Summary Report

Phase Two
Environmental Site Assessment

Property Location
2248 Centre Street
Thorold, Ontario

Prepared for:
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EXECUTIVE SUMMARY

Spice Environmental Inc. (SEI) was retained by ***Lorimir Holdings Ltd.*** (*Site Owner*) to complete the requisite environmental site assessments required to support the proposed redevelopment of the subject property for future residential use. The Work Plan commissioned by the Client was directed at complying with the requirements set-out under Ontario Regulation 153/04, as amended, *Records of Site Condition* – Part XV.1 the *Environmental Protection Act* (*The Regulation*).

The Phase Two ESA was conducted to investigate Areas of Potential Environmental Concern (*APECs)*, identified through the preceding Phase One ESA (*SEI, Sept 2018),* for the purpose of establishing the soil and groundwater quality and identifying any areas of non-compliance with the applicable Site Condition Standards (SCS) for future residential land use.

The *Phase Two Property* occupies an approximate area of 2.205 acres (0.88 hectares), located on the east side of Centre Street in Thorold, Ontario, formerly known as the Village of Allanburg. The subject property is currently vacant, with the former 2,415m^2 (*26,000SF*) industrial building having been demolished in 2019. The *Site* was developed in 1977 and operated as Dougherty Meats Inc., a cattle and hog slaughterhouse and meat processing facility until 1985. Following the purchase of the facility in 1985 (J. Paletta), animal slaughtering was discontinued, and a significant facility expansion was completed at that time.

Scope of Work

The primary elements of the Phase Two ESA scope of work, consisted of the following;

- The drilling of a total of thirteen (13) borings to depths ranging from 1.55 to 8.44 metres below ground surface (*mbgs*), with five (5) boreholes completed as 50mm diameter, Schedule 40 PVC monitoring wells, with monument casings,

- Submission of representative and/or worst case soil (22) and groundwater (11) samples *(including requisite QA/QC samples*) to AGAT Laboratories Ltd. (*CAEAL-accredited certified laboratory*) for chemical analyses representative of the Contaminants of Concern (COCs) identified through the Phase One ESA.

- Comparison of the soil and groundwater quality results with the applicable Site Condition Standards for future Residential land use, set-out in *Ontario Regulation 153/04, as amended* to assess compliance.

Soil Conditions

The soil sampling observations noted the general subsurface conditions to be comprised of;

Topsoil

A thin layer of dark brown or black, organic Topsoil , vegetation, rootlets, was observed at MW3, MW4 and BH6

Sand+Gravel
Grey/brown compact, moist surficial Sand+Gravel layer, with some silt, clay; was observed at MW1, BH1 to BH5, and BH7, to maximum depth of 0.86mbgs
Limestone screenings were detected in MW2 above a compact Sand.

Clay
Grey/beige, dry very compact/dense clay, with increasing plasticity and moisture was detected in all borings advanced at the Site. The Clay was noted to extend from 1.2mbgs to 4.5mbgs.

Silt
Beige and grey, compact, uniform Silt, with trace clay seams. The Silt was observed in MW1 and MW2 below 4mbgs, extending to the maximum depth investigated (8.38mbgs).

Soil Texture
Grain size analyses were completed by AGAT Laboratories on two (2) representative samples, BH1-S2 and MW2-S4. The corresponding results indicate that the percentage of material retained by the 75uM screen ranged between 0.70% (*BH1-S2*) and 2.80% (*MW2-S4)*, classifying the *Site* soils as Fine textured for the purpose of selecting the appropriate Site Condition Standards.

Soil Screening
The corresponding total organic vapour (TOV) levels were noted to be at or marginally above the background level (*0.0ppm*) for the vast majority of the soil samples collected. The most elevated TOV concentration reported was 0.5ppm in sample BH4-S3 (*1.22mbgs to 1.52mbgs*). This sample, along with BH5-S1 (*0 to 0.15mbgs*), with TOV level of 0.2ppm, were submitted for VOC analyses.

Groundwater Conditions
the depths to groundwater measured in the shallow wells during the purging and groundwater sampling activities ranged from; **MW1s** (*0.605mbgs to 1.125mbgs*), **MW2** (*0.66mbgs to 1.28mbgs*), **MW3** (*1.03mbgs to 1.345mbgs*) and **MW4** (*0.30mbgs to 2.13mbgs*), with the deep well, **MW1d** (*1.84mbgs to 2.36mbgs*). The shallow groundwater flow is estimated to be to the west-southwest towards the Welland Canal.

Environmental Assessment
The soil quality results indicated all reported; Benzene, Toluene, Ethylbenzene and Xylenes Mixture (BTEX), Organochlorine Pesticides (OCPs) and Volatile Organic Compounds (VOCs), constituent concentrations to be below the reportable detection limits (RDLs), while all Metals + Inorganics constituent concentrations in soil were below the applicable *Table 3 SCS*.

Low concentrations of PHC-F3 (*240ug/g vs 1300ug/g*) and PHC-F4 (*62ug/g vs 5600ug/g*) were reported for a shallow (*0.61mbgs to 0.91mbgs*) soil sample (*MW3-S1*) collected in the area of the former Fuel Oil AST. Trace levels of select Base Neutral Acid Extractables (*BNAs @BH8-S2*) and Polycyclic Aromatic Hydrocarbons (*PAHs @BH5-S2*) constituents, including; Benzo(a)anthracene, Benzo(b)anthracene, Chrysene, Fluoranthene, Phenanthrene and Pyrene were reported for shallow (*0.41mbgs to 0.61mbgs*) localized deposits of industrial fill.

The groundwater quality results indicated all constituent concentrations to be below the reportable detection limits (RDLs) for; *BTEX-F1, PHCs-F2 to F4 and PAHs*, with trace levels of Toluene (*MW2 – 0.84ug/L, MW3 – 0.44ug/L vs 18,000ug/L)* and Trichloroethylene (*MW3 – 0.73ug/L vs 2,500ug/L*) reported.

The Metals + Inorganics concentrations in groundwater were all below the reportable detection limits (RDLs) or the applicable *Table 3 SCS*, with the exception of Chloride. However, the elevated Chloride concentrations (*MW2 - 3,450,000ug, MW22 - 3,150,000ug/L vs 2,300,000ug/L*) are considered to have resulted from the application of salt for de-icing (safety), and as such, are not considered to be an exceedance under modifications to Section 49.1 of Regulation 153/04, as amended.

CONCLUSIONS

Based on the activities undertaken during the Phase Two Environmental Site Assessment completed at 2248 Centre Street, Thorold, Ontario, and the reported environmental quality results, Spice Environmental Inc. can conclude that the site conditions satisfy the applicable Site Condition Standards for future residential use.

This position is supported by the following considerations.

- ✓ All fuel storage systems have been removed from the site and any affected areas remediated;
- ✓ The former meat processing facility has been demolished and all associated building materials have been removed from the property;
- ✓ The results of chemical analyses conducted on representative soil samples collected from each APEC, identified through the Phase One ESA, found all reported constituent concentrations to be below the applicable *Table 3 SCS* for future Residential land use, and;
- ✓ The results of chemical analyses conducted on representative groundwater samples collected from each APEC, identified through the Phase One ESA, found all reported constituent concentrations to be below the applicable *Table 3 SCS* for future Residential land use.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

1.0 INTRODUCTION

1.1 Site Description

1.2 Property Ownership

1.3 Current and Proposed Future Uses

1.4 Applicable Site Condition Standard

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

2.2 Past Investigations

2.3 Areas of Potential Environmental Concern

3.0 SCOPE OF THE INVESTIGATION

3.1 Overview of Site Investigation

3.1.1 Scope of Work

3.2 Media Investigated

3.2.1 Soil

3.2.2 Groundwater

3.2.3 Sediment

3.3 Phase One Conceptual Site Model

3.4 Deviations From the Sampling and Analysis Plan

3.5 Impediments

4.0 INVESTIGATION METHODS

4.1 General

4.2 Drilling and Excavating

4.2.1 Drilling Program

4.3 Soil Assessment

4.3.1 Sampling

4.3.2 Field Screening Measurements

4.4 Groundwater Assessment

4.4.1 Monitoring Well Installation

4.4.2 Monitoring and Purging

4.4.3 Field Measurements of Water Quality Parameters

4.5 Analytical Testing
4.5.1 Soils
4.5.2 Groundwater
4.6 Residue Management Procedures
4.6.1 Soil
4.6.2 Groundwater
4.7 Elevation Survey
4.8 Quality Assurance and Quality Control Measures
4.8.1 Accreditation
4.8.2 Criteria
4.8.3 Sample Containers, Preservation, Handling
4.8.4 Equipment Cleaning Procedures

5.0 REVIEW AND EVALUATION
5.1 Geology
5.2 Groundwater
5.2.1 Well Development and Purging
5.2.2 Hydraulic Gradients
5.2.3 Flow Direction
5.3 Soil
5.3.1 Texture
5.3.2 Field Screening
5.4 Soil Quality
5.4.1 Samples Collected
5.4.2 Contaminants of Concern (COCs)
5.4.3 Soil Quality Results
5.5 Groundwater Quality
5.5.1 Samples Collected
5.5.2 Contaminants of Concern (CoCs)
5.5.3 Groundwater Quality Results
5.6 Quality Assurance and Quality Control Results
5.6.1 Data Validation
5.6.2 QA/QC Samples
5.6.3 Deviations from Analytical Protocol
6.0 CONCLUSIONS
7.0 LIMITATIONS
8.0 CLOSURE
REFERENCES

ATTACHMENTS

Attachment 1 – Figures

1 – Site Location
2 – Phase Two Property
3 – Areas of Potential Environmental Concern (APECs)
4 – Monitoring Well + Borehole Locations
5 – Cross-Section Layout
5A – Cross-Section A-A'
5B – Cross-Section B-B'

Attachment 2 - Tables

1 – Monitoring Well and Borehole Locations Selection Rationale
2A – Soil sampling Summary – APEC1
2A – Soil sampling Summary – APEC1
2A – Soil sampling Summary – APEC1
2A – Soil sampling Summary – APEC1
Table 3 – Monitoring Well Construction Details
Table 4A – Well Purging Details (Oct 25, 2019)
Table 4A – Well Purging Details (Oct 25, 2019)
Table 4A – Well Purging Details (Oct 25, 2019)
Table 5A – GW Conditions Monitoring (Feb 05, 2020)
Table 5A – GW Conditions Monitoring (Feb 05, 2020)
Table 6 – Static Groundwater Levels
Table 7 – Soil sample Selection for Chemical Analyses
Table 8 – Summary of Detections (Soil Quality)
Table 8A – Soil Quality Results – Metals + Inorganics
Table 9 – Groundwater Sample Selection for Chemical Analyses
Table 10 – Summary of Detections (Groundwater Quality)
Table 11 – Relative Perfect Difference (RPD) – Soil Quality Results
Table 12 – Relative Percent Difference (RPD) – Groundwater Quality Results

Attachment 3 - Borehole Logs
Attachment 4 - Certificates of Analyses (Soils)
Attachment 5 - Certificates of Analyses (Groundwater)

1.0 INTRODUCTION

The following report has been prepared by Spice Environmental Inc. (*SEI*), on behalf of the Site Owner, ***Lorimir Holdings Ltd.*** (*Lorimir*), to summarize the activities and results of the Phase Two Environmental Site Assessment (*Phase Two ESA*) completed at the vacant commercial property, identified as **2248 Centre Street in Thorold, Ontario** (*hereinafter referred to as the Phase Two Property or the Site*). See *Figure 1* in **Attachment 1**, for approximate site location.

SEI was retained by Lorimir (*Site Owner*) to complete the requisite environmental site assessments required to support the proposed redevelopment of the subject property for future residential use. The Work Plan commissioned by the Client was directed at complying with the requirements set-out under Ontario Regulation 153/04, as amended, *Records of Site Condition* – Part XV.1 the *Environmental Protection Act* (*The Regulation*).

The Phase Two ESA was conducted to investigate Areas of Potential Environmental Concern (APECs) identified through the preceding Phase One ESA (*SEI, Sept 2018)* for the purpose of establishing the soil and groundwater quality and identifying any areas of not in compliance with the applicable Site Condition Standards (SCS) for future residential land use.

1.1 Site Description

The *Phase Two Property* occupies an approximate area of 2.205 acres (0.88 hectares), located on the east side of Centre Street in Thorold, Ontario, formerly known as the Village of Allanburg. The subject property is currently vacant, with the former 2,415m^2 (*26,000SF*) industrial building demolished in 2019. The *Site* was developed in 1977 and operated as Dougherty Meats Inc., a cattle and hog slaughterhouse and meat processing facility until 1985. Following the purchase of the facility in 1985 (J. Paletta), animal slaughtering was discontinued, and a significant facility expansion was completed at that time. See Figure 2 for approximate limits of the Phase Two Property and Figure 3 for the general layout of the former Meat Processing Facility.

The *Phase Two Property* is polygonal in shape, located on the east side of Centre Street, between the CN Railways Port Robinson Rail Corridor to the east and Hydro Corridors to the north and south. The Site is accessed from Centre Street, with three (3) former vehicle roadways evident.

The general land uses surrounding the *Phase Two Property* are comprised of detached residential, with agricultural land uses, beyond the Phase One Study Area to the east, and the Welland Canal 500m to the west.

1.2 Property Ownership

The *Phase Two Property* is owned by **Lorimir Holdings Ltd.**, with corporate offices located at 123 Springfield Boulevard in Ancaster, Etobicoke, Ontario.

The Phase Two investigations were commissioned and financed by Lorimir Holdings Ltd.

1.3 Current and Proposed Future Uses

The *Phase Two Property* is currently vacant, with no structures or site improvements, classified as Vacant Commercial. The most recent property use was Commercial, occupied by a meat packaging facility.

The available historic land use information would suggest that the lands within the *Phase One Study Area* (PSA) were originally developed in the late 1790s, with the Welland Canal construction starting in Allanburg in 1824. The PSA lands appear to have been used for agricultural purposes since development with residential development along Centre Street commencing in the 1960s.

It would appear that the Dougherty Meats Inc. was the initial development on the Phase One Lands, with the initial northern section of the existing building constructed in 1977[1]. A significant expansion of the facility was commissioned in 1985, including the construction of the two-storey offices and the Freezers/Coolers comprising the southern section of the existing building.

It is SEI's understanding that Lorimir is in negotiations with a potential purchaser who intends to re-development of the *Phase Two Property* for residential use. As such, the proposed future property use will be classified as Residential, for the purpose of assessing site compliance.

1.4 Applicable Site Condition Standards

Standards for soil, groundwater and sediments are set out in Part XV.1, Record of Site Condition, Regulation 153/04, as amended, established under the Environmental Protection Act.

To assess the compliance of the site soil and groundwater quality, the applicable Site Condition Standards (SCS) must be determined by considering site-specific conditions influencing potential Receptor risks. The site-specific conditions considered for the subject property, include;

- The proposed future land use will be Residential;

- The predominant (>2/3) soil type identified at the site is comprised of Clay and Silt. Grain size analyses completed by AGAT Laboratories (*Mississauga, ON*) on two (2) representative soil samples confirmed the classification of the Site soils as Medium/Fine textured, with the sieve analyses reporting 0.70% (*BH1-S2*) and 2.80% (*MW2-S4*) of the materials being retained on the 75um screen.

- Bedrock was not encountered in any of the borings advanced at the site, to the maximum depth investigated (*8.38mbgs*)

- The near surface groundwater system is not used for, nor is it considered by the local municipality to be a potable resource. As such, the site groundwater system would be considered to be non-potable for the selection of the applicable SCS for the *Phase Two Property*; and
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- Surface water bodies, Areas of Natural or Scientific Interest, or Provincially Significant Wetlands are not located within 30m of the site boundaries. As such, the subject property would not be considered a *Sensitive Site*.

Based on the forgoing, the applicable *Site Condition Standards (SCS)* to assess the Site soil and groundwater compliance for would be those outlined in;

***Table 3*,**
Residential land use, medium/fine textured soils, non-potable groundwater (MOE, April 2011)

2.0 BACKGROUND INFORMATION

2.1 Background

The available historic land use information would suggest that the lands within the Phase One Study Area were originally developed in the late 1790s, with the Welland Canal construction starting in Allanburg in 1824. The area lands appear to have been used for agricultural purposes since development with residential development along Centre Street commencing in the 1960s.

The Phase Two Property was developed for commercial use in 1977.

2.2 Past Investigations

Previous investigations of the *Phase Two Property* were not provided by the Client nor are any environmental investigations known to have been completed on the *Phase Two Property*.

2.3 Areas of Potential Environmental Concern

The results of preceding Phase One ESA (*SEI, Sept 2018*) identified four (4) Areas of Potential Environmental Concern (APECs) on the *Phase Two Property* requiring further investigation to determine the presence, degree and extent of any non-compliant soils and/or groundwater that may be present. The specific APECs to be investigated include;

APEC 1 – Gasoline Storage Tank + Dispenser
The past gasoline storage and dispensing activities may have resulted in near surface soil and/or groundwater impacts, through; surface spills during vehicle fueling.

APEC 2 – Organic Waste Management
The past organic waste management practices may have resulted in near surface soil and groundwater impacts, through; surface discharges of liquid organic waste, leaks from the underground Biosolids storage tank, near surface disposal of liquids or surface impacts through waste transferring activities.

Note: Vehicle access and parking on the granular surfaced yard may have resulted in near surface salt impacts (Soil - EC, SAR; Groundwater - Chlorides, Sodium).

APEC 3 – Fuel Oil Storage and Distribution
The past fuel oil storage and distribution system operated for the hot water boiler may have resulted in near surface soil and/or groundwater impacts, through; surface spills during re-fueling.

APEC 4 – Offsite Rail Line
The northern limits of the Phase Two Property are adjacent to the CP Rail Port Robinson Subdivision right-of-way. The ROW is occupied by an elevated single rail line, located approximately 5m from the eastern, upgradient Site boundary. The potential exists for soil and or groundwater impacts to have resulted from the rail ballast and/or any past spills on the rail line.

3.0 SCOPE OF THE INVESTIGATION

3.1 Overview of Site Investigation

The *Phase Two ESA* was designed to establish the soil and groundwater conditions within the Areas of Potential Environmental Concern (*APECs*) associated with the historic site and local area activities identified through the preceding *Phase One ESA*. The soil and groundwater quality results reported for representative samples collected from the Phase Two Property were assessed to determine compliance with the applicable Site Condition Standards (SCS) for future Residential land use and/or determine the degree and extent of any regulatory non-compliance requiring remediation.

The results of the subsurface investigations would form the basis of any future Remediation Program required to restore SCS compliance and support the filing of a Record of Site Condition (RSC), by others, for the proposed change in land use.

3.1.1 Scope of Work

In consideration of the APECs identified through the Phase One ESA (*SEI, Sept 2018*) the scope of the subsurface investigations (*Phase Two ESA*) was designed to include the following activities;

Services Locating

Retain Services Locator to accurately delineate all public and private subsurface services (*Hydro, Gas, Sewer, Water, Telecom*) on the subject property, in support of the completion of subsurface investigations.

Soil Quality Assessment

Profile Drilling Inc. (Mississauga, ON), an MOECP-licensed drilling contractor, was retained to advance a total of thirteen (13) borings to depths ranging from 1.55 to 8.4 metres below ground surface (mbgs), using a track-mounted, 9700VTR Power Probe.

Discrete 1.2m soil sampling was completed at all borings, with the collected samples inspected to determine the geologic parameters and split samples screened (*Headspace TOV, Odour, Staining*) for evidence of potential environmental impact. Samples considered for potential chemical analyses were placed in laboratory prepared sample bottles and stored in refrigerator pending further split sample assessment and final sample selection.

Representative and/or worst case soil samples (*and duplicates*[2]) were selected and submitted to AGAT Laboratories (Mississauga, ON), a CALA-accredited environmental laboratory, for chemical analyses.

