Sand	92
8.5	SS12		8.38mbgs to 8.99mbgs 60% Recovery FINE SAND and SILT, brown, saturated, dense (N=48) non-plastic, non-cohesive, no odour						91.5
9			Borehole terminated at 8.99mbgs, installed 51mm x 1524mm screen from 6.10mbgs to 9.14mbgs, followed by sand to 5.49mbgs, followed by bentonite to 3.96mbgs, followed by cuttings to 1.52mbgs Followed by Bentonite to 0.305mbgs. Fitted with 51mm J-Plug and well fitted with protective flush mount						91
9.5									90.5
10									90
10.5									89.5
11									89
11.5									88.5
12									88
12.5									87.5
13									87

BOREHOLE LOG BH-3-22

PROJECT NUMBER: E-22-33-2	DRILLING DATE: November 18, 2022	Surface Elevation: 190.4masl
PROJECT NAME: PHASE II ESA	TOTAL DEPTH (mbgs): 3	
CLIENT: 1788618 Ontario inc.	DRILLING CONTARTOR: Davis Drilling	
ADDRESS: 5438 Ferry Street, Niagara Falls, ON	TYPE OF DRILLING: Environmental	
	DRILLING RIG: CME 75 Truck mounted	

COMMENTS Weather Conditions: Clear, 2°C	LOGGED BY AC CHECKED BY KC
--	---

Depth (m)	Samples	Graphic Log	Material Description	"N" Resistance	Soil Vapour (ppm) or CSVC %LEL	Analysed	Elevation (m)
0.2	SS1		Grade to 0.6mbgs 90% Recovery 89mm of ASPHALT PAVMENT, underlain by FINE SAND - FILL, brown, dry, loose (N=6), non-plastic, non-cohesive, no odour	5 10 15 20 25 30	20 40 60 80 100		99.8
0.4							99.6
0.6							99.4
0.8							99.2
1.0							99.0
1.2							98.8
1.4							98.6
1.6	SS2		1.424 to 2.13mbgs 100% Recovery CLAYEY SILT - FILL, brown, dry, medium stiff (N=7), slight plasticity, slightly cohesive, trace sand			PHCs (F1-F4) + BTEX, PAH, Metals (by ICP), pH	98.4
1.8							98.2
2.0							98.0
2.2							97.8
2.4	SS3		2.3 to 2.9mbgs 100% Recovery SANDY SILT, redish brown, dry, medium dense (N=27), non-plastic, non-cohesive, no odour				97.6
2.6							97.4
2.8							97.2
3.0			Borehole terminated at 2.9mbgs				97.0
3.2							96.8
3.4							96.6
3.6							96.4
3.8							96.2

BOREHOLE LOG BH-4-22

PROJECT NUMBER: E-22-33-2	DRILLING DATE: November 18, 2022	Grade Elevation 190.6masl
PROJECT NAME: PHASE II ESA	TOTAL DEPTH (mbgs): 3	
CLIENT: 1788618 Ontario inc.	DRILLING CONTARTOR: Davis Drilling	
ADDRESS: 5438 Ferry Street, Niagara Falls, ON	TYPE OF DRILLING: Environmental	
	DRILLING RIG: CME 75 Truck mounted	

COMMENTS Weather Conditions: Clear, 2°C	LOGGED BY AC
	CHECKED BY KC

Depth (m)	Samples	Graphic Log	Material Description	"N" Resistance		Soil Vapour (ppm) or CSVC %LEL	Analysed	Elevation (m)
				5	10			
0.2	SS1		Grade to 0.61mbgs >5% Recovery 51mm if ASPHALT PAVEMENT underlain by SAND - FILL, brown, dry, loose (N=7), non-plastic, non-cohesive, trace clay, no odour	5	10		PHCs/BTEX, PAHs, Metals, pH	99.8
0.4								99.6
0.6								99.4
0.8								99.2
1.0								99.0
1.2								98.8
1.4								98.6
1.6	SS2		1.524 to 2.13mbgs 90% Recovery GRAVEL to SANDY SILT - FILL, reddish brown, dry, medium dense (N=24), non-plastic, non-cohesive, trace clay, brick fragments, no odour				PHCs/BTEX, PAHs, Metals, pH	98.4
1.8								98.2
2.0								98.0
2.2								97.8
2.4	SS3		2.3 to 2.9mbgs 100% Recovery SANDY SILT with FINE SAND, reddish brown, dry, slightly moist, medium dense (N=16), non-plastic, non-cohesive, trace asphalt debris, no odour				pH	97.6
2.6								97.4
2.8								97.2
3.0			Borehole Terminated at 2.9mbgs					97.0
3.2								96.8
3.4								96.6
3.6								96.4
3.8								96.2

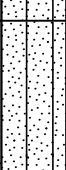
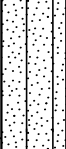
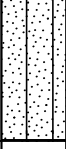
BOREHOLE LOG BH-5-22

Project Number: E-22-33-2 **Drill date:** November 24th, 2022 **Grade Elevation:** 189.8 masl
Project: Phase Two ESA **Total depth:** 9.14 mbgs
Client: 1788618 Ontario Inc. **Drilling contractor:** Davis Drilling
Address: 5438 Ferry Street, Niagara Falls, ON **Drill rig:** Truck Mounted CME-75

Comments: Weather Conditions: 4°, Sunny **Logged by:** M. Calvert
Reviewed by: K. Christian

Depth (m)	Samples	Graphic Log	Material Description	"N" Resistance		Soil Vapour CSVC (ppm)		Analysed	Elevation (m)
				20	40	10	20		
0.5	SS1		Grade to 0.61mbgs 5% recovery 51mm of ASPHALT PAVEMENT underlain by GRAVEL and SAND FILL grey, dry, very loose (N=3), non-plastic, non-cohesive, no odour	~45	~15	~15	~15	pH, EC, SAR and GSA	189.5
1.5	SS2		1.52 to 2.13mbgs 50% recovery SILTY CLAY, brown, dry, loose (N=8), non-plastic, non-cohesive, trace fine sand, trace asphalt, no odour	~65	~25	~25	~25		188
3.5	SS3		3.05 to 3.66mbgs 50% recovery SILTY FINE SAND, brown, dry, very dense (N=57), non-plastic, non-cohesive, trace gravel, no odour	~85	~35	~35	~35	GSA	186.5
5.0	SS4		4.57 to 5.18mbgs 90% recovery REFUSAL in SILTY MEDIUM SAND - UNWORKED, brown/red, dry, (N=85 for 50 blows for 139.7mm), non-plastic, non-cohesive, no odour refusal at 5.015mbgs	~95	~45	~45	~45		185

BOREHOLE LOG BH-5-22

Depth (m)	Samples	Graphic Log	Material Description	"N" Resistance	Soil Vapour CSVC (ppm)	Analysed	Elevation (m)
6.5	SS5		6.10 to 6.71mbs 70% recovery SILTY MEDIUM SAND reddish brown, slightly moist, very dense (N=85 for 50 blows 101.6mm), non-plastic, non-cohesive, trace gravel, no odour	●	●	PHC (F1-F4)/ BTEX, PAHS, Metals and pH	183.5
7.0							183
7.5							182.5
8.0	SS6		7.62 to 8.23mbs 80% recovery SILTY SAND to SANDY SILT, brown, moist, very dense (N=51), non-plastic, non-cohesive, no odour	●	●	PHC (F1-F4)/BTEX, PAHs and Metals	182
8.5							181.5
9.0	SS7		8.53 to 9.14mbs 80% recovery SANDY SILT, brown, wet, medium dense (N=28), non-plastic, non-cohesive, no odour	●	●		181
9.5			Borehole terminated at 9.14mbs				180.5
10.0							180
10.5							179.5
11.0							179
11.5							178.5
12.0							178
12.5							177.5
13.0							177

BOREHOLE LOG BH-6-22

Project Number: E-22-33-2 **Drill date:** November 24th, 2022 **Grade Elevation:** 189.5masl
Project: Phase Two ESA **Total depth:** 3.66 mbgs
Client: 1788618 Ontario Inc. **Drilling contractor:** Davis Drilling
Address: 5438 Ferry Street, Niagara Falls, ON **Drill rig:** Truck Mounted CME-75

Comments: Weather Conditions: 4°, Sunny **Logged by:** M. Calvert
Reviewed by: K. Christian