Groundwater Conditions/Quality Assessment

To assess the near surface groundwater conditions and flow regime on the *Phase Two Property*, five (5) of the borings were completed as monitoring wells, strategically located across the Site in consideration of the APECs identified through the *Phase One ESA*.

Following installation, the wells were developed to restore representative groundwater conditions, address the effects of drilling and restore representative groundwater conditions. Prior to sample collection, three (3) purging events were completed to establish representative groundwater conditions. The static groundwater levels were measured during each purging and groundwater sampling event.

Note: An elevation survey was not commissioned by the Client, precluding the determination of accurate hydraulic gradients or flow regime.

A single groundwater sampling event was completed using the CCME Low-Flow Method, which included the measurement of the general water quality parameters (*Temperature, pH, Conductivity, ORP, Dissolved Oxygen*) at 3 minute intervals until stabilization is attained. At stabilization, representative groundwater samples were collected from each well, and submitted along with requisite QA/QC[3] samples (*duplicates, field blank, trip blank*) to AGAT Laboratories for chemical analyses.

Compliance Assessment

Comparison of the reported soil and groundwater quality results with the applicable Table 3 SCS to assess compliance for future residential land use. Evaluation of the QA/QC data to confirm the accuracy and representativeness of the environmental data set.

Reporting

Preparation of a detailed Phase Two ESA Summary Report to present an overview of the physical setting of the Phase Two Property, summarize the investigations completed and sample screening measurements, tabulate the groundwater conditions (*static water levels, general water quality*), and present the reported soil and groundwater quality results in comparison with the applicable Site Condition Standards (SCS).

Professional conclusions are to be offered regarding the compliance of the site subsurface conditions with the applicable Site Condition Standards (*Table 3, MOE July 2011*), along with recommendations to restore any areas of non-compliance identified.

3.2 Media Investigated

The sampling program implemented during the Phase Two ESA, considered the previous site investigation results and the APECs identified through the SEI Phase One ESA. As such, the media considered for compliance assessment included.

3.2.1 Soils

The soil sampling evaluated the potential presence of contaminants within; Fill Materials – Surficial (<0.3m) sand+gravel and limestone screenings; Clay – Native, dense, cohesive and plastic Clay extending to 2.5mbgs to 3.5mbg; Silt – Medium dense, moist to wet Silt from 4mbgs to the maximum depth investigated (8.38mbgs).

3.2.2 Groundwater

Evaluation of the near surface (<2mbgs) groundwater system for the potential presence of petroleum hydrocarbon (*Diesel and fuel oil ASTs*), metals (*organic wastes*), inorganics (*salt application*), and PAHs (*adjacent rail corridor*).

3.2.3 Sediment

Surface water bodies were not identified to have historically been present on nor were active surface water bodies observed on the *Phase Two Property* during the Phase Two investigations. As such, sediments were not considered to be present on the Site, and were not included in the media assessment.

3.3 Phase One Conceptual Site Model

The *Phase One Property* is located on the east side of Centre Street, approximately 300m south of the County Road 20 and the Allanburg lift-bridge which traverses the Welland Canal. At the time of the Phase Two investigations the *Phase One Property* was vacant, with no structures or site improvements, classified as Vacant Commercial. The most recent property use was Commercial, occupied by a meat packaging facility.

The available historic land use information would suggest that the lands within the Phase One Study area were originally developed in the late 1790s, with the Welland Canal construction starting in Allanburg in 1824. The area lands appear to have been used for agricultural purposes since development with residential development along Centre Street commencing in the 1960s.

It would appear that the Dougherty Meats Inc. was the initial development on the Phase One Lands, with the initial northern section of the existing building constructed in 1977[1]. A significant expansion of the facility was commissioned in 1985, including the construction of the two-storey offices and the Freezers/Coolers comprising the southern section of the existing building.

The *Site* slopes gradually to the west-southwest, consistent with the local topography. The site geology is suspected to be comprised of a thin layer of topsoil or engineered granular over silty Clay and clayey Silt.

The depth to groundwater is estimated to range between 3mbgs and 5mbgs, flowing in a westerly direction towards the Welland Canal, located approximately 300m to the west of the *Phase One Property*.

The long-term use of the *Phase One Property* as a slaughterhouse and meat processing facility and the presence of an adjacent rail line are considered to have potentially resulted in environmental impacts to near surface soils and the shallow groundwater system on the *Site.* The Site activities and adjacent land uses are suspected to have resulted in four (4) Areas of Potential Environmental Concern (APECs) on the *Phase Two Property*, including;

APEC 1 – Former Diesel Fueling System (*COCs – BTEX, PHCs, Soil + Groundwater*)
APEC 2 – Biosolids Management System (*COCs – Metals + Inorganics, pH, Soil + Groundwater*)
APEC 3 – Former Fuel Oil Storage + Distribution System (*COCs – BTEX, PHCs, Soil + Groundwater*)
APEC 4 – Upgradient Rail Line (*COCs – Metals, PAHs, Soil + Groundwater)*

3.4 Deviations from the Sampling and Analysis Plan

The Initial investigations (soil sampling/screen, soil selection/analyses, monitoring well installation and two (2) rounds of MW purging) were completed in October 2019. At that time the Phase Two ESA was suspended by the Client.

The Phase Two ESA was re-started in February 2020, with the outstanding project activities (*third well purging event, GW conditions monitoring, groundwater sampling and analyses*) completed.

In addition, the proposed filing of a Record of Site Condition (RSC) was deleted from the mandate, and as such, an elevation survey was not commissioned, precluding to determination of the hydraulic gradients and groundwater flow regime.

3.5 Impediments

SEI did not encounter any impediments in the completion of the Phase Two investigations.

4.0 INVESTIGATION METHODS

4.1 General

Prior to undertaking the field investigations, the available site information was reviewed to clearly establish the physical site features, potential contaminants and environmental setting. The information review was followed by the completion of a thorough inspection of the subject property and area land uses.

Based on the preliminary assessment, a Sampling Plan was developed to satisfy the project objectives and the MOECP direction provided in *Regulation 153/04, as amended*. (*See Table 1 – Sampling Locations and Rationale in* ***Attachment 2***)

4.2 Drilling and Excavating

4.2.1 Drilling Program

An MOECP-registered drilling contractor [*Profile Drilling Inc. – Mississauga, ON*] was retained to advance borings within strategic locations across the *Phase Two Property*. The borings were advanced using a track-mounted, VTR9700 Power Probe. The Power Probe employs direct push technology (DPT) and 1.2m sampler with interior LDPE liner for discrete sample collection and rotary, solid stem augur methods for well installation.

The drilling was completed on October 21 and 22, 2019, under the direct supervision of an experienced SEI field engineer. A total of thirteen (13) borings were advanced within strategic locations across the study area, extending to depths ranging from 1.52mbgs (5ft) to 8.38mbgs (27.5ft). Five (5) of the borings were completed as 50mm diameter, schedule 40, PVC monitoring wells. (*See Figure 4,* ***Attachment 1*** *for the approximate BH/MW Locations*). The drill cuttings were temporarily stored on site in 205L sealable metal drums, pending offsite disposal.

4.3 Soil Assessment

4.3.1 Soil Sampling

Discrete soil samples were collected at continuous 1.2m intervals using a percussion sampler with internal LDPE liner throughout the full drilling depth at each boring. The recovered soil samples were assessed in the field for general geologic parameters and evidence of potential environmental impact (*debris, staining, odour*).

Representative split samples were retained from each boring and placed in sealable, clear plastic bags, noting borehole number, sampling interval, soil type and evidence of potential environmental impact. The samples were then returned to the SEI offices in <4C coolers for further evaluation and sample selection for material characterization analyses.

Samples being considered for potential chemical analyses were placed in laboratory prepared bottles and refrigerated, pending further assessment of the split samples and the selection of samples for analysis.

Headspace TOV screening was completed on split samples prepared from all recovered samples in accordance with the MOECP VOC Screening Protocol, using an Eagle ppbRae 3000, supplied by Pine Environmental Services (*Mississauga, ON*) and calibrated with 100ppm/v isobutylene.

Soil descriptions and screening results are presented the Soil Sampling Summaries, *Tables 2A through 2D*, in ***Attachment 2*** and the Boreholes in ***Attachment 3***.

4.3.2 Field Screening Measurements

Soil samples were visually assessed for general geologic parameters (soil type, relative moisture and density) and evidence of potential environmental impact (*odour, staining, debris*). In addition split samples were prepared and placed in new plastic bags for testing of the total organic vapour (TOV) levels (ppb) in the sample headspace. The Headspace TOV levels were measured using an ppbRAE3000, supplied and calibrated with isobutylene by Pine Environmental Services Inc. (*Mississauga, ON*).

The sample screening measurements were used in the final selection of represtative soil samples for chemical analyses.

4.4 Groundwater Assessment

4.4.1 Monitoring Well Installation

To assess the *Phase Two Property* near surface groundwater flow regime and environmental quality, a total of five (5) monitoring wells were installed to depths ranging from 4.88mbgs to 8.38mbgs at strategic locations across the *Site*. The MW locations were selected in consideration of the APECS identified and the estimated local groundwater flow direction.

All of the boreholes were completed as 50mm diameter, schedule 40, PVC monitoring wells with 0.010 Screened sections and solid Risers extending 0.88 to 0.93m above ground surface, protected by aluminum monument casings. A coarse sand pack was placed to 0.6m above each screen, with the annulus of each well filled with 'Holeplug' bentonite to 0.6mbgs. The shallow wells (*MW1s, MW2, MW3, MW4*) were completed with 1.52 (5ft) Screens, with the deep well (*MW1d*) completed with a 0.75m Screen. See *Table 3*, in **Attachment 2** for monitoring well construction details.

Following installation, well development as completed to reduce drilling effects and stimulate groundwater stabilization.

4.4.2 Monitoring/Purging

A total of three (3) monitoring and purging rounds were completed (Oct 25/19, Oct 30/19, Feb 05/20) at each well prior to sample collection. Prior to purging, the static water level at each location was recorded using a Solinst Interface Probe.

A minimum of three (3) well volumes were removed from each well and/or the well was purged dry up to two (2) times during each purging event. The purge waters were discharged to a pail to enable the assessment of the general water quality (*colour, turbidity, odour, emulsions/floating organic liquid*), then placed in sealable metal drums pending offsite disposal. See *Tables 4A, 4B and 4C*, in ***Attachment 2*** for a summary of observed static water levels, purged volumes and observed general water quality for each purging round.

4.4.3 Field Measurements of Water Quality Parameters

Prior to groundwater sample collection, the general water quality parameters (*pH, Temperature, Conductivity, Oxidation/Reduction Potential, Dissolved Oxygen*) were measured using a YSI 556 Water Quality Meter, calibrated with buffer solutions (*pH-7, Cond.-1.413mS, ORB-240mV*), to ensure that representative conditions were present.
The general groundwater conditions measured during the sampling activities at the individual wells are presented in *Tables 5A and 5B*, with the conditions at the time of sample collection, summarized in Table 5C, ***Attachment 2***.

The ranges of groundwater conditions observed at the time of sample collection were as follows;

pH[1]:
4.169 (*MW4)* to 4.91 (*MW1d*)

Temperature:
4.8C (*MW4*) to 7.5 (*MW1d*)

Conductivity:
0.583mS/cm (MW4) to 6.277 (MW2)

Oxidation/Reduction Potential[2]:
-127mV (*MW2*) to -100.2mV (*MW4*)

Dissolved Oxygen:
4.43mg/L (*MW2*) to 7.23mg/L (*MW102*)

The reported general water quality results would appear to indicate;

- ✓ No discernible groundwater impacts, with measured values consistent with groundwater in a sandy environments in Southern Ontario

Notes
1 – Field measurement of pH not consistent with laboratory pH, suggesting that pH probe was not properly calibrated
2 – Field measurements are not consistent with non-impacted, near surface groundwater systems, suggestion malfunction of ORP probe.

4.5 Analytical Testing

All material characterization analyses (*Soil, Groundwater*) were completed by AGAT Laboratories (Mississauga, ON), a CALA-accredited environmental laboratory. Representative samples were submitted to AGAT under MOE Chain of Custody Protocol, with all analyses completed in accordance with the analytical methods stipulated under *Regulation 153/04, as amended.*

The specific analyses requested during the Phase Two Investigations and the analytical methods adopted by AGAT, included;

4.5.1 Soils

- Acid Base Neutral Extractables (ABN): EPA SW-846 3541 & 8270E by GC/MS
- Benzene, Toluene, Ethylbenzene, Xylenes Mixture (BTEX): EPA SW-846 5035 & 8260, by P+T and GS/MS
- Grain Size: Sieve analysis – Percent retained on 75um sieve, ASTM D1140.
- Metals + Inorganics (M+I): EPA SW-846 3050B & 6020A, by ICP-MS
  Boron (Hot Water): EPA SW 846 6010C, MAS, Part 3, Ch. 21, by ICP/OES
  Chromium VI: SM 3500B, MSA, Part 3, Ch. 25, by Spectrophotometer
  Cyanide: MOE CN-3015 & E 3009A; SM 4500 CN, by technician autoanalyzer
  Electrical Conductivity (EC); McKeague, 4.12, SM 2510B, by EC Meter
  Sodium Adsorption Ratio (SAR): McKeague, 4.12 & 2.26 & EPA SW-846 6010B, by ICP/OES
- Organochlorine Pesticides (OCPs): EPA SW-846, 3541, 3620 & 8081 by GC/ECD
- Polycyclic Aromatic Hydrocarbons (PAHs); Modified EPA3541 and EPA8270E, by GC/MS
- Petroleum Hydrocarbon Compounds (PHCs/F1-F4): F1 – CCME Tier 1 Method, by GC/FID, F2 to F4 – CCME Tier 1 Method, EPA SW-846 8015, by GC/FID
- Volatile Organic Compounds (VOCs): EPA SW-846 5035 & 8260, by P+T and GC/MS

4.5.2 Groundwater

- BTEX-F1: MOE PHC-3421, by P+T GC/FID

  Metals+Inorganics: EPA SW-846 6020A & 200.7, by ICP-MS
  Mercury: Modified from EPA 245.2 and SM 3112B by CVAAS
  Chromium VI: SM 3500B, MSA, Part 3, Ch. 25, by Spectrophotometer
  Cyanide: MOE CN-3015 & E 3009A; SM 4500 CN, by technician autoanalyzer
  Sodium: EPA SW-846 6010C & 200.7 by ICP/OES
  Chloride: SM 41109B by Ion Chromatography

Electrical Conductivity (EC): SM 2510B by PC Titration
pH: Modified from SM 4500-H+B by PC Titration

- Petroleum Hydrocarbon Compounds (PHCs/F2-F4): MOE PHC-E3421, by GC/FID
- Volatile Organic Compounds (VOCs): EPA SW-846 5035 & 8260, by P+T and GC/MS

4.6 Residue Management Procedures

4.6.1 Soils

All drill cuttings were placed in 205L sealable metal drums. The drums were positioned adjacent to the former diesel fueling area in the west-central portion of the property, pending offsite disposal by an MOECP-licensed waste contractor.

4.6.2 Groundwater

All purge waters resulting from the monitoring well development and groundwater sampling activities (*approx. 400 Litres*) were stored in two (2) 205L sealable metal drums, to await offsite disposal.

4.7 Elevation Survey

An elevation survey was not commissioned by the client

As such, the top of pipe (TOP) elevations of the monitoring wells installed through the *Phase Two ESA* were not determined relative to a local geodetic benchmark, precluding the determination of the relative groundwater elevations, hydraulic gradients and horizontal flow direction/rate**.**

4.8 Quality Assurance and Quality Control (QA/QC) Measures

4.8.1 Accreditation

The analytical laboratory employed to perform the laboratory analyses, AGAT Laboratories Ltd. (*Mississauga, ON*) is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) in accordance with ISO/IEC 17025:1999 – "*General Requirements for the Competence of Testing and Calibration Laboratories*" for testing parameters set out in the Soil, Ground Water and Sediment Standards.

4.8.2 Criteria

The "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*" (the "Analytical Protocol"), April 2011, establishes performance criteria for use when assessing the reliability of data reported by analytical laboratories. These include maximum hold times for the storage of samples/sample extracts between collection and analysis, specified/approved analytical methods, required field and/or laboratory quality assurance samples such as blanks and field and laboratory duplicates, specified recovery ranges of spiked samples and surrogates, reportable detection limits (*RDLs*) and specified precision required when analyzing laboratory duplicate and spike/controlled reference material samples

4.8.3 Sample Containers, Preservation, Handling

Soil Samples

All soil samples recovered during the field investigations were split, with half of the sample placed in sealed plastic bags and transported to the SEI Offices in coolers maintained at <4C, for further assessment. The samples were transferred to refrigerators pending further assessment, screening and sample selection.

Those soil samples being considered for chemical analyses which best represented the observed site conditions, were placed in laboratory prepared sample bottles and transported under MOECP chain of custody protocol to AGAT in coolers maintained at <4C. The specific containers used and sample preservation, included;

Parameter	Sample Bottle	Preservative
ABN	120ml Amber Glass	None
BTEX-F1	40ml Clear Glass, Teflon Cap	Methanol
Grain Size	2L Plastic Bag	None
Moisture	120ml Amber Glass	None
Metals + Inorganics	500ml Amber Glass	None
OCP	120ml Amber Glass	None
PAHs	120ml Amber Glass	None
PHCs/F2-F4	250ml Amber Glass	None
TCLP	500ml Amber Glass	None
VOCs	40ml Clear Glass, Teflon Cap	Methanol

Groundwater Samples

Representative groundwater samples were collected from the Site monitoring wells using the CCME Low-Flow Method, accepted the MOECP for RSC submissions under Regulation 153/04, as amended. Groundwater was discharged directly to laboratory prepared sample containers and placed in coolers maintained at <4C for transport under MOECP chain of custody protocol to AGAT. The specific containers used and sample preservation, included;

Parameter	Sample Bottle	Preservative
BTEX-F1	40ml Clear Glass, Teflon Cap	$NaSO_4$ Tablet
Metals + Inorganics		
- Chromium[1]	250ml Plastic	HCL
- Cyanide (Free)[1]	250ml Plastic	NaOH
- Inorganics	500ml Plastic	None
- Mercury[1]	120ml Amber Glass	HNO_3
- Metals[1]	120ml Plastic	HNO_3
PHCs/ F2-F4	500ml Amber Glass	HCL
VOCs	Three (3), 40ml Clear Glass, Teflon Cap	$NaSO_4$ tablet

4.8.4 Equipment Cleaning Procedures

All soil sampling equipment (*sampling tips, rods*) were subjected to the following decontamination procedures;

- ✓ Removal of adhered soils through scraping with wire brush or wiping with clean paper towel
- ✓ Washing with Water-Alconex solution
- ✓ Air drying or wiping with clean paper towel

Discrete soil samples were collected in one time use LDPE interior liners to prevent potential cross-contamination between samples.

All groundwater level monitoring and conditions assessment equipment was washed with tap water and dried with clean paper towel between uses.

5.0 REVIEW AND EVALUATION

5.1 Geology

A summary of the near surface (depth <8.4mbgs) hydrogeology observed during the Field Investigations is presented in the following sections.

The observed subsurface conditions encountered at each boring location are documented in the Soil Sampling Summaries (*Tables 2A through 2D*) and the monitoring well borehole logs provided in **Attachment 3**, indicating the; primary geologic features, soil screening observations, Headspace TOV measurements, and where applicable, the monitoring well completion details. *Figure 5* in **Attachment 1**, presents the layout of the two (2) cross-sections prepared for the Site. *Figures 5A (Cross-Section A-A') and 5B (Cross-Section B-B'}* present the observed subsurface conditions, which can be summarized as follows;

Topsoil

Dark brown or black, organic Topsoil , vegetation, rootlets, present at MW3, MW4 and BH6

Sand+Gravel

Grey/brown compact, moist Sand+Gravel with some silt, clay; present in MW1, BH1 to BH5, and BH7, to maximum depth of 0.86mbgs

Limestone screenings were detected in MW2 above a compact Sand.

Clay

Grey/beige, dry very compact/dense clay, with increasing plasticity and moisture with depth was detected in all borings advanced at the Site. The Clay was noted to extend from 1.2mbgs to 4.5mbgs.

Silt

Beige and grey, compact, uniform Silt, with trace clay seams. The Silt was observed in MW1 and MW 2 below 4mbgs, extending to the maximum depth investigated (8.38mbgs).

5.2 Groundwater

5.2.1 Well Development/Purging

To prepare the monitoring wells for sampling, SEI completed three (3) purging events (*Oct 25/19, Oct 30/19, and Feb 05/20*), with the static groundwater levels and details of the purging events presented in Tables 4A, 4B and 4C, in **Attachment 2**.

As indicated therein, the depths to groundwater measured in the shallow wells ranged from; **MW1s** (*0.605mbgs to 1.125mbgs*), **MW2** (*0.66mbgs to 1.28mbgs*), **MW3** (*1.03mbgs to 1.345mbgs*) and **MW4** (*0.30mbgs to 2.13mbgs*), with the deep well, **MW1d** (*1.84mbgs to 2.36mbgs*). The purging events indicated moderate to good recovery, with a total of 400 Litres purged from the six (6) site wells.

5.2.2 Hydraulic Gradients and Flowrates

A summary of the static water levels measured the across the study area during the *Phase Two ESA* is presented in *Table 6* in ***Attachment 2***.

Horizontal Gradients/Flowrate

The horizontal groundwater flow gradients could not be calculated as an elevation survey was not completed the Phase Two scope.

Vertical Hydraulic Gradient

The vertical hydraulic gradient for the Site was determined through the comparison of the static groundwater elevations between the adjacent shallow (*MW1s*) and deep (*MW1d*) monitoring wells, installed adjacent to the former Diesel Fueling System (*APEC 1*).

Based on the vertical distance between the top of screen (*Table 3*) and the average measured static groundwater levels (*Table 6*), between **MW1s** and **MW1d**, the vertical hydraulic gradient (i_v) was calculated to be 0.307m/m, flowing in a downwards vertical direction.

5.2.3 Flow Direction

The shallow groundwater flow is estimated to be to the west-southwest towards the Welland Canal.

5.3 Soil

5.3.1 Texture

Grain size analyses were completed by AGAT Laboratories on two (2) representative samples, BH1-S2 and MW2-S4. The corresponding results are presented in **Attachment 4**, indicating the percentage of material retained by the 75uM screen ranged between 0.70% (*BH1-S2*) and 2.80%(*MW2-S4)*, classifying the *Site* soils as Fine textured for the purpose of selecting the appropriate Site Condition Standards.

5.3.2 Field Screening

The results of the Headspace TOV screening are presented in Tables 2A through 2D, in **Attachment 2**, and the Borehole Logs, in **Attachment 3**.

The corresponding total organic vapour (TOV) levels were noted to be at or marginally above the background level (*0.0ppm*) for the vast majority of the soil samples collected. The most elevated TOV concentration reported was 0.5ppm in sample BH4-S3 (*1.22mbgs to 1.52mbgs*). This sample and BH5-S1 (*0 to 0.15mbgs*), with TOV level of 0.2ppm, were submitted for VOC analyses.

5.4 Soil Quality

5.4.1 Samples Collected

Based on further sample assessment at the SEI offices, samples considered to be representative of the observed subsurface conditions were identified. The corresponding split samples which had been placed into laboratory prepared sample jars at sampling and stored in a refrigerator, were submitted (in cooler w/*Temp <4C*) to AGAT Laboratories (*Mississauga, ON*) for chemical analyses.

A total of twenty-two (22) representative soil samples were submitted to AGAT Laboratories chemical analyses. The specific samples selected and requested analyses are presented in *Table 7* in **Attachment 2**, and summarized as follows; Base Neutral Acid Extractables (2), Grain Size (2), Metals + Inorganics (4), Organochlorine Pesticides (1), Polycyclic Aromatic Hydrocarbons (5), Petroleum Hydrocarbon Compounds, CCME Fractions F2 to F4 (6), and Volatile Organic Compounds (2), with method detection limits established to accurately assess SCS compliance.

5.4.2 Contaminants of Concern (COCs)

Based on the historic and current land uses identified through the Phase One ESA, the following Contaminants of Concern (COCs) were identified to warrant investigation.

COC 1 – BTEX Constituents

Benzene, Toluene, Ethylbenzene and Xylenes Mixture (BTEX) were identified as potential Contaminants of Concern (COC), based on the former presence of a diesel fueling system and fuel oil heating system on the Site.

COC 2 – Metals + Inorganics

Metals + Inorganics were identified as potential Contaminants of Concern, based on the past biosolids management activities, the long-term vehicle parking on the Site, and the presence of a rail line adjacent to the east boundary.

COC 3 – Petroleum Hydrocarbon Compounds (PHCs/F1 to F4)

Petroleum Hydrocarbon Compounds (PHCs) were identified as potential Contaminants of Concern (COC), based on the long-term diesel and fuel oil handling activities.

COC 4 – Polycyclic Aromatic Hydrocarbon (PAHs)

Petroleum Hydrocarbon Compounds (PHCs) were identified as potential Contaminants of Concern (COC), based on the presence of a rail line adjacent to the east boundary.

COC 5 – Volatile Organic Compounds (VOCs)

Volatile Organic Compounds (VOCs) were identified as potential Contaminants of Concern (COC), associated with disinfectant use in the meat processing facility.

5.4.3 Soil Quality Results

The results of the chemical analyses completed on representative soil samples collected from the Phase Two Property are summarized in *Table 8*, in **Attachment 2**, with the associated AGAT Certificates of Analyses provided in **Attachment 4**. A summary of the reported soil quality and compliance with the applicable SCS is presented below.

BNAs

The reported BNA concentrations for the soil samples recovered from the Site were all reported at concentrations below the respective reportable detection limits (RDLs), established by AGAT to be below the Site Condition Standards, with the exception of;

- ✓ Shallow medium Sand sample collected at **BH5** (*S2 @ 0.41mbgs to 0.61mbgs*) reported detectable concentrations of; Benzo(a)anthracene (*0.11ug/g vs 0.63ug/g*), Benzo(b)anthracene (*0.06ug/g vs 0.78ug/g*), Chrysene (*0.10ug/g vs 7.8ug/g*), Fluoranthene (*0.16ug/g vs 0.68ug/g*), Phenathrene (*0.07ug/g vs 7.8ug/g*) and Pyrene (*0.24ug/g vs 78ug/g*).

BTEX

The reported BTEX concentrations for the soil samples recovered from the Site were all reported at concentrations below the reportable detection limits (RDLs), established by AGAT to be below the Site Condition Standards.

Metals+ Inorganics

The reported Metals+Inorganics constituent concentrations for the soil samples recovered from the Site are summarized in Table 8A in **Attachment 2**. As indicated therein, all reported constituent concentrations were either below the applicable Site Condition Standards or reportable detection limits (RDLs).

OCPs

The reported OCP constituent concentrations for the soil samples recovered from the Site were all reported at concentrations below the reportable detection limits (RDLs).

PAHs

The reported PAH concentrations for the soil samples recovered from the Site were all reported at concentrations below the respective reportable detection limits (RDLs), established by AGAT to be below the Site Condition Standards, with the exception of;

- ✓ The sample collected from a localized deposit of Industrial Fill (*Black staining, red brick fragments, debris*) at **BH8** (SS2 @ 0.41mbgs to 0.61mbgs) with detectable concentrations reported for; Benzo(a)anthracene (*0.06ug/g vs 0.63ug/g*), Fluoranthene (*0.08ug/g vs 0.68ug/g*) and Phenathrene (*0.06ug/g vs 7.8ug/g*), with all reported concentrations well below the respective *Table 3* SCS.

PHCs

The reported PHC/F1 to F4 concentrations for the soil samples recovered *from* the Site were all reported at concentrations below the respective reportable detection limits (RDLs), established by AGAT to be below the Site Condition Standards, with the exception of;

- ✓ The sample collected from a surficial Industrial Fill (black cinders and staining) deposit at **MW3** (*S1 @ 0.61mbgs to 0.91mbgs*) with detectable concentrations reported for; PHC-F3 (*240ug/g vs 1300ug/g*) and PHC-F4 (*62ug/g vs 5600ug/g*).

VOCs

The reported VOC constituent concentrations for the soil samples recovered from the Site were all reported at concentrations below the reportable detection limits (RDLs).

5.5 Groundwater Quality

5.5.1 Samples Collected

A single groundwater quality sampling round was completed during the Phase Two ESA, with all five (5) monitoring wells included in the groundwater quality assessment. A total of eleven (11) representative samples (*including one (1) Duplicate (MW2/MW22)* were submitted to AGAT Laboratories for chemical analyses.

The specific samples and analyses requested are presented in Table 9, in **Attachment 2** and summarized as follows; Metals + Inorganics (3), Polycyclic Aromatic Hydrocarbons (1), Petroleum Hydrocarbon Compounds, CCME Fractions F2 to F4 (3), and Volatile Organic Compounds (4), with method detection limits established for each constituent to accurately assess SCS compliance.

5.5.2 Contaminants of Concern

Based on the past site activities and the reported soil quality on the *Phase Two Property*, SEI identified the following Contaminants of Concern (COCs) warranting investigation.

COC 1 – BTEX Constituents

Benzene, Toluene, Ethylbenzene and Xylenes Mixture (BTEX) were identified as potential Contaminants of Concern (COC), based on the long-term petroleum handling activities.

COC 2 – Metals + Inorganics

Metals + Inorganics were identified as potential Contaminants of Concern, based on the gravel covered site, the long-term parking of vehicles (winter) and the application of salt for de-icing.

COC 3 – Petroleum Hydrocarbon Compounds (PHCs/F1 to F4)

Petroleum Hydrocarbon Compounds (PHCs) were identified as potential Contaminants of Concern (COCs) based on the past presence of diesel and fuel oil storage systems, and the detection of PHC-F3 and F4 in a soil sample at MW3-S1 (former Fuel Oil AST area).

COC 4 – Polycyclic Aromatic Hydrocarbon (PAHs)
Polycyclic Aromatic Hydrocarbons (PAHs) were identified as potential Contaminants of Concern (COC), based on the observance of shallow, localized areas of *Industrial Fill* and the reporting of PAH constituents at BH5-S2 and BH8-S2.

COC 5 – Volatile Organic Compounds (VOCs)
Volatile Organic Compounds (VOCs) were identified as potential Contaminants of Concern (COCs) based the past use of disinfectants in the meat processing facility.

5.5.3 Groundwater Quality Results

The results of the constituents detected in the Site groundwater system, above the reportable detection limits (RDLs) are summarized in Table 10, in **Attachment 2**, with the associated AGAT Certificates of Analyses provided in **Attachment 5**.

BTEX-F1
All reported BTEX constituent concentrations were below the reportable detection limits, established by AGAT to be below the respective Site Condition Standards.

Inorganics
The reported Inorganics constituent concentrations for the shallow groundwater samples recovered from the Site are summarized in Table 10A in **Attachment 2**. As indicated therein, impacts were reported for salt-related parameters at the following monitoring well location;

- ✓ Chloride
  MW2 3,450,000ug/L vs 2,300,000ug/L
  MW22 3,150,000ug/L vs 2,300,000

However, recent modifications to Section 49.1 of *Regulation 153/04, as amended* (*Dec 2019*) state that "*If an applicable site condition standard is exceeded at a property solely because a substance has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow and ice or both, then the site condition is deemed not to be exceeded for the purpose of Part XV.1 of the Act*.

- ➢ ***As such, the elevated Chloride concentration in the Site groundwater system is not considered to be an exceedance, and no further action is required.***

Metals
The reported Metals constituent concentrations for the shallow groundwater samples recovered from the Site are summarized in Table 10A in **Attachment 2**. As indicated therein, all reported Metals concentrations were either below the applicable Site Condition Standards or reportable detection levels (RDLs).

PHCs/F2 to F4

The reported PHC/F2 to F4 constituent concentrations for the all groundwater samples submitted for the Site were all reported at concentrations below the reportable detection limits.

PAHs

The reported PAH concentrations for the shallow groundwater sample (*MW3*) recovered from the Site were all reported at concentrations below the respective reportable detection limits (RDLs), established by AGAT to be below the Site Condition Standards.

VOCs

As indicated in Table 10, the reported VOC constituent concentrations for the shallow groundwater system at the Site were all reported at concentrations below the respective reportable detection limits (RDLs), with the exception of;

- ✓ Toluene at **MW2** (*0.84ug/L*) and **MW3** (*0.44ug/L*) vs the *Table 3* SCS of 18,000ug/L
- ✓ Trichloromethane at **MW3** (*0.73ug/L*) vs the *Table 3* SCS of 2,500ug/L

5.6 Quality Assurance and Quality Control Results

5.6.1 Data Validation

- The soil and groundwater sample analysis dates provided on the Certificates of Analyses (*CofAs*) reported by AGAT indicate that all sample analyses were performed within the required sample/extracted hold times.

- The laboratory RDLs were all below the applicable Site Condition Standards (SCS), established under *Regulation 153/04, as amended*, for all media considered.

- The laboratory control sample recoveries were all found to be within the acceptable industry ranges.

- The reported results for the laboratory method blank samples did not exceed the detection limits.

- The reported recoveries spiked blank samples were found to be within acceptable ranges.

- Laboratory surrogate recoveries reported for the individual certificates of analyses were found to be within acceptable ranges, specified under Regulation 153/04, as amended (60% to 140%).

5.6.2 QA/QC Samples

Soils

Two (2) sets of duplicate samples were prepared from the recovered soil samples, with split samples submitted for the following sampling locations and parameters; ***BH2/BH22*** (*S2 @0.30mbgs to 0.96mbgs*) for BTEX + PHCs/F1 to F4; and ***MW4/MW44*** (*S3 @1.22mbgs to 1.52mbgs*) for PAHs.

The reported soil concentrations and the associated Relative Percent Difference (RPD) for each constituent tested are presented in *Table 11*, in **Attachment 2**. A discussion of the RPD results follows.

BTEX + PHCs/F1 to F4

The only constituents reported above the detection limits for the PAH analyses, was Moisture Content, with results of 16.2% (*BH2-S2*) and 15.8% (*BH22-S2*) reported. The corresponding RPD is 2.5% which is well within the accepted error of 20%.

PAHs

The only constituents reported above the detection limits for the BTEX+PHC/F1 to F4 analyses, was Moisture Content, with results of 15.8% (*MW4-S3*) and 16.9% (*MW44-S3*) reported. The corresponding RPD is 6.73% which is well within the accepted error of 20%.

- ***Based on the QA/QC results SEI can reasonably conclude that the soil quality data set reported by AGAT is representative of the existing Site Conditions.***

Groundwater

Duplicate groundwater samples were collected from **MW2**, with the corresponding duplicate samples identified as; *MW2/MW22*, submitted for Metals + Inorganics analyses.

The reported soil concentrations and the associated Relative Percent Difference (RPD) for each constituent detected are presented in *Table 12*, in **Attachment 2**. A discussion of the results follows.

Metals + Inorganics

The range of RPD values calculated for the groundwater quality results ranged from 0.84% (Barium) to 13.53% (Zinc), with an average RPD value for all constituents tested of 5.80%. Both the range and average RPD values are well within the error limit of 20%.

- ***Based on the QA/QC results SEI can reasonably conclude that the groundwater data set reported by AGAT is representative of the existing Site Conditions.***

5.6.3 Deviations from Analytical Protocol

The Sample Integrity Report (SIR) received for AGAT Work Order# 19H535392 (Soil Analyses), indicated that the Moisture sample jar had not been provided to support the determination of VOC concentrations in soil.

SEI prepared moisture samples from the remaining split samples and submitted to AGAT.

- ***In consideration of the VOC race or less than RDL concentrations reported, the delay in the receipt of the moisture sample is not considered to have adversely affected the assessment of potential VOC impacts at the Phase Two Property.***

6.0 CONCLUSIONS

Based on the activities undertaken during the Phase Two Investigations completed at 2248 Cente Street, Thorold, Ontario, and the reported environmental quality results, Spice Environmental Inc. can conclude that the site conditions satisfy the applicable Site Condition Standards for future residential use of the subject property.

This position is supported by the following considerations.

- ✓ All fuel storage systems have been removed from the site and any affected areas remediated;
- ✓ The former meat processing facility has been demolished and all associated materials have been removed from the property;
- ✓ The results of chemical analyses conducted on representative soil samples collected from each APEC identified through the Phase One ESA, found all tested constituent concentrations to be below the applicable *Table 3 SCS* for future Residential land use, and;
- ✓ The results of chemical analyses conducted on representative groundwater samples collected from each APEC identified through the Phase One ESA found all tested constituent concentrations to be below the applicable *Table 3 SCS* for future Residential land use.

7.0 LIMITATIONS

The work outlined in this report has been undertaken by Spice Environmental Inc. (SEI) at the direction of the **Lorimir Holdings Ltd.** (*Ancaster, Ontario*). The scope of work developed and completed to establish the subsurface environmental conditions associated with the lands identified as "*2248 Centre Street, Thorold, Ontario*". The work, findings, conclusions and recommendations outlined herein have been prepared for the exclusive use of the Lorimir Holdings Ltd., its affiliated companies and partners, their respective insurers, agents, employees and advisors (collectively "Lorimir"). Any use, reliance or decision made by any person other than Lorimir based on this report is the sole responsibility of any such other person.

SEI makes no representation or warranty to any other person nor accepts any liability or responsibility whatsoever for loses, expenses, damages, fines, penalties, claims or any other harm that may be suffered or incurred by any other person as a result of the unauthorized use of, reliance on, any decision made or any action taken based on this report or any portion of the work referred to therein.

The investigations undertaken by the SEI and any conclusions or recommendations outlined herein reflect SEI's professional judgment based on the information available at the time of preparation of this report and the results of the material characterization analyses provided. The report has been prepared for specific application to this site and is based, in part, upon visual observation of the soil conditions and limited material characterization analyses completed on representative property soils to verify the observations/conclusions presented. Unless otherwise stated, the findings cannot be extended to previous or future site conditions, portions of the site which were unavailable for direct investigation which were not investigated directly, or chemical parameters, materials or analyses which were not addressed. Substances other than those addressed by the investigation and described herein, may exist at the site and/ or substances addressed by the investigation may be present within areas of the site not investigated and/or concentrations of substances addressed which are different from those reported may exist in areas other than the locations from which samples were collected. If the site conditions or applicable Standards change or if any additional information becomes available at a future date, SEI reserves the right to modify the findings, conclusions and/or recommendations contained in this report.

Other than by **Lorimir Holdings Ltd.**, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted without the expressed written permission of the Spice Environmental Inc. Nothing in this report is intended to constitute or provide a legal opinion.

8.0 CLOSURE

Spice Environmental Inc. trusts that the foregoing satisfies your current requirements in this matter.

Sincerely,
Spice Environmental Inc.

Ian Spice, P. Eng, QP
Senior Engineer

Attach.

REFERENCES

1. Ontario Regulation 153/09, as amended. Part XV.1 Records of Site Condition, of Environmental Protection Act, April 15, 2011

2. Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act, effective July 1, 2011.

3. Guide for completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04, September 2011, PIBS 8486e.

4. Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, Laboratory Services Branch, Ministry of the Environment, amended July 1, 2011.