Depth (m)	Samples	Graphic Log	Material Description	"N" Resistance			Soil Vapour CSV (ppm)	Analysed	Elevation (m)
				20	40	60			
0.2	SS1		Grade to 0.61mbgs 50% recovery 76mm of ASPHALT PAVEMENT underlain by GRAVEL and SAND - FILL, grey, dry, medium dense (N=10), non-plastic, non-cohesive, no odour					pH	189.4
0.4									189.2
0.6									189
0.8									188.8
1.0									188.6
1.2									188.4
1.4									188.2
1.6	SS2		1.52 to 2.13mbgs 70% recovery CLAYEY SILT grey/brown, dry, medium dense (N=13), slight plasticity, slightly cohesive, trace sand , trace gravel, no odour.					PHC(F1-F4)/ BTEX, PAHs and Metals	188
1.8									187.8
2.0									187.6
2.2									187.4
2.4									187.2
2.6									187
2.8									186.8
3.0									186.6
3.2	SS3		3.05 to 3.66mbgs 80% recovery CLAYEY SILT and SAND to GRANULAR reworked material brown to grey, dry, dense (N=40), non-plastic, non-cohesive trace cobble, no odour						186.4
3.4									186.2
3.6									186
3.8			Borehole terminated at 3.66mbgs						185.8
									185.6

BOREHOLE LOG BH-7-22

Project Number: E-22-33-2 **Drill date:** November 24th, 2022 **Grade Elevation:** 190.3masl
Project: Phase Two ESA **Total depth:** 3.66mbgs
Client: 1788618 Ontario Inc. **Drilling contractor:** Davis Drilling
Address: 5438 Ferry Street, Niagara Falls, ON **Drill rig:** Truck Mounted CME-75

Comments: Weather Conditions: 4°, Sunny **Logged by:** M. Calvert
Reviewed by: K. Christian

Depth (m)	Samples	Graphic Log	Material Description	"N" Resistance		Soil Vapour CSVC (ppm)		Analysed	Elevation (m)						
				20	40	5	10			15	20	25	30		
0.2	SS1		Grade to 0.61mbgs 50% recovery 64mm of ASPHALT PAVEMENT underlain by GRAVEL and SAND - FILL, grey, dry, medium dense (N=10), non-plastic, non-cohesive, trace clay, trace asphalt debris, no odour	●	●	●	●		190.2						
0.4									190						
0.6									189.8						
0.8									189.6						
1.0									189.4						
1.2									189.2						
1.4									189						
1.6									188.8						
1.6	SS2								1.52 to 2.13mbgs 60% recovery CLAYEY SILT, brown, dry, medium dense (N=11), medium plasticity, cohesive, trace fine sand, no odour	●	●	●	●		188.6
1.8															188.4
2.0															188.2
2.2															188
2.4															187.8
2.6															187.6
2.8															187.4
3.0															187.2
3.2	SS3	3.05 to 3.66mbgs 100% recovery SILTY SAND, brown, dry, dense (N=40), non-plastic, non-cohesive, trace gravel, no odour	●	●	●	●		187							
3.4								186.8							
3.6								186.6							
3.8			Borehole terminated at 3.66mbgs					186.4							

Appendix B:
Groundwater Calculations

Hydraulic Conductivity (K) Calculation
Project: E-22-33-2

MW-1

Well radius r = 0.025 m
 Borehole radius R = 0.05
 Length of screen L = 3.05
 Initial depth to gw H = 6.493
 Pumped depth, t=0 Ho = 6.8
 Final depth to gw h = 6.505
 Time (min) dt = 1346

Time (min)	Water Level (m)
0	6.8
1	6.76
2	6.76
3	6.74
4	6.73
5	6.71
10	6.69
117	6.62
1346	6.505

r, radius of well =	2.500E-02	
dh =	2.950E-01	
dt =	1.346E+03	
q(t), rate of inflow =	4.303E-07	
V, volume removed	2.952E-04	0.000
To, time lag =	6.860E+02	
L, length of screen	3.000E+00	
r2 =	6.250E-04	
L/R =	6.100E+01	
ln l/r =	4.111E+00	
r2 x ln l/r =	2.569E-03	
K =	6.242E-07	cm/s
K =	5.393E-02	cm/day
K =	5.393E-04	m/day
K =	1.968E-01	m/yr

Hvorslev method	To=(pi)r ² /FK		
	K=(r ² ln(L/R))/2LTo		
v=ki/n			
v=	1.87261E-08	cm/s	1.61793E-05 m/d
k=	6.24203E-07		5.39311E-04
n=	2.00000E-01		
l=	6.00000E-03		
		v=	5.90546E-03 m/yr

Hydraulic Conductivity (K) Calculation**MW-2****Project: E-22-33-2**

Well radius r = 0.025 m
 Borehole radius R = 0.05
 Length of screen L = 3.05
 Initial depth to gw H = 6.87
 Pumped depth, t=0 Ho = 7.1
 Final depth to gw h = 6.621
 Time (min) dt= 1300

Time (min)	Water Level (m)
0	7.1
1	7.1
2	7.094
3	7.09
4	7.07
5	7.05
10	7.02
17	6.995
40	6.91
1300	6.621

r, radius of well =	2.500E-02	
dh =	4.790E-01	
dt =	1.300E+03	
q(t), rate of inflow =	7.235E-07	
V, volume removed	2.212E-04	0.000
To, time lag =	3.057E+02	
L, length of screen	3.000E+00	
r2 =	6.250E-04	
L/R =	6.100E+01	
ln l/r =	4.111E+00	
r2 x ln l/r =	2.569E-03	
K =	1.401E-06	cm/s
K =	1.210E-01	cm/day
K =	1.210E-03	m/day
K =	4.417E-01	m/yr

Hvorslev method	To=(pi)r ² /FK		
	K=(r ² ln(L/R))/2LTo		
v=ki/n			
v=	4.20216E-08	cm/s	3.63067E-05 m/d
k=	1.40072E-06		1.21022E-03
n=	2.00000E-01		
l=	6.00000E-03		
		v=	1.32519E-02 m/yr

Appendix C:
Laboratory Analytical Reports

Certificate of Analysis

Hallex Environmental Ltd.

4999 Victoria Ave
Niagara Falls, ON L2E 4C9
Attn: Kevin Christian

Client PO:
Project: E-22-33-2
Custody: 136523,25,67790,92,91

Report Date: 2-Dec-2022
Order Date: 25-Nov-2022

Order #: 2249037

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

Parcel ID	Client ID
2249037-01	BH1/MW1 SS8
2249037-03	BH1/MW1 SS8-A
2249037-04	BH2/MW2 SS9
2249037-05	BH2/MW2 SS3
2249037-07	BH3 SS2
2249037-08	BH4 SS1
2249037-09	BH4 SS3
2249037-10	BH5 SS2
2249037-11	BH5 SS4
2249037-12	BH5 SS5
2249037-13	BH5 SS7
2249037-14	BH6 SS1
2249037-15	BH6 SS2

Approved By:



Milan Ralitsch, PhD
Senior Technical Manager

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	28-Nov-22	29-Nov-22
Conductivity	MOE E3138 - probe @25 °C, water ext	1-Dec-22	1-Dec-22
PHC F1	CWS Tier 1 - P&T GC-FID	28-Nov-22	29-Nov-22
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	30-Nov-22	1-Dec-22
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	1-Dec-22	2-Dec-22
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	29-Nov-22	1-Dec-22
REG 153: pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	28-Nov-22	29-Nov-22
SAR	Calculated	1-Dec-22	2-Dec-22
Solids, %	CWS Tier 1 - Gravimetric	28-Nov-22	29-Nov-22
Texture - Coarse Med/Fine	Based on ASTM D2487	29-Nov-22	30-Nov-22

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Summary of Criteria Exceedances

(If this page is blank then there are no exceedances)

Only those criteria that a sample exceeds will be highlighted in red

Regulatory Comparison:

Paracel Laboratories has provided regulatory guidelines on this report for informational purposes only and makes no representations or warranties that the data is accurate or reflects the current regulatory values. The user is advised to consult with the appropriate official regulations to evaluate compliance. Sample results that are highlighted have exceeded the selected regulatory limit. Calculated uncertainty estimations have not been applied for determining regulatory exceedances.