5. Phase One Environmental Site Assessment, 2248 Centre Street, Thorold, Ontario, prepared for Lorimir Holdings Ltd., prepared by Spice Environmental Inc., dated September 2018 (*Ref: 2018-025*)

<u>Attachment 1</u> - Figures
Phase Two Environmental Assessment
2248 Centre Street - Thorold, Ontario

Figure 1 – Site Location
Figure 2 – Phase Two Property
Figure 3 – Areas of Potential Environmental Concern (APECs)
Figure 4 – Monitoring Well + Borehole Locations
Figure 5 – Cross-Sections Layout
Figure 5A – Cross-Section A-A'
Figure 5B – Cross-Section B-B'

Title: Figure 1

SITE LOCATION

SITE
2248 CENTRE ST.
THOROLD, ON

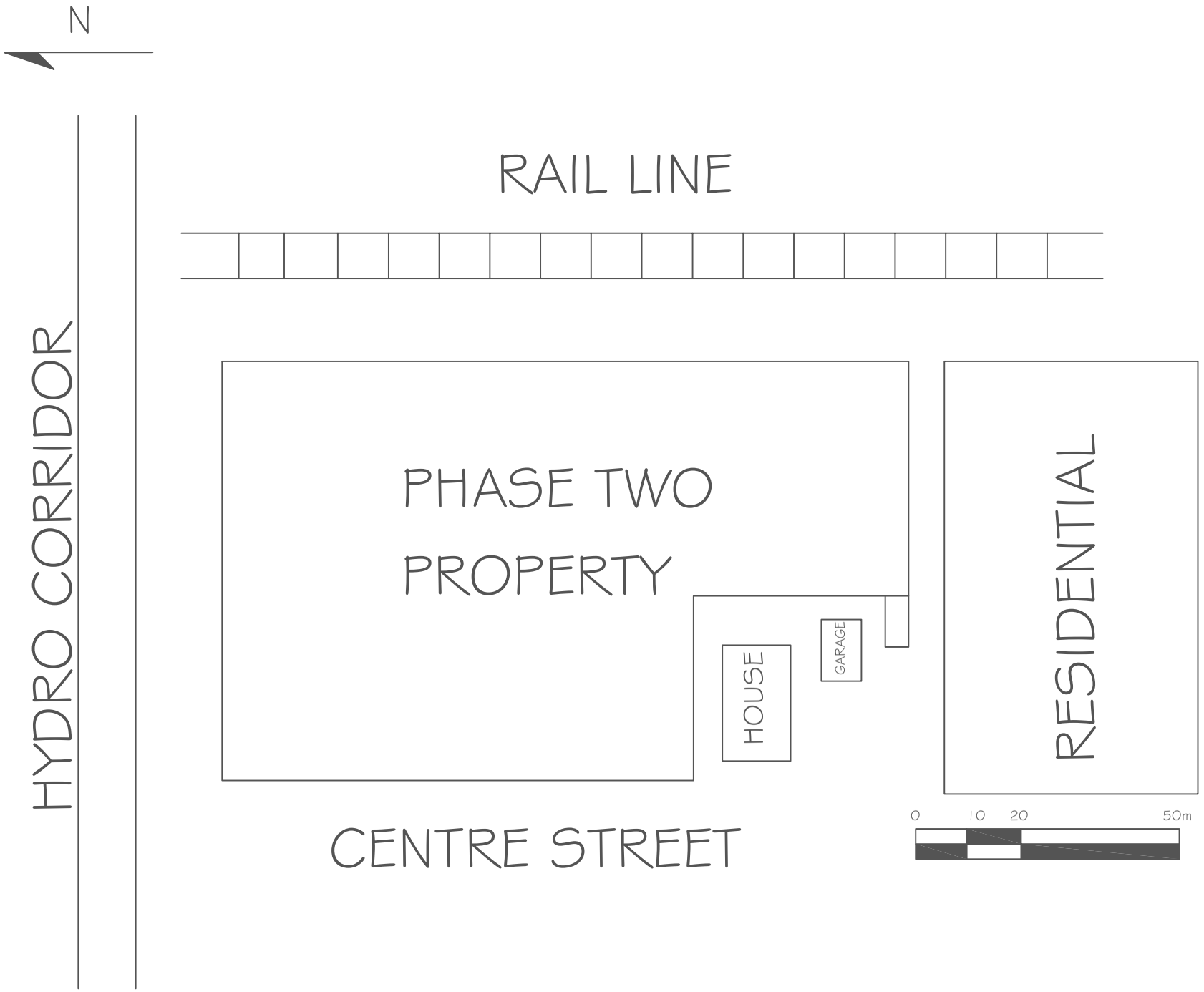
Spice Environmental Inc.
673 Inverary Road
Burlington, Ontario
L7L 2L8

PROJECT:
Phase Two Environmental Site Assessment

DATE OF DRAWING:
March 10, 2020

SEI PROJECT #:
2020-001-02

IMAGE SOURCE:
Google



Title: Figure 2

PHASE TWO
PROPERTY

SITE
2248 CENTRE ST.
THOROLD, ON

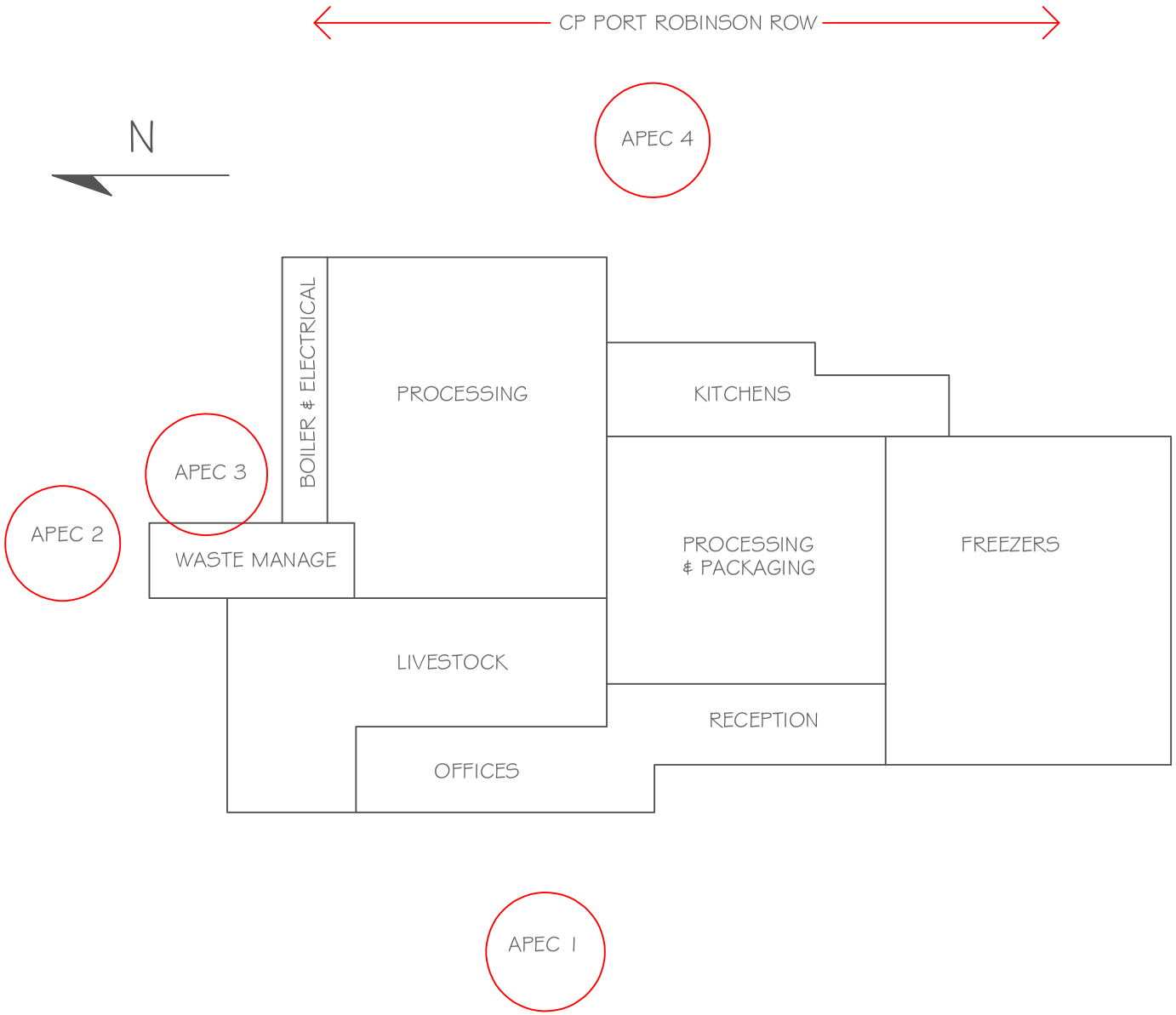
Spice
Environmental Inc.
673 Inverary Road
Burlington, Ontario
L7L 2L8

PROJECT:
Phase Two
Environmental Site
Assessment

DATE OF DRAWING:
March 10, 2020

SEI PROJECT #:
2020-001-02

IMAGE SOURCE:



Title: Figure 3

AREAS OF POTENTIAL ENVIRONMENTAL CONCERNS (APECS)

SITE
2248 CENTRE ST.
THOROLD, ON

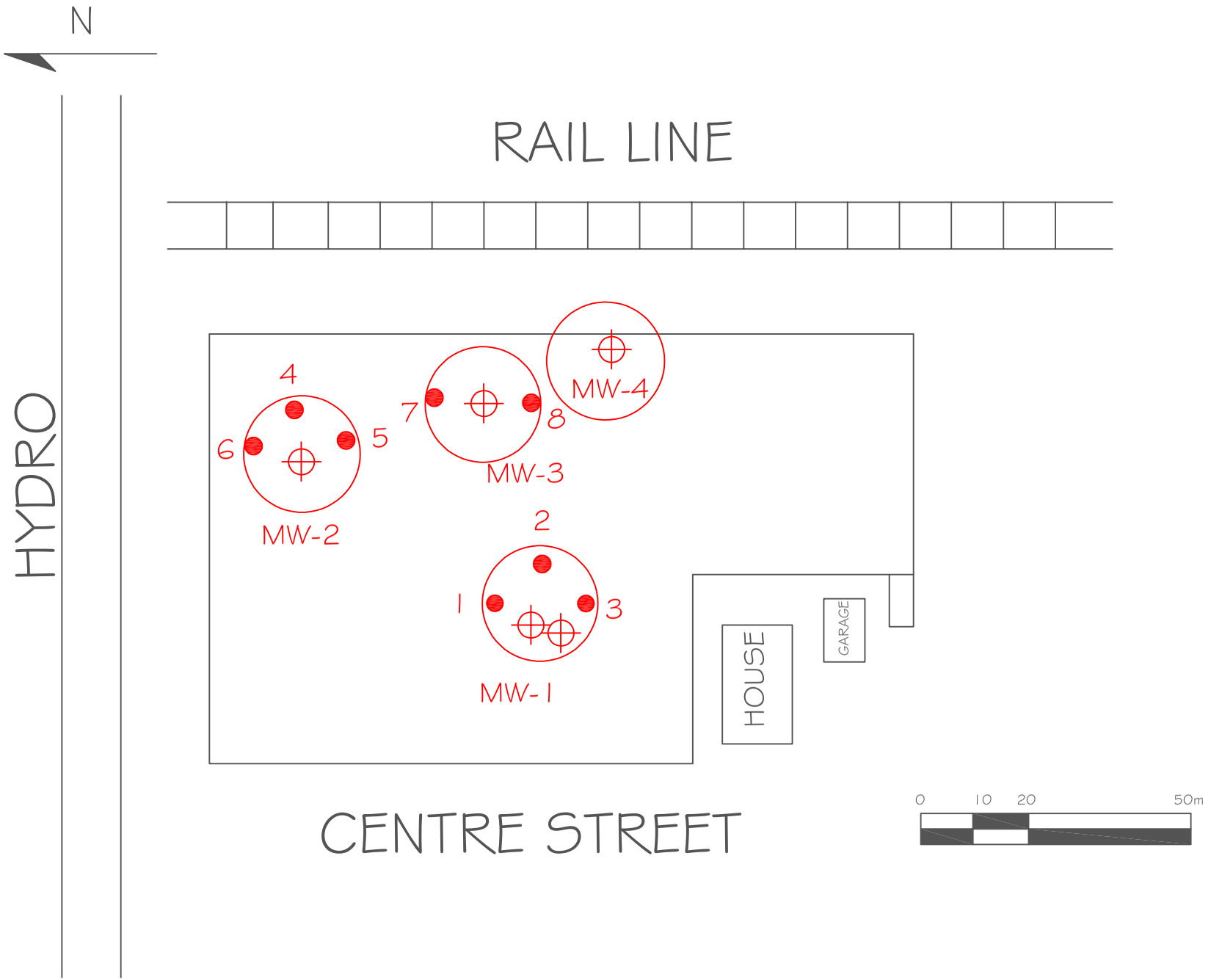
Spice Environmental Inc.
673 Inverary Road
Burlington, Ontario
L7L 2L8

PROJECT:
Phase Two Environmental Site Assessment

DATE OF DRAWING:
March 10, 2020

SEI PROJECT #:
2020-001-02

IMAGE SOURCE:



Title: Figure 4

MONITORING WELL AND BOREHOLE LOCATIONS

LEGEND:

8 BOREHOLE

3 MONITORING WELL

APEC

SITE
2248 CENTRE ST.
THOROLD, ON

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673 Inverary Road
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Phase Two Environmental Site Assessment

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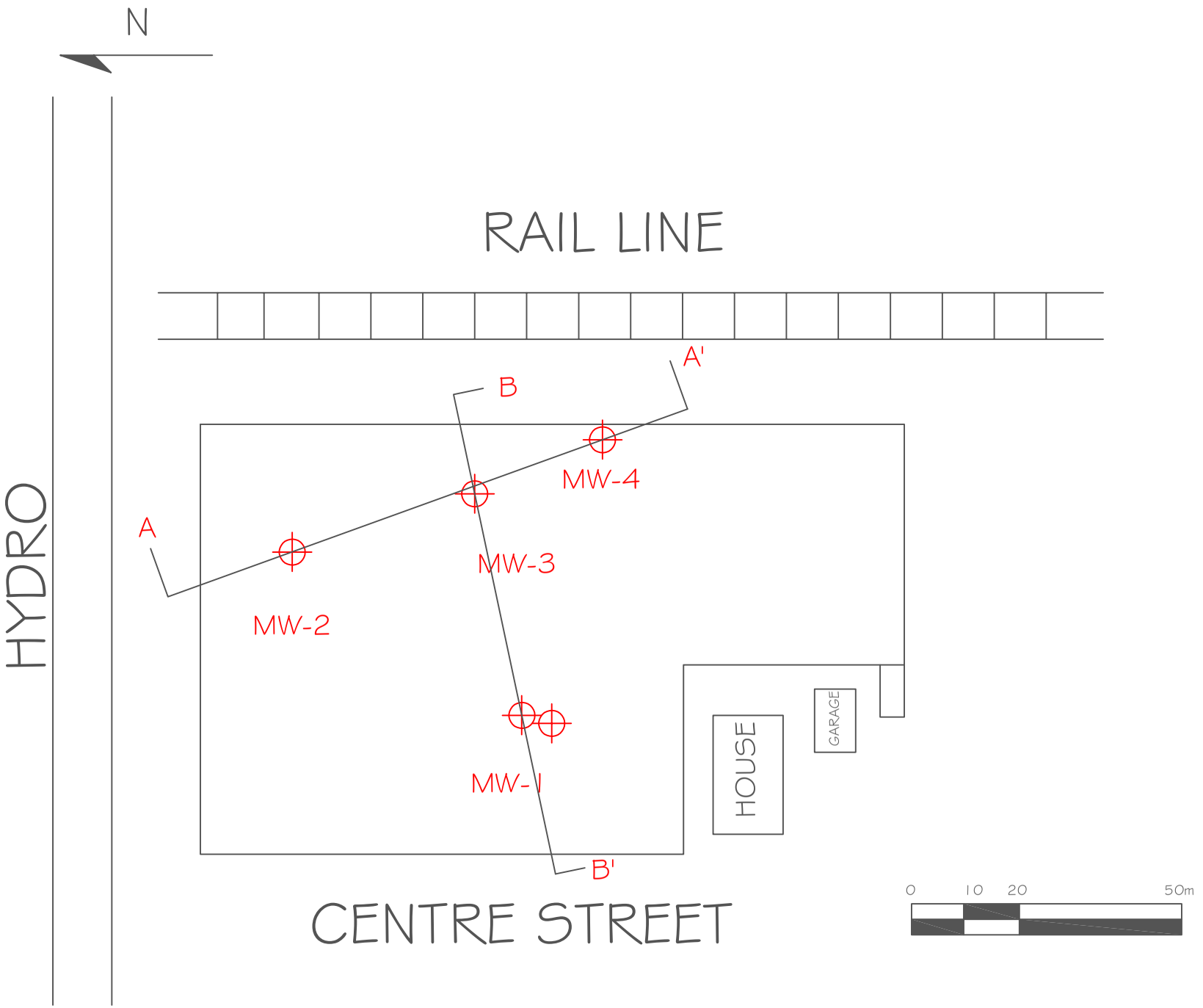


Title: Figure 5

CROSS SECTIONS
LAYOUT

SITE
2248 CENTRE ST.
THOROLD, ON

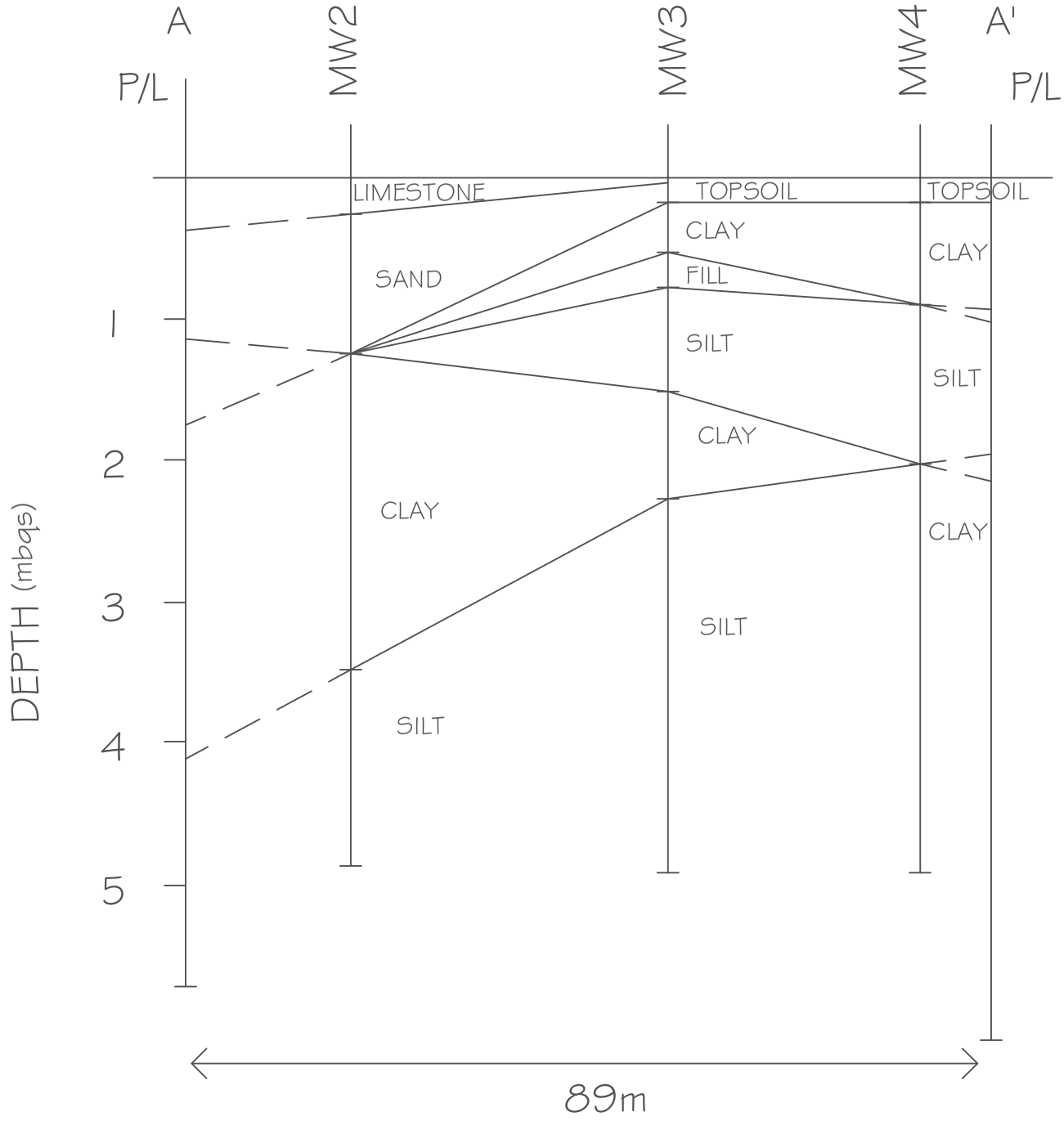
Spice
Environmental Inc.
673 Inverary Road
Burlington, Ontario
L7L 2L8

PROJECT:
Phase Two
Environmental Site
Assessment

DATE OF DRAWING:
March 10, 2020

SEI PROJECT #:
2020-001-02

IMAGE SOURCE:



Title: Figure 5A

CROSS SECTION
A-A'

SITE
2248 CENTRE ST.
THOROLD, ON

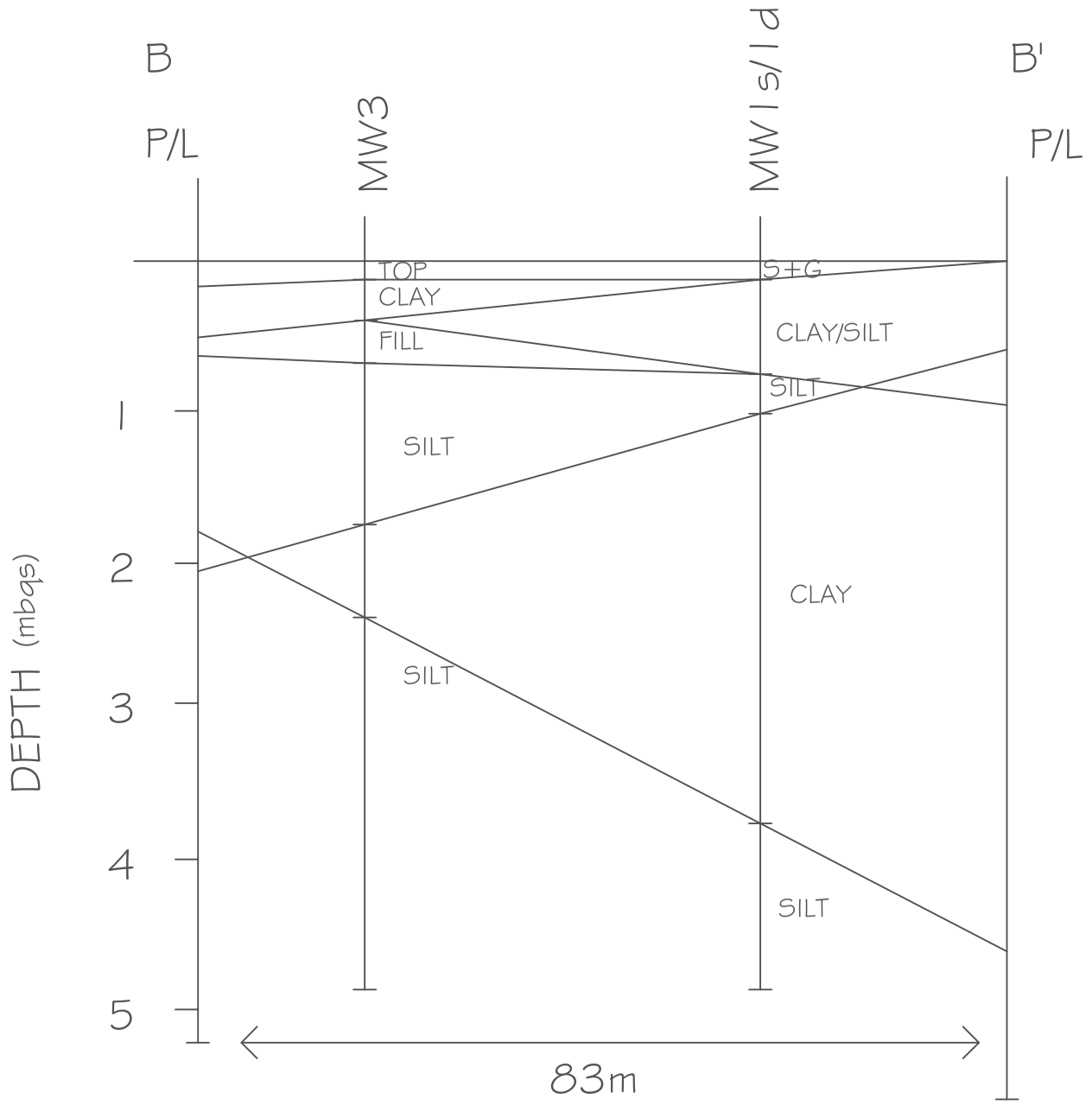
Spice Environmental Inc.
673 Inverary Road
Burlington, Ontario
L7L 2L8

PROJECT:
Phase Two
Environmental Site
Assessment

DATE OF DRAWING:
March 10, 2020

SEI PROJECT #:
2020-001-02

IMAGE SOURCE:



Title: Figure 5B

CROSS SECTION
B-B'

SITE
2248 CENTRE ST.
THOROLD, ON

Spice
Environmental Inc.
673 Inverary Road
Burlington, Ontario
L7L 2L8

PROJECT:
Phase Two
Environmental Site
Assessment

DATE OF DRAWING:
March 10, 2020

SEI PROJECT #:
2020-001-02

IMAGE SOURCE:

Attachment 2 - Tables
Phase Two Environmental Assessment
2248 Centre Street – Thorold, Ontario

Table 1 – Monitoring Well and Borehole Locations Selection Rationale

Table 2A – Soil Sampling Summary – APEC 1

Table 2B – Soil Sampling Summary – APEC 2

Table 2C – Soil Sampling Summary – APEC 3

Table 2D – Soil Sampling Summary – APEC 4

Table 3 – Monitoring Well Construction Details

Table 4A – Well Purging Details (Oct 25, 2019)

Table 4B – Well Purging Details (Oct 30, 2019)

Table 4C – Well Purging Details (Feb 05, 2020)

Table 5A – GW Conditions Monitoring (*Feb 05, 2020*)

Table 5B – GW Conditions Monitoring (*Feb 16, 2020*)

Table 5C – GW Conditions at Sampling

Table 6 – Static Groundwater Levels

Table 7 – Soil Sample Selection for Chemical Analyses

Table 8 – Summary of Detections (Soil Quality)

Table 8A – Soil Quality Results – Metals + Inorganics

Table 9 – Groundwater Sample Selection for Chemical Analyses

Table 10 –Summary of Detections (Groundwater Quality)

Table 11 – Relative Percent Difference (RPD) – Soil Quality Results

Table 12 – Relative Percent Difference (RPD) – Groundwater Quality Results

TABLE 1

Monitoring Well and Borehole Locations Selection Rationale

Phase Two Environmental Site Assessment

2248 Centre Street - Thorold, ON

Project: 2020-001

Client

Lorimir Holdings Ltd.

MONITORING WELL LOCATIONS

Monitoring Well	*Location*	*Rationale*
MW1s	- Adjacent to Former Diesel Fueling System	- Confirm soil and groundwater conditions in petroleum handling area - Determine groundwater flow and vertical hydraulic gradient
MW1d	- Adjacent to Former Diesel Fueling System	- Confirm deeper soil conditions - Determine vertical hydraulic gradient
MW2	- Adjacent to Former BioSolids UST	- Assess soil and groundwtaer conditions within biosolids handling area - Determine groundwater flow direction and rate
MW3	- Area of Former FO AST (east side of former Bldg)	- Confirm soil and goundwater conditions in fuel oil handling area - Establish groundwater flow regime
MW4	- East boundary of Phase One Property and downgradient of Offsite Rail Line	- Confirm groundwater quality downgradient of Rail Line - Establish groundwater flow regime

BOREHOLE LOCATIONS

Borehole	*Location*	*Rationale*
Diesel Fueling Area		
BH1	- North of Bollard Area	- Assess near surface soil quality (PHC impacts)
BH2	- East of Bollard Area	- Assess near surface soil quality (PHC impacts)
BH3	- South of Bollard Area	- Assess near surface soil quality (PHC impacts)
BioSolids Area		
BH4	West of Vertical Culvert + Biosolids Tank Discharge Pipe	- Assess near surface metals + Inorganics impacts, waste deposits
BH5	- South of Suspected Biosolids Tank Discharge Area	- Assess near surface metals + Inorganics impacts, waste deposits
BH6	- North of Suspected Biosolids Tank Discharge Area	- Assess near surface metals + Inorganics impacts, waste deposits
Fuel Oil Tank Area		
BH7	- East of NE Corner of Building	- Assess near surface petroleum impacts (FO)
BH8	- East Corner of Building, adjacent to former Boiler Room	- Assess near surface petroleum impacts (FO)

Table 2A

Soil Sampling Summary

Subsurface Investigations (Phase 2 ESA) **Project: 2020-001-02**

2248 Centre Street - Thorold, ON

Client

Lorimir Holdings Ltd.

APEC 1

Former Vehicle Fueling Area

Location	*Sample ID*	*Depth Interval* (mbgs)	*Description*	*Headspace TOV* [2] (ppm/v)	*Selected Analyses* [3]
BH1	North of Bollard Area				
	S1	0 - 0.25	Grey and beige, compact Sand+Gravel, some clay, evidence of brown oxidation. No odour/staining	0.0	**M+I**
	S2	0.25 - 0.50	Dark brown organic Clay, rootlets, dry, brittle	0.0	**Grain Size**
	S3	1.22 - 1.52	Beige, compact/dense Clay, cohesive, evidence of brown silt seams. No odour or staining	0.0	
BH2	East of Bollard Area				
	S1	0 - 0.30	Grey , compact Sand+Gravel, damp, some evidence of clay, tree root fragments and red brick fragments	0.0	
	S2	0.31 - 0.96	Brown, dry brittle Clay, some rootlets	0.0	**BTEX/PHCs**
	S3	0.96 - 1.52	Beige silty Clay, compact, damp, cohesive. Grey silt seams, evidence of oxidation	0.0	
BH3	South of Bollard Area				
	S1	0 - 0.25	Grey and brown Sand+Gravel, some cobbles, vegetation and trace topsoil in top of sample	0.0	
	S2	0.25 - 0.53	Brown Silt with red oxidation throughout, dense, damp	0.0	
	S3	0.53 - 1.52	Grey/Beige, very compact/dense Clay, cohesive, some rootlets, cohesive, damp, grey silt seams throughout	0.0	**BTEX/PHCs**
MW1	*West (downgradient) of Bollard Area*				
	S1	0 - 0.20	Grey and brown Sand+Gravel, some cobbles, vegetation and trace topsoil in top of sample	0.0	**M+I**
	S2	0.20 - 0.30	Brown Silt with red oxidation throughout, dense, damp	0.0	
	S3	1.22 - 1.52	Grey/Beige, very compact/dense Clay, cohesive, some rootlets, cohesive, damp, grey silt seams throughout	0.0	
	S4	0.61 - 1.52	Dark Brown Silt with red oxidation, rootlets	0.0	
	S5	1.52 - 2.13	Biege clay with grey silt seams, Dense, low plasticity, occassional cobble, becoming denser with depth	0.0	
	S6	2.74 - 3.05	Brown Clay and Silt, increasing silt content with depth, some reddish brown oxidation	0.0	
	S7	3.66 - 3.96	Medium brownsilty Clay, evidence of orange/brown oxidation, very plastic, damp, becoming wetter and more plastic with depth	0.0	
	S8	4.27 - 4.88	Grey Silt with red oxidation throughout core. Soft and wet	0.0	
	S9	5.18 - 5.64	Grey Silt, very soft and wet, becoming softer and wetter with depth	0.0	
	S10	5.64 - 6.40	Soft, wey Silt, some reddish brown oxidation throughout	0.0	
	S11	7.01 - 7.62	Grey Silt, very soft and wet, increasing clay content with depth, becoming more plastic and cohesive	0.0	

Notes:

1 - Samples collected in a 1.22m PVC sampling tube using a 9630 VTR-Pro probe, operated by Profile Drilling Inc.

2 - Headspace measured per MOE Protocol usinga MiniRAE3000, calibrated with 1ppm Isobutylene. Background - 0.0ppm

3 - M+I - Metals + Inorganics, BTEX/PHCs - Benzene, Toluene, Ethylbenzene, Xylenes, Petroleum Hydrocarbon Compounds, Fractions F1 to F4

Table 2B

Soil Sampling Summary

Subsurface Investigations (Phase 2 ESA) **Project: 2020-001-02**

2248 Centre Street - Thorold, ON

Client

APEC 2 ***Lorimir Holdings Ltd.***

Former Bio-Solids Management System

Location	*Sample ID*	*Depth Interval* (mbgs)	*Description*	*Headspace TOV* [2] (ppm/v)	*Selected Analyses* [3]
BH4	*West of Vertical Culvert/Suspected Solids Storage Tank*				
	S1	0 - 0.48	Beige silty Clay, dry, dense, some cobbles	0.0	
	S2	0.48 - 0.86	Reddish brown, medium to coarse Sand, compact, damp, becoming wet with depth	0.0	**M+I**
	S3	1.22 - 1.52	Dark grey/black silty Clay, soft and wet with organic odour	0.5	**VOC**
	S4	1.52 - 1.82	Grey silty Clay with beige oxidation	0.0	
	S5	2.13 - 2.44	Beige and grey Clay, dense, cohesive damp to wet	0.0	
BH5	*South of Vertical Culvert/Suspected Solids Storage Tank*				
	S1	0 - 0.15	Grey Sand+Gravel, dry compact	0.2	**VOC**
	S2	0.41 - 0.61	Reddish brown medium to coarse Sand, compact, yellow/beige layer at bottom of sample	0.1	**BNA**
	S3	0.61 - 0.91	Grey/beige silty Clay, dense, cohesive	0.0	
	S4	1.82 - 2.44	Grey and reddish brown silty Clay, medium dense, wet	0.0	
BH6	*North of Vertical Culvert/Suspected Solids Storage Tank*				
	S1	0 - 0.15	Thin Topsoil layer, followed by compact brown Sand+Gravel, some cobbles, loose, damp	0.2	
	S2	0.15 - 0.41	Brown and dark grey, compact Clay, with cobbles and rootlets, evidence of oxidation throughout	0.1	**OCP**
	S3	0.91 - 1.22	Brown, dry brittle Clay	0.0	
	S4	1.22 - 1.52	Brown, dense Clay, damp to wet, cohesive	0.0	
	S5	1.68 - 1.98	Grey Silt, moist with reddish brown oxidation throughout	0.0	
	S6	1.98 - 2.29	Grey soft, Clay, wet with trace organic odour	0.1	**PAHs**
MW2	*West (downgradient) of Suspected Bio-Solids Tank*				
	S1	0.30 - 0.61	Grey Limestone Screenings, damp, compactSand+Gravel, damp	0.0	**M+I**
	S2	0.91 - 1.22	Reddish brown, medium to coarse Sand, compact	0.0	
	S3	1.22 - 1.52	Dark grey silty Clay, with black staining and trace organic odour	0.0	
	S4	1.82 - 2.13	Very dense, grey + Biege Clay, becoming more beige and wet with depth, low plasticity	0.0	**Grain Size**
	S5	3.05 - 3.35	Beige compact Clay with grey lenses, medium dense, increasing Silt content with depth	0.0	
	S6	3.96 - 4.27	Beige and grey Silt, compact, merdium dense, wet	0.1	

Notes:

1 - Samples collected in a 1.22m PVC sampling tube using a 9630 VTR-Pro probe, operated by Profile Drilling Inc.

2 - Headspace measured per MOE Protocol usinga MiniRAE3000, calibrated with 1ppm Isobutylene. Background - 0.0ppm

3 - M+I - Metals + Inorganics, ABN - Acid, Base, Nuetral Extractables, OCP - Organochlorine Pesticide, PAHs - Polycyclic Aromatic Hydrocarbons

Table 2C

Soil Sampling Summary

Subsurface Investigations (Phase 2 ESA) **Project: 2020-001-02**

2248 Centre Street - Thorold, ON

Client

APEC 3 ***Lorimir Holdings Ltd.***

Former Fuel Oil Aboveground Storage Tank

Location	*Sample ID*	*Depth Interval* (mbgs)	*Description*	*Headspace TOV* [2] (ppm/v)	*Selected Analyses* [3]
BH7	*East of NE Corner of Former Building*				
	S1	0 - 0.48	Beige silty Clay, dry, dense, dsome cobbles	0.0	
	S2	0.48 - 0.86	Reddish brown, medium to coarse Sand, compact, damp, becoming wet with depth	0.0	
	S3	1.22 - 1.52	Dark grey/black silty Clay, soft and wet with organic odour	0.0	**BTEX/PHCs, PAHs**
	S4	1.52 - 1.82	Grey silty Clay with beige oxidation	0.0	
	S5	2.13 - 2.44	Beige and grey Clay, dense, cohesive damp to wet	0.0	
BH8	*East of Former Boiler Room*				
	S1	0 - 0.15	Beige and grey Clay, dense, moist, plastic, with evidence of brown oxidation	0.0	
	S2	0.41 - 0.61	Brown soft, moist to wet Clay, with some medium Sand, Silt and cobbles. Evidence of black staining, red brick fragments and some debris	0.0	**PAHs**
	S3	0.61 - 0.91	Beige and grey clayey Silt/Silty Clay, dense moist	0.0	
MW3	*East of Former Building, between BH7 + BH8*				
	S1	0.61 - 0.91	Beige and grey silty Clay/clayey Silt, some Sand and cobbles, black cinders and staining throughout	0.0	**BTEX/PHCs, BNAs**
	S2	1.22 - 1.52	Grey Silt w/some Clay, brown oxidation, dry to moist, dense	0.0	
	S3	1.52 - 1.82	Dense, beige and grey Clay with brown oxidation and silt lenses	0.0	
	S4	2.44 - 2.74	Brown, medium dense, reddish brown oxidation throughout	0.0	
	S5	1.68 - 1.98	Brown, medium dense Silt, reddish brown oxidation, wet	0.0	
	S6	1.98 - 2.29	Grey Silt with beige/brown oxidation, damp to wet	0.0	

Notes:

1 - Samples collected in a 1.22m PVC sampling tube using a 9630 VTR-Pro probe, operated by Profile Drilling Inc.

2 - Headspace measured per MOE Protocol usinga MiniRAE3000, calibrated with 1ppm Isobutylene. Background - 0.0ppm

3 - M+I - Metals + Inorganics, BTEX/PHCs - Benzene, Toluene, Ethylbenzene, Xylenes, Petroleum Hydrocarbon Compounds, Fractions F1 to F4
ABN - Acid, Base, Nuetral Extractables, PAHs - Polycyclic Aromatic Hydrocarbons

Table 2D

Soil Sampling Summary

Subsurface Investigations (Phase 2 ESA) **Project: 2020-001-02**

2248 Centre Street - Thorold, ON

Client

Lorimir Holdings Ltd.