Sample	Analyte	MDL / Units	Result	Reg 153/04 -T2 Res/Park, coarse	Reg 153/04 -T2 Res/Park, fine
BH4 SS1	Benzo [a] pyrene	0.02 ug/g	0.49	0.3 ug/g	0.3 ug/g
BH4 SS1	Fluoranthene	0.02 ug/g	1.16	0.69 ug/g	0.69 ug/g

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Client ID:	BH1/MW1 SS8	BH1/MW1 SS8-A	BH2/MW2 SS9	BH2/MW2 SS3	Criteria:	
Sample Date:	18-Nov-22 09:00	18-Nov-22 09:00	18-Nov-22 09:00	18-Nov-22 09:00	Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2249037-01	2249037-03	2249037-04	2249037-05	Res/Park, coarse	Res/Park, fine
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Physical Characteristics

% Solids	0.1 % by Wt.	82.6	82.2	82.5	85.7	-	-
>75 um	0.1 %	-	-	-	29.6	-	-
<75 um	0.1 %	-	-	-	70.4	-	-
Texture	0.1 %	-	-	-	Med/Fine	-	-

General Inorganics

pH	0.05 pH Units	7.66	-	7.78	-	5.00 - 9.00 pH Units	5.00 - 9.00 pH Units
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Metals

Antimony	1 ug/g	<1.0	<1.0	<1.0	-	7.5 ug/g	7.5 ug/g
Arsenic	1 ug/g	2.2	2.0	1.8	-	18 ug/g	18 ug/g
Barium	1 ug/g	112	94.9	187	-	390 ug/g	390 ug/g
Beryllium	0.5 ug/g	<0.5	<0.5	<0.5	-	4 ug/g	5 ug/g
Boron	5 ug/g	<5.0	<5.0	<5.0	-	120 ug/g	120 ug/g
Cadmium	0.5 ug/g	<0.5	<0.5	<0.5	-	1.2 ug/g	1.2 ug/g
Chromium	5 ug/g	9.9	9.3	8.9	-	160 ug/g	160 ug/g
Cobalt	1 ug/g	5.7	5.0	4.8	-	22 ug/g	22 ug/g
Copper	5 ug/g	6.2	5.6	6.0	-	140 ug/g	180 ug/g
Lead	1 ug/g	3.8	3.4	3.4	-	120 ug/g	120 ug/g
Molybdenum	1 ug/g	<1.0	<1.0	<1.0	-	6.9 ug/g	6.9 ug/g
Nickel	5 ug/g	10.0	8.5	8.3	-	100 ug/g	130 ug/g
Selenium	1 ug/g	<1.0	<1.0	<1.0	-	2.4 ug/g	2.4 ug/g
Silver	0.3 ug/g	<0.3	<0.3	<0.3	-	20 ug/g	25 ug/g
Thallium	1 ug/g	<1.0	<1.0	<1.0	-	1 ug/g	1 ug/g
Uranium	1 ug/g	<1.0	<1.0	<1.0	-	23 ug/g	23 ug/g
Vanadium	10 ug/g	15.7	16.2	14.6	-	86 ug/g	86 ug/g
Zinc	20 ug/g	23.7	<20.0	<20.0	-	340 ug/g	340 ug/g

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Client ID:	BH1/MW1 SS8	BH1/MW1 SS8-A	BH2/MW2 SS9	BH2/MW2 SS3	Criteria:	
	Sample Date:	18-Nov-22 09:00	18-Nov-22 09:00	18-Nov-22 09:00	18-Nov-22 09:00	Reg 153/04 -T2 Res/Park, coarse
Sample ID:	2249037-01	2249037-03	2249037-04	2249037-05		
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Volatiles

Benzene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.21 ug/g	0.17 ug/g
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	-	1.1 ug/g	1.6 ug/g
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	-	2.3 ug/g	6 ug/g
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	<0.05	-	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	-	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	<0.05	-	3.1 ug/g	25 ug/g
Toluene-d8	Surrogate	107%	107%	107%	-	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	-	55 ug/g	65 ug/g
F2 PHCs (C10-C16)	4 ug/g	<4	<4	<4	-	98 ug/g	150 ug/g
F3 PHCs (C16-C34)	8 ug/g	<8	<8	<8	-	300 ug/g	1300 ug/g
F4 PHCs (C34-C50)	6 ug/g	<6	<6	<6	-	2800 ug/g	5600 ug/g

Semi-Volatiles

Acenaphthene	0.02 ug/g	<0.02	<0.02	<0.02	-	7.9 ug/g	29 ug/g
Acenaphthylene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.15 ug/g	0.17 ug/g
Anthracene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.67 ug/g	0.74 ug/g
Benzo [a] anthracene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.5 ug/g	0.63 ug/g
Benzo [a] pyrene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.3 ug/g	0.3 ug/g
Benzo [b] fluoranthene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.78 ug/g	0.78 ug/g
Benzo [g,h,i] perylene	0.02 ug/g	<0.02	<0.02	<0.02	-	6.6 ug/g	7.8 ug/g
Benzo [k] fluoranthene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.78 ug/g	0.78 ug/g
Chrysene	0.02 ug/g	<0.02	<0.02	<0.02	-	7 ug/g	7.8 ug/g
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.1 ug/g	0.1 ug/g
Fluoranthene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.69 ug/g	0.69 ug/g
Fluorene	0.02 ug/g	<0.02	<0.02	<0.02	-	62 ug/g	69 ug/g

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

	Client ID:	BH1/MW1 SS8	BH1/MW1 SS8-A	BH2/MW2 SS9	BH2/MW2 SS3	Criteria:	
	Sample Date:	18-Nov-22 09:00	18-Nov-22 09:00	18-Nov-22 09:00	18-Nov-22 09:00	Reg 153/04 -T2	Reg 153/04 -T2
	Sample ID:	2249037-01	2249037-03	2249037-04	2249037-05	Res/Park, coarse	Res/Park, fine
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						

Semi-Volatiles

Indeno [1,2,3-cd] pyrene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.38 ug/g	0.48 ug/g
1-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.99 ug/g	3.4 ug/g
2-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	<0.02	-	0.99 ug/g	3.4 ug/g
Methylnaphthalene (1&2)	0.03 ug/g	<0.03	<0.03	<0.03	-	0.99 ug/g	3.4 ug/g
Naphthalene	0.01 ug/g	<0.01	<0.01	<0.01	-	0.6 ug/g	0.75 ug/g
Phenanthrene	0.02 ug/g	<0.02	<0.02	<0.02	-	6.2 ug/g	7.8 ug/g
Pyrene	0.02 ug/g	<0.02	<0.02	<0.02	-	78 ug/g	78 ug/g
2-Fluorobiphenyl	Surrogate	73.4%	71.9%	63.1%	-	-	-
Terphenyl-d14	Surrogate	64.9%	58.1%	62.0%	-	-	-

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Client ID:	BH3 SS2	BH4 SS1	BH4 SS3	BH5 SS2	Criteria:	
Sample Date:	18-Nov-22 09:00	18-Nov-22 09:00	18-Nov-22 09:00	24-Nov-22 09:00	Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2249037-07	2249037-08	2249037-09	2249037-10	Res/Park, coarse	Res/Park, fine
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Physical Characteristics

		BH3 SS2	BH4 SS1	BH4 SS3	BH5 SS2	Reg 153/04 -T2	Reg 153/04 -T2
% Solids	0.1 % by Wt.	82.1	89.7	87.7	85.0	-	-
>75 um	0.1 %	-	-	-	9.3	-	-
<75 um	0.1 %	-	-	-	90.7	-	-
Texture	0.1 %	-	-	-	Med/Fine	-	-

General Inorganics

		BH3 SS2	BH4 SS1	BH4 SS3	BH5 SS2	Reg 153/04 -T2	Reg 153/04 -T2
SAR	0.01 N/A	-	-	-	1.33	5 N/A	5 N/A
Conductivity	5 uS/cm	-	-	-	178	0.7 mS/cm	0.7 mS/cm
pH	0.05 pH Units	7.68	7.62	7.66	7.59	5.00 - 9.00 pH Units	5.00 - 9.00 pH Units

Metals

		BH3 SS2	BH4 SS1	BH4 SS3	BH5 SS2	Reg 153/04 -T2	Reg 153/04 -T2
Antimony	1 ug/g	<1.0	<1.0	-	-	7.5 ug/g	7.5 ug/g
Arsenic	1 ug/g	6.2	4.9	-	-	18 ug/g	18 ug/g
Barium	1 ug/g	129	54.7	-	-	390 ug/g	390 ug/g
Beryllium	0.5 ug/g	0.8	<0.5	-	-	4 ug/g	5 ug/g
Boron	5 ug/g	13.2	8.1	-	-	120 ug/g	120 ug/g
Cadmium	0.5 ug/g	<0.5	<0.5	-	-	1.2 ug/g	1.2 ug/g
Chromium	5 ug/g	28.1	11.2	-	-	160 ug/g	160 ug/g
Cobalt	1 ug/g	15.5	3.8	-	-	22 ug/g	22 ug/g
Copper	5 ug/g	22.9	13.7	-	-	140 ug/g	180 ug/g
Lead	1 ug/g	14.1	73.9	-	-	120 ug/g	120 ug/g
Molybdenum	1 ug/g	<1.0	<1.0	-	-	6.9 ug/g	6.9 ug/g
Nickel	5 ug/g	32.5	9.0	-	-	100 ug/g	130 ug/g
Selenium	1 ug/g	<1.0	<1.0	-	-	2.4 ug/g	2.4 ug/g
Silver	0.3 ug/g	<0.3	<0.3	-	-	20 ug/g	25 ug/g
Thallium	1 ug/g	<1.0	<1.0	-	-	1 ug/g	1 ug/g
Uranium	1 ug/g	<1.0	<1.0	-	-	23 ug/g	23 ug/g