APEC 4

Offsite Rail Line

Location	*Sample ID*	*Depth Interval* *(mbgs)*	*Description*	*Headspace TOV* [2] *(ppm/v)*	*Selected Analyses* [3]
MW4	*Adjacent to East Boundary of Property*				
	S1	0.30 - 0.61	Brown, dense cohesive clay, moist	0.0	**M+I**
	S2	0.91 - 1.22	Beige, soft wet Silt	0.0	
	S3	1.22 - 1.52	Dark grey silty Clay, with black staining and trace organic odour	0.0	**PAH**
	S4	2.13 - 2.44	Grey silty Clay, with reddish brown oxidation	0.0	
	S5	2.74 - 3.05	Bierge silty Clay, wet, soft, very cohesive and plastic. Evidence of reddish brown oxidation throughout	0.0	
	S6	3.35 - 3.66	Beige silty Clay, medium dense, moist, no oxidation	0.0	
	S7	3.66 - 3.96	Beige silty Clay, medium dense, moist to wet, very cohesive	0.0	
	S8	4.67 - 4.88	Grey Clay, dense, Moist, very plastic and cohesive, reddish brown oxidation throughout	0.0	

Notes:

1 - Samples collected in a 1.22m PVC sampling tube using a 9630 VTR-Pro probe, operated by Profile Drilling Inc.

2 - Headspace measured per MOE Protocol usinga MiniRAE3000, calibrated with 1ppm Isobutylene. Background - 0.0ppm

3 - M+I - Metals + Inorganics, BTEX/PHCs - Benzene, Toluene, Ethylbenzene, Xylenes, Petroleum Hydrocarbon Compounds, Fractions F1 to F4
ABN - Acid, Base, Nuetral Extractables, PAHs - Polycyclic Aromatic Hydrocarbons

Table 3

Monitoring Well Construction Details

Phase Two Environmental Site Assessment **Project: 2020-001**

2248 Centre Street - Thorold, ON

Client

Lorimir Holdings Ltd.

Monitoring Well[1]	Well Depth *(mbgs)*	Stick-up *(m)*	Screened Interval *(mbgs)*	Sand Pack *(mbgs)*	Benonite Seal *(mbgs)*	Surface Completion	Water Level[2] *(mbgs)*
MW1s	4.85	0.885	4.85 to 3.33	4.85 to 2.73	2.73 to 0.30	Monument	4.315
MW1d	8.35	0.93	8.25 to 7.6	8.25 to 7.0	7.0 to 0.30	Monument	6.699
MW2	4.75	0.88	4.75 to 3.23	4.75 to 2.63	2.63 to 0.30	Monument	3.689
MW3	4.68	0.885	4.68 to 3.16	4.58 to 2.56	2.56 to 0.030	Monument	4.154
MW4	4.61	0.9	4.61 to 3.09	4.61 to 2.49	2.49 to 0.30	Monument	- dry-

Notes:

1 - Wells installed by Profile Drilling on Oct 21 and 22, 2019

2 - Water level measured with Solinst Interface Probe, 30mins following well installation

SPICE ENVIRONMENTAL INC. ***February 2020***

TABLE 4A

Well Purging Details

Phase Two Environmental Site Assessment **Project: 2020-001**

2248 Centre Street - Thorold, ON

Client

Date: October 25, 2019 ***Lorimir Holdings Ltd.***

Monitoring Well[1]	Depth to Water[2] (m)	Well Depth (ft)	Stick-up (m)	Water Level (mbgs)	Volume Purged[3] (L)			Water Column (m)	Well Volume (L)	Appearance of Water	Odor of Water
	Round 1			Round 1	Round 1	Round 2	Total				
MW-1(s)	2.01	5.73	0.885	1.125	23	1.5	24.5	4.605	104.1	Greenish	Organophosphate
MW-1(d)	3.29	9.28	0.93	2.36	21.5	4	25.5	6.92	156.4	Reddish	Organophosphate
MW-2	2.16	5.63	0.88	1.28	24.5	7	31.5	4.35	98.3	Reddish	Organophosphate
MW-3	2.23	5.56	0.885	1.345	25	4.5	29.5	4.215	95.3	Reddish	Organophosphate
MW-4	3.03	5.51	0.9	2.13	26.5	1.5	28	3.38	76.4	Reddish	Organophosphate
						Total Purged (L) >	***139***				

Notes:

1 - Wells installed on October 21 and 22, 2019 by Profile Drilling Inc., under the supervision of SEI, using 4" diameter solid stem augurs

2 - Depth to water measured using Solinst Interface Probe

3 - Purging completed using dedicated bailers, with purge water retained on site in sealed 205L metal drum

TABLE 4B

Well Purging Details

Phase Two Environmental Site Assessment **Project: 2020-001**

2248 Centre Street - Thorold, ON

Client

Date: October 30-2019 ***Lorimir Holdings Ltd.***

Monitoring Well[1]	Depth to Water[2] (m)	Well Depth (ft)	Stick-up (m)	Water Level (mbgs)	Volume Purged[3] (L)			Water Column (m)	Well Volume (L)	Appearance of Water	Odor of Water
	Round 1			Round 1	Round 1	Round 2	Total				
MW-1(s)	1.66	5.73	0.885	0.775	22.5	1.5	24	4.955	112.0	Dissolved Silt (Greyish)	Meat
MW-1(d)	2.84	9.28	0.93	1.91	22	4	26	7.37	166.6	Dissolved Silt,Clay(Reddish)	Organophosphate
MW-2	1.82	5.63	0.88	0.94	22	12	34	4.69	106.0	Dissolved Silt, Clay (Yellowish Brown)	Organophosphate
MW-3	2.08	5.56	0.885	1.195	22	8.5	30.5	4.365	98.6	Dissolved Silt, Clay (Yellowish Brown)	Organophosphate
MW-4	2.15	5.51	0.9	1.25	40.5	4.75	45.25	4.26	96.3	Dissolved Silt, Clay (Yellowish Brown)	Organophosphate
						Total Purged (L) >	***159.75***				

Notes:

1 - Wells installed on October 21 and 22, 2019 by Profile Drilling Inc., under the supervision of SEI, using 4" diamter solid stem augurs

2 - Depth to water measured using Solinst Interface Probe

3 - Purging completed using dedicated bailers, with purge water retained on site in sealed 205L metal drum

TABLE 4C

Well Purging Details

Phase Two Environmental Site Assessment **Project: 2020-001**

2248 Centre Street - Thorold, ON

Client

Date: February 05-2019 ***Lorimir Holdings Ltd.***

Monitoring Well[1]	Depth to Water[2] (m)	Well Depth (ft)	Stick-up (m)	Water Level (mbgs)	Volume Purged[3] (L)	Water Column (m)	Well Volume (L)	Appearance of Water	Odor of Water
MW-1(s)	1.09	5.73	0.885	0.21	20	5.52	124.8	Biege Silt	Organophosphate
MW-1(d)	2.77	9.28	0.93	1.84	20	7.44	168.2	Biege(Reddish) Silt	Organophosphate
MW-2	1.54	5.63	0.88	0.66	20	4.97	112.4	Biege Silt	Organophosphate
MW-3	1.91	5.56	0.885	1.03	20	4.53	102.4	Biege Silt	Organophosphate
MW-4	1.20	5.51	0.9	0.30	20	5.21	117.7	Biege Silt	Organophosphate
				Total Purged (L) >	***100***				

Notes:

1 - Wells installed on October 21 and 22, 2019 by Profile Drilling Inc., under the supervision of SEI, using 4" diamter solid stem augurs

2 - Depth to water measured using Solinst Interface Probe

3 - Purging completed using dedicated bailers, with purge water retained on site in sealed 205L metal drum

TABLE 5A

Groundwater Conditions Monitoring

Phase Two Environmental Site Assessment **Project: 2020-001**

2248 Centre Street - Thorold, ON

Client

Date: February 05-2020 ***Lorimir Holdings Ltd.***

Monitoring Well[1]	Depth to Water[2] (m)	Well Depth (ft)	Stick-up (m)	Water Level (mbgs)	Temperature (° C)	pH	Conductivity (ms/cm)	ORP	DO (mg/L)
MW-1(s)	1.09	5.73	0.885	0.21	NM	NM	NM	NM	NM
MW-1(d)	2.77	9.28	0.93	1.84	NM	NM	NM	NM	NM
MW-2	1.54	5.63	0.88	0.66	8.35	6.50	6.085	131.5	4.01
MW-3	1.91	5.56	0.885	1.03	NM	NM	NM	NM	NM
MW-4	1.20	5.51	0.9	0.30	7.55	7.05	0.595	101.4	5.29

Notes:

1 - Conditions measured downhole using YSI 556 (Multiparameter Unit)

2- N/M = Not Measured

SPICE ENVIRONMENTAL INC. ***February 2020***

TABLE 5B

Groundwater Conditions Monitoring

Phase Two Environmental Site Assessment

2248 Centre St., Thorold

Project: 2020-001-02

Client

Lorimir Holdings Ltd.

Date: February 16 - 2020

MW-1 (d)	Water Level - 1.86		Depth - 9.28	Sample at 2.97			
Water Level (mbgs)	Time	pH	Temperature (°C)	Conductivity (mS/cm)	ORP[1] (mV)	DO (mg/L)	Flow (ml/min)
2.01	0	4.86	6.36	2.7	-183.1	5.66	110
2.31	3	4.91	6.18	2.686	-141.9	5.34	110
2.44	6	4.91	6.53	2.654	-123	5.04	110
2.59	9	4.93	6.87	2.666	-111.9	4.91	110
2.76	12	4.93	7.35	2.684	-119	4.63	110
2.9	15	4.91	7.5	2.7	-118.6	4.57	110

Notes: Sampling and Analysis for PHCs, BTEX F1-F4

1- Unreliable ORP readings

MW-1 (s)	Water Level - 0.605		Depth - 5.73	Sample at 2.66			
Water Level (mbgs)	Time	pH	Temperature (°C)	Conductivity (mS/cm)	ORP[1] (mV)	DO (mg/L)	Flow (ml/min)
	0	4.84	5.46	1.357	-114.6	3.04	150
1.015	3	4.8	5.48	1.327	-118.1	2.35	150
1.175	6	4.71	5.37	1.289	-120.8	2.2	150
1.365	9	4.62	5.52	1.269	-121.6	2.09	150
1.545	12	4.55	5.66	1.261	-122.3	2.01	150
1.745	15	4.5	5.8	1.257	-122.7	1.93	150
N/M	18	N/M	N/M	N/M	N/M	N/M	150
2.105	21	4.43	5.95	1.172	-123.4	2.24	150
2.315	24	4.37	5.78	0.956	-124	4.04	150
2.475	27	4.3	5.63	0.798	-121.8	5.05	150
2.615	30	4.19	5.53	0.692	-118.6	5.42	150

Notes: Sampling and Analysis for PHCs, BTEX F1-F4

1- Unreliable ORP readings

MW-2	Water Level - 0.8		Depth - 5.63	Sample at 2.77			
Water Level (mbgs)	Time	pH	Temperature (°C)	Conductivity (mS/cm)	ORP[1] (mV)	DO (mg/L)	Flow (ml/min)
0.96	0	4.89	4.6	5.967	-183.7	32.17	150
1.27	3	4.79	4.87	6.023	-175.6	26.93	150
1.44	6	4.73	5.41	6.112	-165.6	21.55	150
1.62	9	4.71	5.6	6.165	-156.5	12.2	150
1.72	12	4.7	5.57	6.172	-152.5	9.46	150
1.85	15	4.69	5.62	6.181	-148.1	9.92	150
2.02	18	4.69	5.65	6.789	-148.4	9.23	150
2.09	21	4.69	5.63	6.789	-143.2	6.31	150
N/M	40	4.68	6.27	6.277	-127	4.43	150

Notes: Sampling and Analysis for various Inorganics, Metals, VOCs (Duplicate samples taken)

1- Unreliable ORP readings

MW-3	Water Level - 1.135		Depth - 5.56	Sample at 2.565			
Water Level (mbgs)	Time	pH	Temperature (°C)	Conductivity (mS/cm)	ORP[1] (mV)	DO (mg/L)	Flow (ml/min)
1.425	0	4.69	6.01	2.185	-108.1	6.74	150
1.505	3	4.67	6.02	2.2	-109	6.25	150
1.655	6	4.62	6.36	2.223	-109.2	5.96	150
1.785	9	4.58	6.34	2.225	-109.7	5.88	150
1.925	12	4.56	6.4	2.226	-109.2	5.77	150
2.055	15	4.54	6.31	2.222	-109.3	5.76	150
2.215	18	4.52	6.19	2.217	-108.9	5.72	150
2.345	21	4.5	6.2	2.221	-108.8	5.59	150
2.395	24	4.5	6.32	2.224	-108.7	5.55	150
2.505	27	4.5	6.32	2.223	-108.6	5.55	150

Notes: Sampling and Analysis for BTEX F-1, PHCs

1- Unreliable ORP readings

MW-4	Water Level - 0.36		Depth - 5.51	Sample at 1.1			
Water Level (mbgs)	Time	pH	Temperature (°C)	Conductivity (mS/cm)	ORP[1] (mV)	DO (mg/L)	Flow (ml/min)
0.62	0	4.29	4.7	0.572	-69.9	7.53	150
0.71	3	4.34	4.66	0.574	-99.9	6.91	150
0.8	6	4.32	4.57	0.575	-100.9	6.42	150
0.93	9	4.27	4.33	0.573	-101.6	6.76	150
1.09	12	4.25	4.46	0.576	-101.6	6.53	150
1.26	15	4.22	4.62	0.578	-100.8	6.55	150
1.44	18	4.19	4.65	0.58	-100.6	7.05	150
1.55	21	4.17	4.75	0.582	-100.3	7.32	150
1.66	24	4.16	4.8	0.583	-100.2	7.23	150

Notes: Sampling and Analysis for PAHS, cVOCs

1- Unreliable ORP readings

Table 5C

GW Conditions at Sampling

Phase Two Environmental Site Assessment **Project: 2020-001-02**

2248 Centre Street - Thorolod, ON

Client

Lorimir Holdings Ltd.

Monitoring Well	Purging Duration *(mins)*	Flowtate *(ml/min)*	Water Level *(mbgs)*	pH	Temperature *(Deg. C)*	Conductivity *(mS/cm)*	ORP *(mV)*	DO *(mg/L)*
MW1s	30	150	2.615	4.19	5.53	0.692	-118.6	5.42
MW1d	15	110	2.9	4.91	7.5	2.7	-118.6	4.57
MW2	24	150	2.14	4.68	6.27	6.277	-127	4.43
MW3	27	150	2.505	4.5	6.32	2.223	-108.7	5.55
MW4	24	150	1.66	4.16	4.8	0.583	-100.2	7.23

Notes:

1 - Conditions measured with YSI 556

2 - Unreliabble results for pH and ORP

SPICE ENVIRONMENTAL INC. ***February 2020***

TABLE 6

Static Groundwater Elevations

Phase Two Environmental Site Assessment

2248 Centre Street - Thorold, ON

Project: 2020-001-02

Client

Lorimir Holdings Ltd.

Monitoring Well[1]	October 25/19	October 30/19	February 05/20	February 16/20	Average	
	Depth to Water[2] *(mbgs)*	Depth to Water *(mbgs)*	Depth to Water *(mbgs)*	Depth to Water *(mbgs)*	Depth to Water *(mbgs)*	Rank
MW1s	1.125	0.775	0.215	0.605	0.68	1
MW1d	2.36	1.91	1.84	1.84	1.99	5
MW2	1.28	0.94	0.66	0.8	0.92	2
MW3	1.345	1.195	1.03	1.135	1.18	4
MW4	2.13	1.25	0.3	0.36	1.01	3

Notes:

1 - Wells installed by Profile Drilling on October 21 and 22, 2019

2 - Depth to water measured with Solinst Interface Probe

SPICE ENVIRONMENTAL INC. ***February 2020***

TABLE 7

Soil Sample Selection for Analyses

Project# 2020-001-02

Phase Two Environmental Site Assessment

2248 Centre Street - Thorold, ON

Client

Lorimir Holdings Ltd.

Sample	*Depth Interval (mbgs)*		*BNAs*	*Grain Size*	*Metals + Inorganics*	*OCPs*	*PAHs*	*PHCs F2 to F4*	*VOCs*	
BH1-S1	0.0 - 0.25				X					
BH1-S2	0.25 - 0.50			X						
BH2-S2	0.3 - 0.96							X		
BH3-S3	0.53 - 1.53							X		
BH4-S2	0.48 - 0.86				X					
BH4-S3	1.22 - 1.52								X	
BH5-S1	0 - 0.15								X	
BH5-S2	0.41 - 0.61		X							
BH6-S2	0.15 - 0.41					X				
BH6-S6	1.98 - 2.29						X			
BH7-S3	1.22 - 1.52						X	X		
BH8-S2	0.41 - 0.61						X			
MW1-S1	0 - 0.2				X					
MW2-S1	0.23 - 0.63							X		
MW2-S4	1.82 - 2.13			X						
MW3-S1	0.61 - 0.91		X					X		
MW4-S1	0.30 - 0.61				X					
MW4-S3	1.22 - 1.52						X			
QA/QC Samples										
BH22 [2]	0.3 - 0.96							X		
MW44 [2]	1.22 - 1.52						X			
										Total
	TOTALS >		**2**	**2**	**4**	**1**	**5**	**6**	**2**	**22**

Notes

1 - Samples submitted under MOECP chain-of-custody Protocol to AGAT Laboratories (Mississauga, ON)

2 - Duplicate Samples: BH2-S2/BH22, MW4-S3/MW44

TABLE 8

Summary of Detections[1]

Project: 2020-001-02

Soil Quality Results

Phase Two Environmental Site Assessment

Client

2248 Centre Street, Thorold, ON

Lorimir Holdings Ltd.

Parameter		Standard[2] *(ug/g)*	*Sample (ug/g)*
Base, Neutral Acid Extractable (BNAs)			**BH5-S2**
Benzo(a)anthracene		*0.63*	0.11
Benzo(b)anthracene		*0.78*	0.06
Chrysene		*7.8*	0.1
Fluoranthene		*0.68*	0.16
Phenathrene		*7.8*	0.07
Pyrene		*78*	0.14
Petroleum Hydrocarbon Compounds (PHCs)			**MW3-S1**
PHC-F3		*1300*	240
PHC-F4		*5600*	62
Polycyclic Aromatic Hydrocarbons (PAHs)			**BH8-S2**
Benzo(a)anthracene		*0.63*	0.06
Fluoranthene		*0.68*	0.08
Phenathrene		*7.8*	0.06

Notes

1 - Summary of soil concentrations reported above RDL

2 - Table 3 , Feull Depth Generic, Residential, Med/Fine textured soils, non-potable GW

SPICE ENVIRONMENTAL INC. **February 2020**

TABLE 8A

Soil Quality - Metals + Inorganics[1] **Project: 2020-001-02**

Phase Two Environmental Site Assessment

2248 Centre Street, Thorold, ON ***Client***

Lorimir Holdings Ltd.