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Client ID:	BH3 SS2	BH4 SS1	BH4 SS3	BH5 SS2	Criteria:	
Sample Date:	18-Nov-22 09:00	18-Nov-22 09:00	18-Nov-22 09:00	24-Nov-22 09:00	Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2249037-07	2249037-08	2249037-09	2249037-10	Res/Park, coarse	Res/Park, fine
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Metals

Vanadium	10 ug/g	40.1	14.6	-	-	86 ug/g	86 ug/g
Zinc	20 ug/g	75.2	116	-	-	340 ug/g	340 ug/g

Volatiles

Benzene	0.02 ug/g	<0.02	<0.02	-	-	0.21 ug/g	0.17 ug/g
Ethylbenzene	0.05 ug/g	<0.05	<0.05	-	-	1.1 ug/g	1.6 ug/g
Toluene	0.05 ug/g	<0.05	<0.05	-	-	2.3 ug/g	6 ug/g
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	-	-	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	-	-	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	-	-	3.1 ug/g	25 ug/g
Toluene-d8	Surrogate	106%	107%	-	-	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g	<7	<7	-	-	55 ug/g	65 ug/g
F2 PHCs (C10-C16)	4 ug/g	<4	<4	-	-	98 ug/g	150 ug/g
F3 PHCs (C16-C34)	8 ug/g	<8	73	-	-	300 ug/g	1300 ug/g
F4 PHCs (C34-C50)	6 ug/g	<6	244	-	-	2800 ug/g	5600 ug/g

Semi-Volatiles

Acenaphthene	0.02 ug/g	<0.02	0.09	-	-	7.9 ug/g	29 ug/g
Acenaphthylene	0.02 ug/g	<0.02	<0.02	-	-	0.15 ug/g	0.17 ug/g
Anthracene	0.02 ug/g	<0.02	0.23	-	-	0.67 ug/g	0.74 ug/g
Benzo [a] anthracene	0.02 ug/g	<0.02	0.45	-	-	0.5 ug/g	0.63 ug/g
Benzo [a] pyrene	0.02 ug/g	<0.02	0.49	-	-	0.3 ug/g	0.3 ug/g
Benzo [b] fluoranthene	0.02 ug/g	<0.02	0.42	-	-	0.78 ug/g	0.78 ug/g
Benzo [g,h,i] perylene	0.02 ug/g	<0.02	0.37	-	-	6.6 ug/g	7.8 ug/g
Benzo [k] fluoranthene	0.02 ug/g	<0.02	0.22	-	-	0.78 ug/g	0.78 ug/g
Chrysene	0.02 ug/g	<0.02	0.38	-	-	7 ug/g	7.8 ug/g

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Client ID:	BH3 SS2	BH4 SS1	BH4 SS3	BH5 SS2	Criteria:	
Sample Date:	18-Nov-22 09:00	18-Nov-22 09:00	18-Nov-22 09:00	24-Nov-22 09:00	Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2249037-07	2249037-08	2249037-09	2249037-10	Res/Park, coarse	Res/Park, fine
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Semi-Volatiles

	BH3 SS2	BH4 SS1	BH4 SS3	BH5 SS2	Reg 153/04 -T2 Res/Park, coarse	Reg 153/04 -T2 Res/Park, fine
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	0.09	-	0.1 ug/g	0.1 ug/g
Fluoranthene	0.02 ug/g	<0.02	1.16	-	0.69 ug/g	0.69 ug/g
Fluorene	0.02 ug/g	<0.02	0.10	-	62 ug/g	69 ug/g
Indeno [1,2,3-cd] pyrene	0.02 ug/g	<0.02	0.35	-	0.38 ug/g	0.48 ug/g
1-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	-	0.99 ug/g	3.4 ug/g
2-Methylnaphthalene	0.02 ug/g	<0.02	0.03	-	0.99 ug/g	3.4 ug/g
Methylnaphthalene (1&2)	0.03 ug/g	<0.03	0.04	-	0.99 ug/g	3.4 ug/g
Naphthalene	0.01 ug/g	<0.01	0.08	-	0.6 ug/g	0.75 ug/g
Phenanthrene	0.02 ug/g	<0.02	0.89	-	6.2 ug/g	7.8 ug/g
Pyrene	0.02 ug/g	<0.02	0.91	-	78 ug/g	78 ug/g
2-Fluorobiphenyl	Surrogate	76.5%	74.3%	-	-	-
Terphenyl-d14	Surrogate	70.4%	81.2%	-	-	-

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Client ID:	BH5 SS4	BH5 SS5	BH5 SS7	BH6 SS1	Criteria:	
Sample Date:	24-Nov-22 09:00	24-Nov-22 09:00	24-Nov-22 09:00	24-Nov-22 09:00	Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2249037-11	2249037-12	2249037-13	2249037-14	Res/Park, coarse	Res/Park, fine
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Physical Characteristics

		BH5 SS4	BH5 SS5	BH5 SS7	BH6 SS1	Reg 153/04 -T2	Reg 153/04 -T2
% Solids	0.1 % by Wt.	86.8	84.0	80.9	87.7	-	-
>75 um	0.1 %	21.5	-	-	-	-	-
<75 um	0.1 %	78.5	-	-	-	-	-
Texture	0.1 %	Med/Fine	-	-	-	-	-

General Inorganics

pH	0.05 pH Units	-	7.65	7.66	7.87	5.00 - 9.00 pH Units	5.00 - 9.00 pH Units
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Metals

		BH5 SS4	BH5 SS5	BH5 SS7	BH6 SS1	Reg 153/04 -T2	Reg 153/04 -T2
Antimony	1 ug/g	-	<1.0	<1.0	-	7.5 ug/g	7.5 ug/g
Arsenic	1 ug/g	-	2.1	2.2	-	18 ug/g	18 ug/g
Barium	1 ug/g	-	33.6	42.6	-	390 ug/g	390 ug/g
Beryllium	0.5 ug/g	-	<0.5	<0.5	-	4 ug/g	5 ug/g
Boron	5 ug/g	-	<5.0	<5.0	-	120 ug/g	120 ug/g
Cadmium	0.5 ug/g	-	<0.5	<0.5	-	1.2 ug/g	1.2 ug/g
Chromium	5 ug/g	-	7.3	7.6	-	160 ug/g	160 ug/g
Cobalt	1 ug/g	-	4.2	4.8	-	22 ug/g	22 ug/g
Copper	5 ug/g	-	5.3	6.2	-	140 ug/g	180 ug/g
Lead	1 ug/g	-	3.2	2.8	-	120 ug/g	120 ug/g
Molybdenum	1 ug/g	-	<1.0	<1.0	-	6.9 ug/g	6.9 ug/g
Nickel	5 ug/g	-	6.8	7.5	-	100 ug/g	130 ug/g
Selenium	1 ug/g	-	<1.0	<1.0	-	2.4 ug/g	2.4 ug/g
Silver	0.3 ug/g	-	<0.3	<0.3	-	20 ug/g	25 ug/g
Thallium	1 ug/g	-	<1.0	<1.0	-	1 ug/g	1 ug/g
Uranium	1 ug/g	-	<1.0	<1.0	-	23 ug/g	23 ug/g
Vanadium	10 ug/g	-	14.0	12.5	-	86 ug/g	86 ug/g
Zinc	20 ug/g	-	<20.0	<20.0	-	340 ug/g	340 ug/g

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Client ID:	BH5 SS4	BH5 SS5	BH5 SS7	BH6 SS1	Criteria:	
Sample Date:	24-Nov-22 09:00	24-Nov-22 09:00	24-Nov-22 09:00	24-Nov-22 09:00	Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2249037-11	2249037-12	2249037-13	2249037-14	Res/Park, coarse	Res/Park, fine
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Volatiles

Benzene	0.02 ug/g	-	<0.02	<0.02	-	0.21 ug/g	0.17 ug/g
Ethylbenzene	0.05 ug/g	-	<0.05	<0.05	-	1.1 ug/g	1.6 ug/g
Toluene	0.05 ug/g	-	<0.05	<0.05	-	2.3 ug/g	6 ug/g
m,p-Xylenes	0.05 ug/g	-	<0.05	<0.05	-	-	-
o-Xylene	0.05 ug/g	-	<0.05	<0.05	-	-	-
Xylenes, total	0.05 ug/g	-	<0.05	<0.05	-	3.1 ug/g	25 ug/g
Toluene-d8	Surrogate	-	108%	106%	-	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g	-	<7	<7	-	55 ug/g	65 ug/g
F2 PHCs (C10-C16)	4 ug/g	-	<4	<4	-	98 ug/g	150 ug/g
F3 PHCs (C16-C34)	8 ug/g	-	<8	<8	-	300 ug/g	1300 ug/g
F4 PHCs (C34-C50)	6 ug/g	-	<6	<6	-	2800 ug/g	5600 ug/g

Semi-Volatiles

Acenaphthene	0.02 ug/g	-	<0.02	<0.02	-	7.9 ug/g	29 ug/g
Acenaphthylene	0.02 ug/g	-	<0.02	<0.02	-	0.15 ug/g	0.17 ug/g
Anthracene	0.02 ug/g	-	<0.02	<0.02	-	0.67 ug/g	0.74 ug/g
Benzo [a] anthracene	0.02 ug/g	-	<0.02	<0.02	-	0.5 ug/g	0.63 ug/g
Benzo [a] pyrene	0.02 ug/g	-	<0.02	<0.02	-	0.3 ug/g	0.3 ug/g
Benzo [b] fluoranthene	0.02 ug/g	-	<0.02	<0.02	-	0.78 ug/g	0.78 ug/g
Benzo [g,h,i] perylene	0.02 ug/g	-	<0.02	<0.02	-	6.6 ug/g	7.8 ug/g
Benzo [k] fluoranthene	0.02 ug/g	-	<0.02	<0.02	-	0.78 ug/g	0.78 ug/g
Chrysene	0.02 ug/g	-	<0.02	<0.02	-	7 ug/g	7.8 ug/g
Dibenzo [a,h] anthracene	0.02 ug/g	-	<0.02	<0.02	-	0.1 ug/g	0.1 ug/g
Fluoranthene	0.02 ug/g	-	<0.02	<0.02	-	0.69 ug/g	0.69 ug/g
Fluorene	0.02 ug/g	-	<0.02	<0.02	-	62 ug/g	69 ug/g

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Client ID:	BH5 SS4	BH5 SS5	BH5 SS7	BH6 SS1	Criteria:	
Sample Date:	24-Nov-22 09:00	24-Nov-22 09:00	24-Nov-22 09:00	24-Nov-22 09:00	Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2249037-11	2249037-12	2249037-13	2249037-14	Res/Park, coarse	Res/Park, fine
Matrix:	Soil	Soil	Soil	Soil		
MDL/Units						

Semi-Volatiles

	MDL/Units	BH5 SS4	BH5 SS5	BH5 SS7	BH6 SS1	Reg 153/04 -T2 Res/Park, coarse	Reg 153/04 -T2 Res/Park, fine
Indeno [1,2,3-cd] pyrene	0.02 ug/g	-	<0.02	<0.02	-	0.38 ug/g	0.48 ug/g
1-Methylnaphthalene	0.02 ug/g	-	<0.02	<0.02	-	0.99 ug/g	3.4 ug/g
2-Methylnaphthalene	0.02 ug/g	-	<0.02	<0.02	-	0.99 ug/g	3.4 ug/g
Methylnaphthalene (1&2)	0.03 ug/g	-	<0.03	<0.03	-	0.99 ug/g	3.4 ug/g
Naphthalene	0.01 ug/g	-	<0.01	<0.01	-	0.6 ug/g	0.75 ug/g
Phenanthrene	0.02 ug/g	-	<0.02	<0.02	-	6.2 ug/g	7.8 ug/g
Pyrene	0.02 ug/g	-	<0.02	<0.02	-	78 ug/g	78 ug/g
2-Fluorobiphenyl	Surrogate	-	68.2%	70.8%	-	-	-
Terphenyl-d14	Surrogate	-	65.1%	63.1%	-	-	-

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Client ID:	BH6 SS2					Criteria:	
Sample Date:	24-Nov-22 09:00					Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2249037-15					Res/Park, coarse	Res/Park, fine
Matrix:	Soil						
MDL/Units							

Physical Characteristics

% Solids	0.1 % by Wt.	81.9	-	-	-	-	-
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Metals

Antimony	1 ug/g	<1.0	-	-	-	7.5 ug/g	7.5 ug/g
Arsenic	1 ug/g	4.3	-	-	-	18 ug/g	18 ug/g
Barium	1 ug/g	132	-	-	-	390 ug/g	390 ug/g
Beryllium	0.5 ug/g	0.7	-	-	-	4 ug/g	5 ug/g
Boron	5 ug/g	9.3	-	-	-	120 ug/g	120 ug/g
Cadmium	0.5 ug/g	<0.5	-	-	-	1.2 ug/g	1.2 ug/g
Chromium	5 ug/g	20.8	-	-	-	160 ug/g	160 ug/g
Cobalt	1 ug/g	10.1	-	-	-	22 ug/g	22 ug/g
Copper	5 ug/g	16.7	-	-	-	140 ug/g	180 ug/g
Lead	1 ug/g	9.2	-	-	-	120 ug/g	120 ug/g
Molybdenum	1 ug/g	<1.0	-	-	-	6.9 ug/g	6.9 ug/g
Nickel	5 ug/g	21.3	-	-	-	100 ug/g	130 ug/g
Selenium	1 ug/g	<1.0	-	-	-	2.4 ug/g	2.4 ug/g
Silver	0.3 ug/g	<0.3	-	-	-	20 ug/g	25 ug/g
Thallium	1 ug/g	<1.0	-	-	-	1 ug/g	1 ug/g
Uranium	1 ug/g	<1.0	-	-	-	23 ug/g	23 ug/g
Vanadium	10 ug/g	27.9	-	-	-	86 ug/g	86 ug/g
Zinc	20 ug/g	48.5	-	-	-	340 ug/g	340 ug/g

Volatiles

Benzene	0.02 ug/g	<0.02	-	-	-	0.21 ug/g	0.17 ug/g
Ethylbenzene	0.05 ug/g	<0.05	-	-	-	1.1 ug/g	1.6 ug/g
Toluene	0.05 ug/g	<0.05	-	-	-	2.3 ug/g	6 ug/g
m,p-Xylenes	0.05 ug/g	<0.05	-	-	-	-	-

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Client ID:	BH6 SS2					Criteria:	
Sample Date:	24-Nov-22 09:00					Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2249037-15					Res/Park, coarse	Res/Park, fine
Matrix:	Soil						
MDL/Units							

Volatiles

o-Xylene	0.05 ug/g	<0.05	-	-	-	-	-
Xylenes, total	0.05 ug/g	<0.05	-	-	-	3.1 ug/g	25 ug/g
Toluene-d8	Surrogate	107%	-	-	-	-	-

Hydrocarbons

F1 PHCs (C6-C10)	7 ug/g	<7	-	-	-	55 ug/g	65 ug/g
F2 PHCs (C10-C16)	4 ug/g	<4	-	-	-	98 ug/g	150 ug/g
F3 PHCs (C16-C34)	8 ug/g	<8	-	-	-	300 ug/g	1300 ug/g
F4 PHCs (C34-C50)	6 ug/g	<6	-	-	-	2800 ug/g	5600 ug/g

Semi-Volatiles

Acenaphthene	0.02 ug/g	<0.02	-	-	-	7.9 ug/g	29 ug/g
Acenaphthylene	0.02 ug/g	<0.02	-	-	-	0.15 ug/g	0.17 ug/g
Anthracene	0.02 ug/g	<0.02	-	-	-	0.67 ug/g	0.74 ug/g
Benzo [a] anthracene	0.02 ug/g	<0.02	-	-	-	0.5 ug/g	0.63 ug/g
Benzo [a] pyrene	0.02 ug/g	<0.02	-	-	-	0.3 ug/g	0.3 ug/g
Benzo [b] fluoranthene	0.02 ug/g	<0.02	-	-	-	0.78 ug/g	0.78 ug/g
Benzo [g,h,i] perylene	0.02 ug/g	<0.02	-	-	-	6.6 ug/g	7.8 ug/g
Benzo [k] fluoranthene	0.02 ug/g	<0.02	-	-	-	0.78 ug/g	0.78 ug/g
Chrysene	0.02 ug/g	<0.02	-	-	-	7 ug/g	7.8 ug/g
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	-	-	-	0.1 ug/g	0.1 ug/g
Fluoranthene	0.02 ug/g	<0.02	-	-	-	0.69 ug/g	0.69 ug/g
Fluorene	0.02 ug/g	<0.02	-	-	-	62 ug/g	69 ug/g
Indeno [1,2,3-cd] pyrene	0.02 ug/g	<0.02	-	-	-	0.38 ug/g	0.48 ug/g
1-Methylnaphthalene	0.02 ug/g	<0.02	-	-	-	0.99 ug/g	3.4 ug/g
2-Methylnaphthalene	0.02 ug/g	<0.02	-	-	-	0.99 ug/g	3.4 ug/g
Methylnaphthalene (1&2)	0.03 ug/g	<0.03	-	-	-	0.99 ug/g	3.4 ug/g