Parameter	Unit	***RDL***	***Applicable Standard [1]***	**BH1-S1** *650691*	**BH4-S2** *650701*	**MW1-S1** *650711*	**MW4-S1** *650714*
Antimony	*ug/g*	*0.8*	***7.5***	<0.80	<0.80	<0.80	<0.80
Arsenic	*ug/g*	1	***18***	7	6	7	6
Barium	*ug/g*	2	***390***	85	89	42	144
Beryllium	*ug/g*	0.5	***4***	<0.5	<0.5	<0.5	0.9
Boron	*ug/g*	5	***120***	6	<5	10	7
Boron (Hot Water Soluble)	*ug/g*	0.1	***1.5***	0.31	0.16	0.49	0.28
Cadmium	*ug/g*	0.5	***1.2***	0.6	<0.5	0.7	<0.5
Chromium	*ug/g*	2	***160***	15	11	11	32
Cobalt	*ug/g*	0.5	***22***	6.1	7.9	3.6	15.9
Copper	*ug/g*	1	***140***	21	50	14	30
Lead	*ug/g*	1	***120***	48	9	72	12
Molybdenum	*ug/g*	0.5	***6.9***	6.2	<0.5	0.8	<0.50
Nickel	*ug/g*	1	***100***	12	14	8	36
Selenium	*ug/g*	0.4	***2.4***	0.4	<0.4	0.6	0.5
Silver	*ug/g*	0.2	***20***	0.2	<0.20	0.2	<0.20
Thallium	*ug/g*	0.4	***1***	<0.40	<0.40	<0.40	<0.40
Uranium	*ug/g*	0.5	***23***	<0.5	0.5	<0.5	0.8
Vanadium	*ug/g*	1	***86***	16	18	10	41
Zinc	*ug/g*	5	***340***	143	55	108	74
Chromium VI	*ug/g*	0.2	***8***	<0.2	<0.2	<0.2	<0.2
Cyanide	*ug/g*	0.04	***0.051***	<0.040	<0.040	<0.040	<0.040
Mercury	*ug/g*	0.1	***0.27***	<0.10	<0.10	<0.10	0.11
Electrical Conductivity	*mS/cm*	*0.005*	***0.7***	0.221	0.167	0.25	0.208
Sodium Adsorption Ratio	*NA*	*NA*	***5***	0.225	0.406	0.295	0.37
pH	*pH Units*	*NA*		7.73	7.81	7.51	7.63

Notes

1 - All soil samples analyzed by AGAT Laboratories per Regulation 153/04, as amended, in accordance with EPA Method SW-846 3050B & 6020A

2 - Table 3 - Full Depth Generic, Non-potable Groundwater, Residential/Parkland/Instituional Use, Med/Fine textured soils, MOE July 2011

TABLE 9

Groundwater Sample Selection for Analyses[1,2]

Project# 2020-001-02

Phase Two Environmental Site Assessment

2248 Centre Street, Thorold, ON

Client

Lorimir Holdings Ltd.

Sample	*Sampling Date*		*Metals + Inorganics*[3]	*PAHs*	*PHCs F2 to F4*	*VOCs*	*Totals*
MW1s	**16-Feb-19**				**X**	**X**	**2**
MW1d	**16-Feb-19**				**X**	**X**	**2**
MW2	**16-Feb-19**		**X**			**X**	**2**
MW3	**16-Feb-19**				**X**	**X**	**2**
MW4	**16-Feb-19**		**X**	**X**			**2**
QA/QC Samples							
MW22[4]	**16-Feb-19**		**x**				**1**
	Totals >		**3**	**1**	**3**	**4**	**11**

Notes

1 - Samples collected using CCME Low-Flow Method

2 - Samples submitted under MOECP chain-of-custody Protocol to AGAT Laboratories (Mississauga, ON)

3 - Regulation 153 Metals+Inorganics (Water) - Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Chromium VI, Cobalt, Copper, Cyanide (Free), Electrical Conductivity, Lead, Mercury (Dissolved), Molybdenum, Nickel, pH, Selenium, Silver, Sodium, Thallium, Uranium, Vanadium, Zinc

4 - Duplicate Samples; MWs/MW22

SPICE ENVIRONMENTAL INC. ***February 2020***

TABLE 10

Summary of Detections[1]

Project: 2020-001-02

Soil Quality Results

Phase Two Environmental Site Assessment

Client

2248 Centre Street, Thorold, ON

Lorimir Holdings Ltd.

Parameter		Standard[2] *(ug/g)*	MW2 *(ug/L)*	*MW3* *(ug/L)*
Volatile Organic Compounds (VOCs)				
Toluene		*18,000*	0.84	0.44
Trichloromethane		*2500*	<	0.73

Notes

1 - Summary of soil concentrations reported above RDL, excluding Metals+Inorganics

2 - Table 3 , Full Depth Generic, Residential Med/Fine textured soils, non-potable GW

SPICE ENVIRONMENTAL INC. **February 2020**

TABLE 10A

Groundwater Quality - Metals + Inorganics[1] **Project: 2020-001-02**

Phase Two Environmental Site Assessment

2248 Centre Street, Thorold, ON

Client

Lorimir Holdings Ltd.

Parameter	Unit	***RDL***	***Applicable Standard[2]***		*Sample*	**MW2**	***MW22[3]***	**MW4**
					AGAT#	*947798*	*947799*	*947802*
					Date	*16-Feb-10*	*16-Feb-20*	*16-Feb-20*
Antimony	*ug/L*	*1.0*	**20,000**			<1.0	*<1.0*	<1.0
Arsenic	*ug/L*	*1.0*	**1900**			4.3	*3.3*	<1.0
Barium	*ug/L*	*2.0*	**29,000**			38.4	*38.6*	41.2
Beryllium	*ug/L*	*0.5*	**67**			<0.5	*<0.5*	<0.5
Boron	*ug/L*	*10.0*	**45,000**			284	*280*	153
Cadmium	*ug/L*	*0.2*	**2.7**			0.3	*<0.2*	<0.5
Chromium	*ug/L*	*2.0*	**810**			<0.2	*<0.2*	<0.2
Cobalt	*ug/L*	*0.5*	**66**			0.6	*0.5*	<0.5
Copper	*ug/L*	*1.0*	**87**			4.5	*2.1*	1.5
Lead	*ug/L*	*0.5*	**25**			<0.50	*0.5*	<0.50
Molybdenum	*ug/L*	*0.5*	**9200**			2.4	*2.7*	0.9
Nickel	*ug/L*	*1.0*	**490**			7.6	*7.8*	1.3
Selenium	*ug/L*	*1.0*	**63**			2.5	*2*	<1.0
Silver	*ug/L*	*0.2*	**1.5**			0.2	*<0.2*	<0.2
Thallium	*ug/L*	*0.3*	**510**			<0.30	*<0.30*	<0.30
Uranium	*ug/L*	*0.5*	**420**			12.7	*12.5*	4.6
Vanadium	*ug/L*	*0.4*	**250**			<0.4	*<0.4*	<0.4
Zinc	*ug/L*	*5.0*	**1100**			6.1	*<5.0*	<0.5
Mercury	*ug/L*	*0.02*	**0.29**			<0.02	*<0.02*	<0.02
Chromium VI	*ug/L*	*5*	**140**			<5	*<5*	<5
Cyanide	*ug/L*	*2*	**66**			<2	*<2*	<2
Sodium	*ug/L*	*25,000*	**2,300,000**			981,000	*958,000*	43,400
Chloride	*ug/L*	*25,000*	**2,300,000**			**3,450,000**	***3,150,000***	35,500
Electrical Conductivity	*uS/cm*	*2*				11,000	*11,000*	1,090
pH	*pH Units*	*NA*				7.59	*7.62*	7.89

Notes

1 - All samples analyzed by AGAT Laboratories per Ontario Regulation 153/04, as amended, in accordance with EPA Method SW-846 6020A & 200.8, except EC and pH

2 - Table 3 - Non-potable Groundwater condition, All types of property use, Coarse textured soils, MOE April 2011

3 - Duplicate Samples; MW2/MW22

Bold, Shaded - Reported concentration exceeds applicable Site Condition Standard

SPICE ENVIRONMENTAL INC. **February 2020**

TABLE 11

Relative Percent Difference (RPD) **Project: 2020-001-02**

Soil Quality Results

Phase Two Environmental Site Assessment ***Client***

2248 Centre Street, Thorold, ON ***Lorimir Holdings Ltd.***

BTEX/PHCs

Parameter		**BH2-S2** *(ug/g)*	***BH22-S2*** [1] *(ug/g)*		**RPD** [2] *(%)*
Moisture Content		16.2	*15.8*		2.5
				Average >	**2.50**

PAHs

Parameter		**MW4-S3** *(ug/L)*	***MW44-S3*** [1] *(ug/L)*		**RPD** [2] *(%)*
Moisture Content		15.8	*16.9*		*6.73%*
				Average >	**6.73**

Notes

1 - Duplicate samples

2 - RPF calculation does not include constituents reported as <RDL

SPICE ENVIRONMENTAL INC. **February 2020**

TABLE 12

Relative Percent Difference (RPD) **Project: 2020-001-02**

Groundwater Quality Results

Phase Two Environmental Site Assessment ***Client***

2248 Centre Street, Thorold, ON ***Lorimir Holdings Ltd.***

Metals + Inorganics

Parameter		MW2 (ug/L)	*MW22* [1] (ug/L)		RPD [2] (%)
Arsenic		4.3	*3.3*		3.21
Barium		38.4	*38.6*		0.84
Boron		284	*280.0*		10.53
Cadmium [3]		3	*0.2*		10.53
Cobalt		0.6	*0.5*		8.00
Copper		4.5	*2.1*		7.14
Molybdenum		2.4	*2.7*		7.14
Nickel		7.6	*7.8*		7.14
Selenium		2.5	*2*		7.14
Uranium		12.7	*12.5*		1.59
Zinc [3]		6.1	*5*		13.53
Sodium		981,000	*958,000*		2.15
Chloride		3,450,000	*3,150,000*		2.19
pH		7.59	*7.62*		0.13
				Average >	**5.80**

Notes

1 - Duplicate samples

2 - RPF calculation does not include constituents reported as <RDL

3 - Concentration for MW22 assigned the detection limit

SPICE ENVIRONMENTAL INC. **February 2020**

Attachment 3 – Borehole Logs
Phase Two Environmental Assessment
2248 Centre Street - Thorold, Ontario

BOREHOLE LOG **MW1d**

Project:
Phase Two Environmental Site Assessment
2248 Centre Street - Thorolod, ON

Location
1m west of downgradient bollard
Former Diesel AST and Dispenser

Project: 2020-001-02

Client
Lorimir Holdings Ltd.
123 Springfield Blvd.
Ancaster, ON

Date: October 21, 2019

Driller
Profile Drilling Inc. *(North York, ON)*
Drill Rig: VTR-9700 Power Probe
5" diam. Solid Stem Augurs

Logged by: Ian Spice, P. Eng., QP

Depth (m)	*Sample No.*	*Description*	*Recovery*	*Sample Collected*	*Headspace TOV (ppm/v)*	*Env. Impact*	*MW Completion*
0 -	S1	**Sand + Gravel** - Grey/biege Sand+Gravel, compact, moist, some Clay	0.89m			*Monument casing -->* *(stick-up - 0.930m)*	
-		**Clayey Silt** - Brown clayey Silt, black asphalt fragments, rootlest - Trace PHC odour				***Trace PHC Odour***	
1 -		**SILT** - Dark brown silt w/red oxidation, rootlest, no odour				*Hole Plug -->*	
		- Black Sand, loose, damp					
	S2	**CLAY**	1.22m			***No Impact***	
-		- Biege Clay with grey silt seams, dense, low plasticity - Occasional cobble, becoming denser with depth		*Sample 6*			
2 -							
-	S3	**CLAY**	0.91m			***No Impact***	
		- Brown Clay and silt, increasing silt content with depth - Reddish brown oxidation		*Sample 7*		*Hole Plug -->*	
3 -							
		- Increased oxidation					
	S4	**Silty CLAY**	0.61m			***No Impact***	
-		- Medium brown silty Clay, damp, very plastic - Orange/brown oxidation, becoming wetter, more plastic		*Sample 8*		*W/L - 3.87mbgs -->*	V
4 -	S5	**SILT**	0.91m				
		- Grey Silt with red oxidation throughout core					
-		- Soft and wet		*Sample 9*		*50mm diam.* *Sched. 40 PVC -->*	
	S6	**SILT**	0.76m			***No Impact***	
5 -		- Grey Silt, very soft and wet					
		- Becoming softer and wetter with depth		*Sample 10*			
-	S7	**SILT**	0.76m			***No Impact***	
		'- Grey, soft wet Silt, some reddish brown oxidation				*Hole Plug -->*	
6 -							
	S8	**SILT**	0.76m	*Sample 11*		***No Impact***	
-		'- Grey Silt, very soft and wet, increasing clay content					
7 -		- Becoming more plastic and cohesive at 7.0mbgs		*Sample 12*			
-							
		-- Sampling discontinued @ 7.61mbgs --				*W/L - 7.629mbgs -->*	V
8 -						*Sand -->*	
						0.010 Slotted Screen -->	
-		*-- BH Terminated @ 8.38mbgs --*					
9 -							
		MW Completion Details Screen 8.38mbgs to 7.61mbgs Sand Pack - 8.38mbgs to 7.31mbgs Bentonite Seal - 7.31mbgs to surface Riser - 7.615mbgs to 0.93m mags (0.930m Stick-up) *(MOE Well Tag# A273552)*					

Notes
1 - Split sample. Headspace measured per MOECP Protocol using ppbRAE

BOREHOLE LOG **MW1s**

Project:
Phase Two Environmental Site Assessment
2248 Centre Street - Thorolod, ON

Location
1m west of downgradient bollard
Former Diesel AST and Dispenser

Project: 2020-001-02

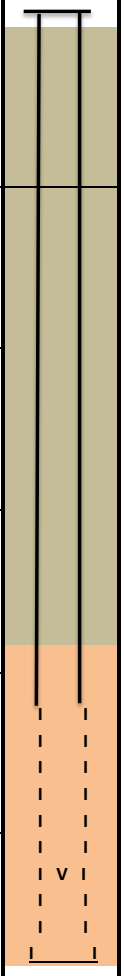
Client
Lorimir Holdings Ltd.
123 Springfield Blvd.
Ancaster, ON

Date: October 21, 2019

Driller
Profile Drilling Inc. *(North York, ON)*
Drill Rig: VTR-9700 Power Probe
5" diam. Solid Stem Augurs

Logged by: Ian Spice, P. Eng., QP

Depth (m)	*Sample No.*	*Description*	*Recovery*	*Sample Collected*	*Headspace TOV (ppm/v)*	*Env. Impact*	*MW Completion*
0 -	S1	**Sand + Gravel** - Grey/biege Sand+Gravel, compact, moist, some Clay	0.89m			*Monument casing -->* *(stick-up - 0.885m)*	
-		**Clayey Silt** - Brown clayey Silt, black asphalt fragments, rootlest - Trace PHC odour				***Trace PHC Odour***	
1 -		**SILT** - Dark brown silt w/red oxidation, rootlest, no odour				*Hole Plug -->*	
		- Black Sand, loose, damp					
	S2	**CLAY**	1.22m			***No Impact***	
-		- Biege Clay with grey silt seams, dense, low plasticity - Occasional cobble, becoming denser with depth				*50mm diam.* *Sched. 40 PVC -->*	
2 -							
-	S3	**CLAY** - Brown Clay and silt, increasing silt content with depth	0.91m			***No Impact***	
3 -		- Reddish brown oxidation				*Hole Plug -->*	
		- Increased oxidation					
	S4	**Silty CLAY**	0.61m			***No Impact***	
-		- Medium brown silty Clay, damp, very plastic - Orange/brown oxidation, becoming wetter, more plastic					
4 -	S5	**SILT**	0.91m				
		- Grey Silt with red oxidation throughout core					
-		- Soft and wet				*50mm diam.* *Sched. 40 PVC -->*	
5 -						*0.010 Slotted Screen -->*	
-						*W/L - 5.20mbgs -->*	
						Sand -->	
6 -		*-- BH Terminated @ 5.73mbgs --*					
		MW Completion Details Screen 5.73mbgs to 4.21mbgs Sand Pack - 5.73mbgs to 3.91mbgs Bentonite Seal - 3.91mbgs to surface Riser - 4.21mbgs to 0.885mags (Stick-up) *(MOE Well Tag# A273552)*					



Notes
1 - Split sample. Headspace measured per MOECP Protocol using ppbRAE

BOREHOLE LOG **MW2**

Project:
Phase Two Environmental Site Assessment
2248 Centre Street - Thorolod, ON

Location
West of Former Biosolids Tank

Project: 2020-001-02

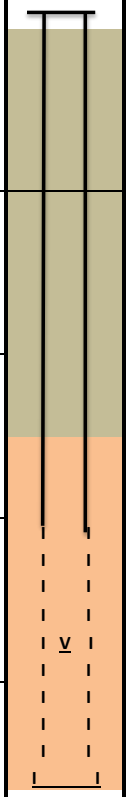
Client
Lorimir Holdings Ltd.
123 Springfield Blvd.
Ancaster, ON

Date: October 22, 2019

Driller
Profile Drilling Inc. *(North York, ON)*
Drill Rig: VTR-9700 Power Probe
5" diam. Solid Stem Augurs

Logged by: Ian Spice, P. Eng., QP

Depth (m)	*Sample No.*	*Description*	*Recovery*	*Sample Collected*	*Headspace TOV (ppm/v)*	*Env. Impact*	*MW Completion*
0 -	S1	**Limestone Screenings** - Grey/white Limestone Screenings, damp, compact **SAND**	0.63m			*Monument casing -->* *(Stick-up - 0.880m)*	
-		- Reddish brown, medium to coarse Sand - Trace PHC odour					
1 -						*Hole Plug -->*	
	S2	**Silty CLAY**	1.12m			***Organic Odour***	
-		- Dark grey silty clay, with black staining - Compact, damp, trace organic odour **CLAY**				*50mm diam.* *Sched. 40 PVC --->*	
2 -		- Very dense, grey/biege Clay, becoming more biege					
		- Wet below 2.13m				*Hole Plug -->*	
-	S3	**CLAY**	1.22m			***No Impact***	
3 -		- Biege compact clay with grey silt lenses - Medium dense, moist to wet, increasing silt content				*Sand Pack -->*	
-						*50mm diam.* *Sched. 40 PVC --->*	
	S4	**SILT**	1.22m			***No Impact***	
4 -		- Biege and grey Silt, compact, medium dense - Wet				*W/L @ 3.689 --->*	
-						*0.010 Slotted Screen -->*	
						Sand Pack -->	
5 -		*-- BH Terminated @ 4.88mbgs --*					
		MW Completion Details Screen 4.57mbgs to 3.02mbgs Sand Pack - 4.57mbgs to 2.45mbgs Bentonite Seal - 2.45mbgs to surface Riser - 3.02mbgs to 0.880mags (Stick-up) *(MOE Well Tag# A273552)*					



Notes
1 - Split sample. Headspace measured per MOECP Protocol using ppbRAE

Spice Environmental Inc.