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Client ID:	BH6 SS2					Criteria:	
Sample Date:	24-Nov-22 09:00					Reg 153/04 -T2	Reg 153/04 -T2
Sample ID:	2249037-15					Res/Park, coarse	Res/Park, fine
Matrix:	Soil						
MDL/Units							

Semi-Volatiles

Naphthalene	0.01 ug/g	<0.01	-	-	-	0.6 ug/g	0.75 ug/g
Phenanthrene	0.02 ug/g	<0.02	-	-	-	6.2 ug/g	7.8 ug/g
Pyrene	0.02 ug/g	<0.02	-	-	-	78 ug/g	78 ug/g
2-Fluorobiphenyl	Surrogate	70.3%	-	-	-	-	-
Terphenyl-d14	Surrogate	60.2%	-	-	-	-	-

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics								
SAR	ND	0.01	N/A					
Conductivity	ND	5	uS/cm					
Hydrocarbons								
F1 PHCs (C6-C10)	ND	7	ug/g					
F2 PHCs (C10-C16)	ND	4	ug/g					
F3 PHCs (C16-C34)	ND	8	ug/g					
F4 PHCs (C34-C50)	ND	6	ug/g					
Metals								
Antimony	ND	1.0	ug/g					
Arsenic	ND	1.0	ug/g					
Barium	ND	1.0	ug/g					
Beryllium	ND	0.5	ug/g					
Boron	ND	5.0	ug/g					
Cadmium	ND	0.5	ug/g					
Chromium	ND	5.0	ug/g					
Cobalt	ND	1.0	ug/g					
Copper	ND	5.0	ug/g					
Lead	ND	1.0	ug/g					
Molybdenum	ND	1.0	ug/g					
Nickel	ND	5.0	ug/g					
Selenium	ND	1.0	ug/g					
Silver	ND	0.3	ug/g					
Thallium	ND	1.0	ug/g					
Uranium	ND	1.0	ug/g					
Vanadium	ND	10.0	ug/g					
Zinc	ND	20.0	ug/g					
Semi-Volatiles								
Acenaphthene	ND	0.02	ug/g					
Acenaphthylene	ND	0.02	ug/g					
Anthracene	ND	0.02	ug/g					
Benzo [a] anthracene	ND	0.02	ug/g					
Benzo [a] pyrene	ND	0.02	ug/g					

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzo [b] fluoranthene	ND	0.02	ug/g					
Benzo [g,h,i] perylene	ND	0.02	ug/g					
Benzo [k] fluoranthene	ND	0.02	ug/g					
Chrysene	ND	0.02	ug/g					
Dibenzo [a,h] anthracene	ND	0.02	ug/g					
Fluoranthene	ND	0.02	ug/g					
Fluorene	ND	0.02	ug/g					
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g					
1-Methylnaphthalene	ND	0.02	ug/g					
2-Methylnaphthalene	ND	0.02	ug/g					
Methylnaphthalene (1&2)	ND	0.03	ug/g					
Naphthalene	ND	0.01	ug/g					
Phenanthrene	ND	0.02	ug/g					
Pyrene	ND	0.02	ug/g					
Surrogate: 2-Fluorobiphenyl	0.430		ug/g	86.0	50-140			
Surrogate: Terphenyl-d14	0.335		ug/g	67.1	50-140			
Volatiles								
Benzene	ND	0.02	ug/g					
Ethylbenzene	ND	0.05	ug/g					
Toluene	ND	0.05	ug/g					
m,p-Xylenes	ND	0.05	ug/g					
o-Xylene	ND	0.05	ug/g					
Xylenes, total	ND	0.05	ug/g					
Surrogate: Toluene-d8	8.22		ug/g	103	50-140			

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	11.9	0.01	N/A	11.5			3.3	30	
Conductivity	2950	5	uS/cm	2960			0.2	5	
pH	7.65	0.05	pH Units	ND			NC	10	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g	ND			NC	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	6.0	1.0	ug/g	4.4			30.0	30	
Barium	162	1.0	ug/g	138			16.0	30	
Beryllium	1.2	0.5	ug/g	1.0			26.2	30	
Boron	26.8	5.0	ug/g	14.8			NC	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium	36.9	5.0	ug/g	26.7			NC	30	
Cobalt	15.0	1.0	ug/g	12.5			18.2	30	
Copper	25.5	5.0	ug/g	20.8			20.2	30	
Lead	11.9	1.0	ug/g	9.2			25.3	30	
Molybdenum	1.2	1.0	ug/g	ND			NC	30	
Nickel	34.5	5.0	ug/g	28.2			20.2	30	
Selenium	2.2	1.0	ug/g	ND			NC	30	
Silver	ND	0.3	ug/g	ND			NC	30	
Thallium	1.3	1.0	ug/g	ND			NC	30	
Uranium	1.1	1.0	ug/g	ND			NC	30	
Vanadium	45.3	10.0	ug/g	36.5			21.6	30	
Zinc	68.1	20.0	ug/g	54.4			22.4	30	
Physical Characteristics									
% Solids	84.1	0.1	% by Wt.	82.6			1.7	25	
Semi-Volatiles									

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Acenaphthene	ND	0.02	ug/g	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g	ND			NC	40	
Anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Chrysene	ND	0.02	ug/g	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	ND			NC	40	
Fluoranthene	ND	0.02	ug/g	ND			NC	40	
Fluorene	ND	0.02	ug/g	ND			NC	40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
Naphthalene	ND	0.01	ug/g	ND			NC	40	
Phenanthrene	ND	0.02	ug/g	ND			NC	40	
Pyrene	ND	0.02	ug/g	ND			NC	40	
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>0.432</i>		<i>ug/g</i>		<i>71.4</i>	<i>50-140</i>			
<i>Surrogate: Terphenyl-d14</i>	<i>0.365</i>		<i>ug/g</i>		<i>60.4</i>	<i>50-140</i>			
Volatiles									
Benzene	ND	0.02	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
<i>Surrogate: Toluene-d8</i>	<i>9.70</i>		<i>ug/g</i>		<i>107</i>	<i>50-140</i>			

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	80	7	ug/g	ND	113	80-120			
F2 PHCs (C10-C16)	90	4	ug/g	ND	90.5	60-140			
F3 PHCs (C16-C34)	189	8	ug/g	ND	84.0	60-140			
F4 PHCs (C34-C50)	158	6	ug/g	ND	98.0	60-140			
Metals									
Antimony	140	1.0	ug/g	ND	112	70-130			
Arsenic	128	1.0	ug/g	4.4	98.5	70-130			
Barium	275	1.0	ug/g	138	109	70-130			
Beryllium	121	0.5	ug/g	1.0	96.2	70-130			
Boron	145	5.0	ug/g	14.8	104	70-130			
Cadmium	121	0.5	ug/g	ND	97.2	70-130			
Chromium	152	5.0	ug/g	26.7	100	70-130			
Cobalt	131	1.0	ug/g	12.5	94.9	70-130			
Copper	140	5.0	ug/g	20.8	95.1	70-130			
Lead	140	1.0	ug/g	9.2	104	70-130			
Molybdenum	131	1.0	ug/g	ND	104	70-130			
Nickel	152	5.0	ug/g	28.2	98.9	70-130			
Selenium	128	1.0	ug/g	ND	102	70-130			
Silver	97.8	0.3	ug/g	ND	78.3	70-130			
Thallium	133	1.0	ug/g	ND	106	70-130			
Uranium	121	1.0	ug/g	ND	96.6	70-130			
Vanadium	163	10.0	ug/g	36.5	101	70-130			
Zinc	179	20.0	ug/g	54.4	99.5	70-130			
Semi-Volatiles									
Acenaphthene	0.462	0.02	ug/g	ND	76.3	50-140			
Acenaphthylene	0.468	0.02	ug/g	ND	77.4	50-140			
Anthracene	0.438	0.02	ug/g	ND	72.4	50-140			
Benzo [a] anthracene	0.461	0.02	ug/g	ND	76.2	50-140			
Benzo [a] pyrene	0.456	0.02	ug/g	ND	75.4	50-140			
Benzo [b] fluoranthene	0.477	0.02	ug/g	ND	78.8	50-140			

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzo [g,h,i] perylene	0.476	0.02	ug/g	ND	78.7	50-140			
Benzo [k] fluoranthene	0.493	0.02	ug/g	ND	81.5	50-140			
Chrysene	0.465	0.02	ug/g	ND	76.8	50-140			
Dibenzo [a,h] anthracene	0.504	0.02	ug/g	ND	83.3	50-140			
Fluoranthene	0.494	0.02	ug/g	ND	81.7	50-140			
Fluorene	0.486	0.02	ug/g	ND	80.4	50-140			
Indeno [1,2,3-cd] pyrene	0.486	0.02	ug/g	ND	80.3	50-140			
1-Methylnaphthalene	0.496	0.02	ug/g	ND	82.0	50-140			
2-Methylnaphthalene	0.483	0.02	ug/g	ND	79.8	50-140			
Naphthalene	0.429	0.01	ug/g	ND	70.9	50-140			
Phenanthrene	0.472	0.02	ug/g	ND	78.1	50-140			
Pyrene	0.419	0.02	ug/g	ND	69.3	50-140			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>0.435</i>		<i>ug/g</i>		<i>71.9</i>	<i>50-140</i>			
<i>Surrogate: Terphenyl-d14</i>	<i>0.409</i>		<i>ug/g</i>		<i>67.6</i>	<i>50-140</i>			
Volatiles									
Benzene	4.28	0.02	ug/g	ND	107	60-130			
Ethylbenzene	4.48	0.05	ug/g	ND	112	60-130			
Toluene	4.52	0.05	ug/g	ND	113	60-130			
m,p-Xylenes	8.92	0.05	ug/g	ND	111	60-130			
o-Xylene	4.56	0.05	ug/g	ND	114	60-130			
<i>Surrogate: Toluene-d8</i>	<i>7.84</i>		<i>ug/g</i>		<i>98.0</i>	<i>50-140</i>			

Certificate of Analysis

Report Date: 02-Dec-2022

Client: Hallex Environmental Ltd.

Order Date: 25-Nov-2022

Client PO:

Project Description: E-22-33-2

Qualifier Notes:

Sample Qualifiers :

QC Qualifiers:

Sample Data Revisions:

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

Soil results are reported on a dry weight basis unless otherwise noted.

Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

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

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.



Client Name: Hallex Environmental
Contact Name: Kevin Christian
Address: 4999 Victoria Ave, Niagara Falls, ON
Telephone: 905 357 4015

Project Ref: E-22-33-2
Quote #:
PO #:
E-mail: nmetz@hallex.ca
kchristian@hallex.ca

Page 1 of 5
Turnaround Time
 1 day 3 day
 2 day Regular
Date Required: _____

- REG 153/04 REG 406/19
- Other Regulation
 REG 558 PWQO
 Table 1 Res/Park Med/Fine CCME MISA
 Table 2 Ind/Comm Coarse SU - Sani SU - Storm
 Table 3 Agri/Other
 Table _____
Mun: _____
For RSC: Yes No Other: _____

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

Required Analysis

Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken		PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	pH	Grain Size (Finest)	Hold	EC	SAR
				Date	Time												
1 BH1/MW1 558	S		1	Nov 18, 2022		X	X	X					X				
2 BH1/MW1 5511	S		2			X	X	X							X		
3 BH1/MW1 558-a	S		1			X	X	X					X				
4 BH2/MW2 559	S		2			X	X	X					X				
5 BH2/MW2 553	S		2			X	X	X					X				
6 BH2/MW2 5512	S		2			X	X	X					X				
7 BH3 552	S		2			X	X	X					X				
8 BH4 551	S		1			X	X	X					X				
9 BH4 553	S		2			X	X	X					X				
10 BH5 552	S		2	Nov 21, 2022		X	X	X					X			X	X

Comments: _____ Method of Delivery: Drop box Walk In

Relinquished By (Sign): [Signature] Received By Driver/Depot: NIPETRA BHOME NIEK Received at Lab: C-flu Verified By: _____
Date/Time: 25 NOV 22 Date/Time: Nov 28, 2022 8:28 Date/Time: _____
Temperature: _____ °C Temperature: 6.6 °C pH Verified: By: _____



Client Name: Halex Environmental	Project Ref: E-22-33-2	Page 2 of 5
Contact Name: Kevin Christian	Quote #:	Turnaround Time <input type="checkbox"/> 1 day <input type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input checked="" type="checkbox"/> Regular
Address: 4999 Victoria Ave, Niagara Falls, ON	PO #:	
Telephone: 905 357 4015	E-mail: nmetz@halex.ca kchristian@halex.ca	Date Required: _____

<input type="checkbox"/> REG 153/04 <input type="checkbox"/> REG 406/19 Other Regulation <input type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Med/Fine <input type="checkbox"/> REG 558 <input type="checkbox"/> PWQO <input checked="" type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> CCME <input type="checkbox"/> MISA <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input type="checkbox"/> Table _____ For RSC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other: _____		Matrix Type: <u>S</u> (Soil/Sed) <u>SW</u> (Ground Water) SW (Surface Water) <u>SS</u> (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)	Required Analysis												
Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken		PHCS F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	Cr-VI	B (HWS)	pH	Grain Size (mm)	Hold
				Date	Time										
1 BH5 554	S		2	Nov 21, 2022									X		
2 BH5 555			2			X	X	X				X			
3 BH5 557			2			X	X	X				X			
4 BH6 551			2									X			
5 BH6 552			2			X	X	X				X			
6 BH7 551			2									X	X		
7 BH7 552			2			X	X	X				X	X		
8															
9															
10															

Comments:		Method of Delivery: WALK IN	
Relinquished By (Sign): M. Blumenthal	Received By Driver/Depot: B. Blumenthal	Received at Lab: C-FLU	Verified By: _____
Relinquished By (Print): Maddie Colvert	Date/Time: 25 Nov 22	Date/Time: Nov 28 2022 8:28	Date/Time: _____
Date/Time: Nov 25, 2022	Temperature: _____ °C	Temperature: 6.6 °C	pH Verified: <input type="checkbox"/> By: _____



Client Name: Hallex Environmental	Project Ref: E-22-33-2	Page 3 of 5
Contact Name: Kevin Christian	Quote #:	Turnaround Time <input type="checkbox"/> 1 day <input type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input checked="" type="checkbox"/> Regular
Address: 4999 Victoria Ave, Niagara Falls, ON	PO #:	
Telephone: 905 357 4015	E-mail: nmetz@hallex.ca kchristian@hallex.ca	
Date Required: _____		

<input type="checkbox"/> REG 153/04	<input type="checkbox"/> REG 406/19	Other Regulation	Matrix Type: <u>S (Soil/Sed.)</u> GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)	Required Analysis			
<input type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Res/Park <input type="checkbox"/> Med/Fine	<input type="checkbox"/> REG 558 <input type="checkbox"/> PWQO	<input type="checkbox"/> CCME <input type="checkbox"/> MISA	Sample Taken	Date	Time	Hold	
<input checked="" type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse	<input type="checkbox"/> SU - Sani <input type="checkbox"/> SU - Storm	Mun: _____					
<input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other	<input type="checkbox"/> Other: _____						
<input type="checkbox"/> Table _____	For RSC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						
Sample ID/Location Name			Matrix	Air Volume	# of Containers		
1	BHI/MWI 551	S	1	Nov 18, 2022		X	
2	BHI/MWI 552		1				
3	BHI/MWI 553		2				
4	BHI/MWI 554						
5	BHI/MWI 555						
6	BHI/MWI 556						
7	BHI/MWI 557						
8	BHI/MWI 559						
9	BHI/MWI 5510						
10	BHI/MWI 5512						

Comments:	Method of Delivery: WALK IN	
Received By Driver/Depot: NIAGARA BIOMENICK	Received at Lab: C-PLU	Verified By:
Date/Time: 25 NOV 22	Date/Time: Nov 28/22 8:28	Date/Time:
Temperature: _____ °C	Temperature: 6.6 °C	pH Verified: <input type="checkbox"/> By: [Signature]



Client Name: Halex Environmental Project Ref: E-22-33-a
 Contact Name: Kevin Christian Quote #:
 Address: 4999 Victoria Ave, Niagara Falls, ON PO #:
 Telephone: E-mail: nmetz@halex.ca
kehrstian@halex.ca

Page 4 of 5
 Turnaround Time
 1 day 3 day
 2 day Regular
 Date Required: _____

REG 153/04 REG 406/19
 Table 1 Res/Park Med/Fine
 Table 2 Ind/Comm Coarse
 Table 3 Agri/Other
 Table _____
 For RSC: Yes No

Other Regulation
 REG 558 PWQO
 CCME MISA
 SU - Sani SU - Storm
 Mun: _____
 Other: _____

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

Required Analysis

Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken		Hold	Required Analysis												
				Date	Time														
1 BHQ/MWA 551	S		1	Nov 18, 2008		X													
2 BHQ/MWA 552			1																
3 BHQ/MWA 554			2																
4 BHQ/MWA 555																			
5 BHQ/MWA 556																			
6 BHQ/MWA 557																			
7 BHQ/MWA 558																			
8 BHQ/MWA 5510																			
9 BHQ/MWA 5511																			
10																			

Comments: _____ Method of Delivery: WALK IN

Received By (Sign): M. West Received By (Driver/Depot): BHOMENIC Received at Lab: C-flu
 Date/Time: 05 NOV 08 1530 Date/Time: Nov 28/08 8:28
 Temperature: _____ °C Temperature: 6.6 °C
 pH Verified: By: _____



Client Name: <u>Hollex Environmental</u>	Project Ref: <u>E-22-33-2</u>	Page <u>5</u> of <u>5</u>
Contact Name: <u>Kevin Christian</u>	Quote #:	Turnaround Time <input type="checkbox"/> 1 day <input type="checkbox"/> 3 day <input type="checkbox"/> 2 day <input checked="" type="checkbox"/> Regular Date Required: _____
Address: <u>4999 Victoria Ave, Niagara Falls, ON</u>	PO #:	
Telephone:	E-mail: <u>metz@hollex.ca</u> <u>kchristian@hollex.ca</u>	

<input type="checkbox"/> REG 153/04 <input type="checkbox"/> REG 406/19 Other Regulation		Matrix Type: <u>S (Soil/Sed)</u> GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)		Required Analysis														
<input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Med/Fine <input type="checkbox"/> REG 558 <input type="checkbox"/> PWQO <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> CCME <input type="checkbox"/> MISA <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input type="checkbox"/> SU - Sani <input type="checkbox"/> SU - Storm <input type="checkbox"/> Table _____ For RSC: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Other: _____		Sample Taken																
Sample ID/Location Name		Matrix	Air Volume	# of Containers	Date	Time												
1	BH3 551	S		2	Nov 18, 2022													
2	BH3 553	↓		↓	↓													
3	BH4 552	↓		↓	↓													
4	BH5 551	↓		↓	Nov 21, 2022													
5	BH5 553	↓		↓	↓													
6	BH5 556	↓		↓	↓													
7	BH6 553	↓		↓	↓													
8	BH7 553	↓		↓	↓													
9																		
10																		

Comments:		Method of Delivery: <u>WALK IN</u>	
Refused By (Name): <u>Maddie Calvert</u> Date/Time: <u>Nov 25th, 2022</u>	Received By Driver/Depot: <u>NIAGARA</u> <u>BLOMENIEK</u> Date/Time: <u>25 NOV 22</u>	Received at Lab: <u>G-114</u> Date/Time: <u>Nov 28/22 8:28</u>	Verified By: _____ Date/Time: _____ pH Verified: <input type="checkbox"/> By: _____
Temperature: _____ °C		Temperature: <u>6.6</u> °C	

TABLE 1		CLIENT: Hallex Environmental Ltd.					
PARACEL LABORATORIES LTD.		ATTENTION: Kevin Christian					
WORKORDER: 2249411		PROJECT: E-22-33-2					
REPORT DATE: 12/08/2022		REFERENCE: #22-139 Standing Offer					
Parameter	Units	MDL	Regulation	Sample			
				MW-1 2249411-01	MW-1a 2249411-02	MW-2 2249411-03	MW-4 2249411-04
Sample Date (m/d/y)			Reg 153/04 (2011)-Table 3 Non-Potable Groundwater, fine	12/01/2022 09:00 AM	12/01/2022 09:00 AM	12/01/2022 09:00 AM	12/01/2022 09:00 AM
Metals							
Antimony	ug/L	0.5	20000 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Arsenic	ug/L	1.0	1900 ug/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Barium	ug/L	1.0	29000 ug/L	72.8	76.7	81.3	139
Beryllium	ug/L	0.5	67 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Boron	ug/L	10.0	45000 ug/L	189	169	178	127
Cadmium	ug/L	0.2	2.7 ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Chromium	ug/L	1.0	810 ug/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Cobalt	ug/L	0.5	66 ug/L	0.5	ND (0.5)	0.6	3.8
Copper	ug/L	0.5	87 ug/L	1.5	1.9	1.4	3.2
Lead	ug/L	0.2	25 ug/L	0.3	0.3	0.4	0.5
Molybdenum	ug/L	0.5	9200 ug/L	4.5	3.4	1.4	0.7
Nickel	ug/L	1.0	490 ug/L	ND (1.0)	ND (1.0)	2.0	6.2
Selenium	ug/L	1.0	63 ug/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Silver	ug/L	0.2	1.5 ug/L	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Sodium	ug/L	200	2300000 ug/L	125000	126000	153000	164000
Thallium	ug/L	0.5	510 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Uranium	ug/L	0.2	420 ug/L	5.1	5.3	3.4	6.2
Vanadium	ug/L	0.5	250 ug/L	1.0	1.1	1.8	0.5
Zinc	ug/L	5.0	1100 ug/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Volatiles							
Benzene	ug/L	0.5	430 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Ethylbenzene	ug/L	0.5	2300 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Toluene	ug/L	0.5	18000 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
m/p-Xylene	ug/L	0.5		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
o-Xylene	ug/L	0.5		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Xylenes, total	ug/L	0.5	4200 ug/L	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Hydrocarbons							
F1 PHCs (C6-C10)	ug/L	25	750 ug/L	ND (25)	ND (25)	ND (25)	ND (25)
F2 PHCs (C10-C16)	ug/L	100	150 ug/L	ND (100)	ND (100)	ND (100)	ND (100)
F3 PHCs (C16-C34)	ug/L	100	500 ug/L	ND (100)	ND (100)	ND (100)	ND (100)
F4 PHCs (C34-C50)	ug/L	100	500 ug/L	ND (100)	ND (100)	ND (100)	ND (100)
Semi-Volatiles							
Acenaphthene	ug/L	0.05	1700 ug/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Acenaphthylene	ug/L	0.05	1.8 ug/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Anthracene	ug/L	0.01	2.4 ug/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Benzo[a]anthracene	ug/L	0.01	4.7 ug/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Benzo[a]pyrene	ug/L	0.01	0.81 ug/L	0.03	ND (0.01)	ND (0.01)	ND (0.01)
Benzo[b]fluoranthene	ug/L	0.05	0.75 ug/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Benzo[g,h,i]perylene	ug/L	0.05	0.2 ug/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Benzo[k]fluoranthene	ug/L	0.05	0.4 ug/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Chrysene	ug/L	0.05	1 ug/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Dibenzo[a,h]anthracene	ug/L	0.05	0.52 ug/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Fluoranthene	ug/L	0.01	130 ug/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Fluorene	ug/L	0.05	400 ug/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Indeno [1,2,3-cd] pyrene	ug/L	0.05	0.2 ug/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
1-Methylnaphthalene	ug/L	0.05	1800 ug/L	ND (0.05)	ND (0.05)	0.52	ND (0.05)
2-Methylnaphthalene	ug/L	0.05	1800 ug/L	ND (0.05)	ND (0.05)	1.21	ND (0.05)
Methylnaphthalene (1&2)	ug/L	0.10	1800 ug/L	ND (0.10)	ND (0.10)	1.73	ND (0.10)
Naphthalene	ug/L	0.05	6400 ug/L	ND (0.05)	ND (0.05)	5.51	ND (0.05)
Phenanthrene	ug/L	0.05	580 ug/L	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Pyrene	ug/L	0.01	68 ug/L	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)



Client Name: Halex Environmental
Contact Name: Kevin Christian
Address: 4999 Victoria Ave, Niagara Falls, ON
Telephone: 905 988 8030

Project Ref: E-22-33-2
Quote #: _____
PO #: _____
E-mail: ~~metz@paracel.com~~ metz@halex.ca
~~christian@paracel.com~~ christian@halex.ca

Page of

Turnaround Time

- 1 day 3 day
 2 day Regular

Date Required: _____

- REG 153/04 REG 406/19
- Other Regulation
 REG 558 PWQO
 CCME MISA
 SU - Sani SU - Storm
Mun: _____
 Other: _____
- Table 1 Res/Park Med/Fine
Table 2 Ind/Comm Coarse
Table 3 Agri/Other
Table _____
For RSC: Yes No

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

Required Analysis

Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken		PAHs	PHC (1-11) (BTEX)	Metals (by req)	Required Analysis											
				Date	Time				1	2	3	4	5	6	7	8	9	10		
1 MW-1	GW		5	Dec 1 st , 2022		X	X	X												
2 MW-1a	GW		5			X	X	X												
3 MW-2	GW		5			X	X	X												
4 MW-4	GW		5			X	X	X												
5						X	X	X												
6																				
7																				
8																				
9																				
10																				

Comments: _____

Refined by: M. Galt Method of Delivery: WALK IN
 Received By Driver/Depot: NIAGARA
BIOMENIEK Received at Lab: C-FLY
 Date/Time: 1 Dec 22 1430 Date/Time: Dec 21 22 8:30
 Temperature: 5 °C Temperature: 5.9 °C
 Verified By: C-FLY Date/Time: Dec 21 22 8:59
 pH Verified: By: BTY