BOREHOLE LOG **MW3**

Project:
Phase Two Environmental Site Assessment

2248 Centre Street - Thorolod, ON

Location
East of Former Building
Area of Former FO AST

Project: 2020-001-02

Client
Lorimir Holdings Ltd.
123 Springfield Blvd.
Ancaster, ON

Date: October 22, 2019

Driller
Profile Drilling Inc. *(North York, ON)*
Drill Rig: VTR-9700 Power Probe
5" diam. Solid Stem Augurs

Logged by: Ian Spice, P. Eng., QP

Depth (m)	*Sample No.*	*Description*	*Recovery*	*Sample Collected*	*Headspace TOV (ppm/v)*	*Env. Impact*	*MW Completion*
0 -	S1	**TOPSOIL** - Dark brown organic Topsoil, vegetation, rootlets **CLAY** - Brown, moist, dense Clay, some rootlets trace gravel **FILL** - Silt, clay, sand+gravel Fill, with red brick fragments/cinders **Silty Clay/Clayey Silt** - Interbedded seams of biege Clay and grey Silt, dense	0.69m			*Monument casing -->* *(stick-up - 0.885m)* ***Debris/Cinders*** *Hole Plug --->*	
1 -							
2 -	S2	**Clayey Silt** - Grey silty with some clay, brown oxidation, dry to moist **Silty Clay** - Soft, wet grey silty Clay	1.22m			***No Impact*** *50mm diam.* *Sched. 40 PVC -->*	
3 -	S3	**CLAY** - Dense biege/grey clay, with brown oxidation thoroughout **SILT** - Brown, med dense Silt, reddish brown oxidation	1.22m			*Hole Plug -->* ***No Impact*** *Sand Pack -->*	
4 -	S4	**SILT** - Brown, med. Dense Silt, wet, reddish brown oxidation	1.22m			*50mm diam.* *Sched. 40 PVC -->* ***No Impact*** *0.010 Slotted Screen -->*	
5 -		**SILT** - Grey Silt with biege oxidation, compact, damp *-- BH Terminated @ 4.88mbgs --*				*W/L @ 4.154mbgs -->* *Sand Pack -->*	V
		MW Completion Details Screen 4.57mbgs to 3.02mbgs Sand Pack - 4.57mbgs to 2.45mbgs Bentonite Seal - 2.45mbgs to surface Riser - 3.02mbgs to 0.885mags (Stick-up) *(MOE Well Tag# A273552)*					

Notes
1 - Split sample. Headspace measured per MOECP Protocol using ppbRAE

BOREHOLE LOG **MW4**

Project:
Phase Two Environmental Site Assessment
2248 Centre Street - Thorolod, ON

Location
Adjacent to East Boundary
Downgradient of Offsite CP Rail Line

Project: 2020-001-02

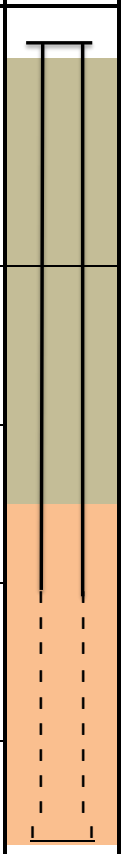
Client
Lorimir Holdings Ltd.
123 Springfield Blvd.
Ancaster, ON

Date: October 22, 2019

Driller
Profile Drilling Inc. *(North York, ON)*
Drill Rig: VTR-9700 Power Probe
5" diam. Solid Stem Augurs

Logged by: Ian Spice, P. Eng., QP

Depth (m)	*Sample No.*	*Description*	*Recovery*	*Sample Collected*	*Headspace TOV (ppm/v)*	*Env. Impact*	*MW Completion*
0 -	S1	**TOPSOIL** - Black/dark brown organic Topsoil, vegettation, rootlets **CLAY** - Brown, moist, dense Clay, some rootlets **CLAY** - Biege dense, cohesive Clay, some sand and cobbles **Silt** - Biege, soft Silt with white flecks/oxidation	0.86m			*Monument casing -->* *(stick-up - 0.90m)* ***Debris/Cinders*** *Hole Plug --->*	
2 -	S2	**SILT** - Biege, soft, wet Silt	1.22m			***No Impact*** *50mm diam.* *Sched. 40 PVC -->*	
3 -	S3	**Silty CLAY** - Grey silty Clay with reddisg brown oxidation **Silty CLAY** - Biege, silty Clay, wet, soft, very cohesive and plastic - Evidence of reddish brown oxidation throughout	1.22m			*Hole Plug -->* ***No Impact*** *Sand Pack -->*	
4 -	S4	**Silty Clay** - Biege silty Clay, med dense, moist very cohesive	1.22m			*50mm diam.* *Sched. 40 PVC -->* ***No Impact*** *0.010 Slotted Screen -->*	
5 -		**CLAY** - Grey Clay, dense, moist, very plastic and cohesive - Reddish brown oxidation throughout *-- BH Terminated @ 4.88mbgs --*				*Sand Pack -->* *Dry on completion*	
		MW Completion Details Screen 4.57mbgs to 3.02mbgs Sand Pack - 4.57mbgs to 2.45mbgs Bentonite Seal - 2.45mbgs to surface Riser - 3.02mbgs to 0.885mags (0.90m Stick-up) *(MOE Well Tag# A273552)*					



Notes
1 - Split sample. Headspace measured per MOECP Protocol using ppbRAE

Spice Environmental Inc.

<u>Attachment 4</u> – Certificates of Analyses (SOIL)
Phase Two Environmental Assessment
2248 Centre Street - Thorold, Ontario

<u>AGAT Work Order</u>	*<u>Sampling Location</u>*
19H535392	*ABNs, BTEX/PHCs, Grain Size, BTEX/PHCs, Metals + Inorganics, OCPs, PAHs, VOCs*

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: SPICE ENVIRONMENTAL
673 INVERARY ROAD
BURLINGTON, ON L7L2L8
(905) 510-5217

ATTENTION TO: IAN SPICE

PROJECT: #2020-001

AGAT WORK ORDER: 19H535392

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Supervisor

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Nov 04, 2019

PAGES (INCLUDING COVER): 25

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

AGAT Laboratories

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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2019-10-25

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		BH1-S1	BH4-S2	MW1-S1	MW4-S1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-10-22	2019-10-22	2019-10-22	2019-10-22
Parameter	Unit	G / S	RDL	650691	650701	650711	650714
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	7	6	7	6
Barium	µg/g	390	2	65	89	42	144
Beryllium	µg/g	5	0.5	<0.5	<0.5	<0.5	0.9
Boron	µg/g	120	5	6	<5	10	7
Boron (Hot Water Soluble)	µg/g	1.5	0.10	0.31	0.16	0.49	0.28
Cadmium	µg/g	1.2	0.5	0.6	<0.5	0.7	<0.5
Chromium	µg/g	160	2	15	11	11	32
Cobalt	µg/g	22	0.5	6.1	7.9	3.6	15.9
Copper	µg/g	180	1	21	50	14	30
Lead	µg/g	120	1	48	9	72	12
Molybdenum	µg/g	6.9	0.5	6.2	<0.5	0.8	<0.5
Nickel	µg/g	130	1	12	14	8	36
Selenium	µg/g	2.4	0.4	0.4	<0.4	0.6	0.5
Silver	µg/g	25	0.2	0.2	<0.2	0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	<0.5	0.5	<0.5	0.8
Vanadium	µg/g	86	1	16	18	10	41
Zinc	µg/g	340	5	143	55	108	74
Chromium VI	µg/g	10	0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	1.8	0.10	<0.10	<0.10	<0.10	0.11
Electrical Conductivity	mS/cm	0.7	0.005	0.221	0.167	0.250	0.208
Sodium Adsorption Ratio	NA	5	NA	0.225	0.406	0.295	0.370
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.73	7.81	7.51	7.63

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2019-10-25 **DATE REPORTED: 2019-11-04**

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

650691-650714 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: Amanjot Bhela

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Certificate of Analysis

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

Particle Size by Sieve (Wet)

DATE RECEIVED: 2019-10-25

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		BH1-S2	MW2-S4
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-10-22	2019-10-22
Parameter	Unit	G / S	RDL	650736	650738
Sieve Analysis - 75 µm (retained)	%		NA	0.70	2.80
Sieve Analysis - 75 µm (passing)	%		NA	99.30	97.20
Soil Texture (Toronto)				Fine	Fine

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

650736-650738 Value reported is the amount of sample passing through or retained on sieve after wash with water and represents proportion by weight particles smaller or larger than indicated sieve size.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

O. Reg. 153(511) - BNA (full) + PAHs (Soil)

DATE RECEIVED: 2019-10-25

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		BH5-S2	MW3-S1
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-10-22	2019-10-22
Parameter	Unit	G / S	RDL	650704	650713
Naphthalene	µg/g	0.75	0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.17	0.05	<0.05	<0.05
Acenaphthene	µg/g	58	0.05	<0.05	<0.05
Fluorene	µg/g	69	0.05	<0.05	<0.05
Phenanthrene	µg/g	7.8	0.05	0.07	<0.05
Anthracene	µg/g	0.74	0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	0.16	<0.05
Pyrene	µg/g	78	0.05	0.14	<0.05
Benz(a)anthracene	µg/g	0.63	0.05	0.11	<0.05
Chrysene	µg/g	7.8	0.05	0.10	<0.05
Benzo(b)fluoranthene	µg/g	0.78	0.05	0.06	<0.05
Benzo(k)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.48	0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	7.8	0.05	<0.05	<0.05
Phenol	µg/g	9.4	0.5	<0.5	<0.5
Bis(2-chloroethyl)ether	µg/g	0.5	0.1	<0.1	<0.1
2-Chlorophenol	µg/g	2	0.1	<0.1	<0.1
o-Cresol	µg/g		0.1	<0.1	<0.1
Bis(2-chloroisopropyl)ether	µg/g	1.8	0.1	<0.1	<0.1
m & p - Cresol	µg/g		0.1	<0.1	<0.1
2,4-Dimethylphenol	µg/g	420	0.2	<0.2	<0.2
2,4-Dichlorophenol	µg/g	2.1	0.1	<0.1	<0.1
1,2,4-Trichlorobenzene	µg/g	1.4	0.05	<0.05	<0.05
p-Chloroaniline	µg/g	0.53	0.5	<0.5	<0.5
2-and 1-methyl Naphthalene	µg/g	3.4	0.05	<0.05	<0.05
2,4,6-Trichlorophenol	µg/g	4.2	0.1	<0.1	<0.1
2,4,5-Trichlorophenol	µg/g	5.5	0.1	<0.1	<0.1
1,1-Biphenyl	µg/g	1.1	0.05	<0.05	<0.05

Certified By: N Popowkolof

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Certificate of Analysis

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

O. Reg. 153(511) - BNA (full) + PAHs (Soil)

DATE RECEIVED: 2019-10-25

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		BH5-S2	MW3-S1
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-10-22	2019-10-22
Parameter	**Unit**	**G / S**	**RDL**	**650704**	**650713**
Dimethyl Phthalate	µg/g	0.5	0.1	<0.1	<0.1
2,4 and 2,6-Dinitrotoluene	µg/g	0.92	0.5	<0.5	<0.5
Diethyl Phthalate	µg/g	0.5	0.1	<0.1	<0.1
Pentachlorophenol	µg/g	0.1	0.1	<0.1	<0.1
3,3'-Dichlorobenzidine	µg/g		0.5	<0.5	<0.5
Bis(2-Ethylhexyl)phthalate	µg/g	5	0.2	<0.2	<0.2
2,4-Dinitrophenol	µg/g	38	2.0	<2.0	<2.0
Moisture Content	%		0.1	16.3	30.8
Surrogate	**Unit**	**Acceptable Limits**			
2,4,6-Tribromophenol	%	50-140		75	80
Chrysene-d12	%	50-140		113	103

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

650704-650713 Results are based on the dry weight of the soil.
Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popowkolof

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2019-10-25

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		BH6-S2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-10-22
Parameter	**Unit**	**G / S**	**RDL**	**650705**
Hexachloroethane	µg/g	0.07	0.01	<0.01
Gamma-Hexachlorocyclohexane	µg/g	0.063	0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007
DDE	µg/g	0.33	0.007	<0.007
DDD	µg/g	3.3	0.007	<0.007
DDT	µg/g	1.4	0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005
Hexachlorobutadiene	µg/g	0.014	0.01	<0.01
Moisture Content	%		0.1	15.1
Surrogate	**Unit**	**Acceptable Limits**		
TCMX	%	50-140		70
Decachlorobiphenyl	%	60-130		80

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

650705 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popowkolof

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Certificate of Analysis

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2019-10-25 **DATE REPORTED: 2019-11-04**

		SAMPLE DESCRIPTION:		BH6-S6	BH7-S3	BH8-S2	MW4-S3	MW44
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-10-22	2019-10-22	2019-10-22	2019-10-22	2019-10-22
Parameter	**Unit**	**G / S**	**RDL**	**650706**	**650709**	**650710**	**650715**	**650735**
Naphthalene	µg/g	0.75	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.17	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	58	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	69	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	7.8	0.05	<0.05	<0.05	0.06	<0.05	<0.05
Anthracene	µg/g	0.74	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	<0.05	<0.05	0.08	<0.05	<0.05
Pyrene	µg/g	78	0.05	<0.05	<0.05	0.06	<0.05	<0.05
Benz(a)anthracene	µg/g	0.63	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	7.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.48	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	7.8	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	3.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	25.1	15.3	19.9	15.8	16.9
Surrogate	**Unit**	**Acceptable Limits**						
Chrysene-d12	%	50-140		118	112	118	106	103

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

650706-650735 Results are based on the dry weight of the soil.
Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&j)Fluoranthene isomers because the isomers co-elute on the GC column.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopowich

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AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2019-10-25

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		BH2-S2	BH3-S3	MW2-S1	BH22
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-10-22	2019-10-22	2019-10-22	2019-10-22
Parameter	**Unit**	**G / S**	**RDL**	**650692**	**650700**	**650712**	**650717**
Benzene	µg/g	0.17	0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	6	0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	15	0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	25	0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	65	5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	65	5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	150	10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	1300	50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	5600	50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	5600	50	NA	NA	NA	NA
Moisture Content	%		0.1	15.8	18.1	16.4	16.2
Surrogate	**Unit**	**Acceptable Limits**					
Terphenyl	%	60-140		75	94	96	85

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

650692-650717 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popowkolof

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AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)

DATE RECEIVED: 2019-10-25

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		BH7-S3	MW3-S1
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-10-22	2019-10-22
Parameter	**Unit**	**G / S**	**RDL**	**650709**	**650713**
Benzene	µg/g	0.17	0.02	<0.02	<0.02
Toluene	µg/g	6	0.05	<0.05	<0.05
Ethylbenzene	µg/g	15	0.05	<0.05	<0.05
Xylene Mixture	µg/g	25	0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	65	5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	65	5	<5	<5
F2 (C10 to C16)	µg/g	150	10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10
F3 (C16 to C34)	µg/g	1300	50	<50	240
F3 (C16 to C34) minus PAHs	µg/g		50	<50	240
F4 (C34 to C50)	µg/g	5600	50	<50	62
Gravimetric Heavy Hydrocarbons	µg/g	5600	50	NA	NA
Moisture Content	%		0.1	15.3	30.8
Surrogate	**Unit**	**Acceptable Limits**			
Terphenyl	%	60-140		115	65

Certified By: N Popowkolof

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AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)

DATE RECEIVED: 2019-10-25 **DATE REPORTED: 2019-11-04**

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

650709-650713 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 – C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Analysis performed at AGAT Toronto (unless marked by *)

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AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2019-10-25

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		MW4-S3	BH5-S1
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-10-22	2019-10-22
Parameter	Unit	G / S	RDL	661266	661268
Dichlorodifluoromethane	µg/g	25	0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.022	0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	5.8	0.05	<0.05	<0.05
Acetone	ug/g	28	0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.96	0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.75	0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	1.4	0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	11	0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	44	0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	30	0.02	<0.02	<0.02
Chloroform	ug/g	0.18	0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	3.4	0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.12	0.05	<0.05	<0.05
Benzene	ug/g	0.17	0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.085	0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.52	0.03	<0.03	<0.03
Bromodichloromethane	ug/g	13	0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	4.3	0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04
Toluene	ug/g	6	0.05	<0.05	<0.05
Dibromochloromethane	ug/g	9.4	0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	2.3	0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04	<0.04
Chlorobenzene	ug/g	2.7	0.05	<0.05	<0.05
Ethylbenzene	ug/g	15	0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05

Certified By: N Popowkolof

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AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2019-10-25

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		MW4-S3	BH5-S1
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-10-22	2019-10-22
Parameter	Unit	G / S	RDL	661266	661268
Bromoform	ug/g	0.26	0.05	<0.05	<0.05
Styrene	ug/g	2.2	0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	6	0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.097	0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	4.3	0.05	<0.05	<0.05
Xylene Mixture	ug/g	25	0.05	<0.05	<0.05
1,3-Dichloropropene	µg/g	0.083	0.04	<0.04	<0.04
n-Hexane	µg/g	34	0.05	<0.05	<0.05
Moisture Content	%		0.1	16.2	11.4
Surrogate	**Unit**	**Acceptable Limits**			
Toluene-d8	% Recovery	50-140		96	93
4-Bromofluorobenzene	% Recovery	50-140		92	92

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

661266-661268 The sample was analyzed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene + o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopowich

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Quality Assurance

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

Soil Analysis

RPT Date: Nov 04, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	666778		<0.8	<0.8	NA	< 0.8	104%	70%	130%	97%	80%	120%	94%	70%	130%
Arsenic	666778		3	3	NA	< 1	102%	70%	130%	105%	80%	120%	104%	70%	130%
Barium	666778		100	101	1.0%	< 2	104%	70%	130%	102%	80%	120%	103%	70%	130%
Beryllium	666778		<0.5	<0.5	NA	< 0.5	101%	70%	130%	110%	80%	120%	94%	70%	130%
Boron	666778		7	7	NA	< 5	83%	70%	130%	101%	80%	120%	83%	70%	130%
Boron (Hot Water Soluble)	650691	650691	0.31	0.31	NA	< 0.10	108%	60%	140%	98%	70%	130%	94%	60%	140%
Cadmium	666778		<0.5	<0.5	NA	< 0.5	104%	70%	130%	102%	80%	120%	102%	70%	130%
Chromium	666778		20	20	0.0%	< 2	103%	70%	130%	106%	80%	120%	105%	70%	130%
Cobalt	666778		8.0	7.7	3.8%	< 0.5	100%	70%	130%	108%	80%	120%	97%	70%	130%
Copper	666778		15	15	0.0%	< 1	102%	70%	130%	109%	80%	120%	89%	70%	130%
Lead	666778		7	7	0.0%	< 1	101%	70%	130%	106%	80%	120%	99%	70%	130%
Molybdenum	666778		<0.5	<0.5	NA	< 0.5	104%	70%	130%	102%	80%	120%	103%	70%	130%
Nickel	666778		15	15	0.0%	< 1	101%	70%	130%	108%	80%	120%	93%	70%	130%
Selenium	666778		<0.4	<0.4	NA	< 0.4	100%	70%	130%	104%	80%	120%	101%	70%	130%
Silver	666778		<0.2	<0.2	NA	< 0.2	96%	70%	130%	102%	80%	120%	93%	70%	130%
Thallium	666778		<0.4	<0.4	NA	< 0.4	94%	70%	130%	107%	80%	120%	99%	70%	130%
Uranium	666778		0.6	0.6	NA	< 0.5	100%	70%	130%	103%	80%	120%	104%	70%	130%
Vanadium	666778		27	27	0.0%	< 1	100%	70%	130%	101%	80%	120%	99%	70%	130%
Zinc	666778		42	41	2.4%	< 5	99%	70%	130%	108%	80%	120%	95%	70%	130%
Chromium VI	650691	650691	<0.2	<0.2	NA	< 0.2	83%	80%	120%	82%	70%	130%	80%	70%	130%
Cyanide	650691	650691	<0.040	<0.040	NA	< 0.040	91%	70%	130%	91%	80%	120%	97%	70%	130%
Mercury	666778		<0.10	<0.10	NA	< 0.10	101%	70%	130%	100%	80%	120%	100%	70%	130%
Electrical Conductivity	650691	650691	0.221	0.230	4.0%	< 0.005	99%	90%	110%	NA			NA		
Sodium Adsorption Ratio	650691	650691	0.225	0.229	1.8%	NA	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	659438		7.64	7.61	0.4%	NA	101%	80%	120%	NA			NA		

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.

O. Reg. 153(511) - Metals & Inorganics (Soil)															
Boron (Hot Water Soluble)	2		NA	NA	NA	< 0.10	106%	60%	140%	98%	70%	130%	NA	60%	140%
Sodium Adsorption Ratio	656559		0.150	0.156	3.8%		NA			NA			NA		

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.

Particle Size by Sieve (Wet)															
Sieve Analysis - 75 µm (retained)	646596		1.48	1.54	4.0%	NA	97%	70%	130%	NA			NA		
Sieve Analysis - 75 µm (passing)	646596		98.52	98.46	0.1%	NA	NA			NA			NA		

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CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

Soil Analysis (Continued)

RPT Date: Nov 04, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Comments: NA - Not Applicable

Certified By:

AGAT Laboratories

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Quality Assurance

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

Trace Organics Analysis

RPT Date: Nov 04, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	650760		< 0.02	< 0.02	NA	< 0.02	105%	60%	130%	103%	60%	130%	104%	60%	130%
Toluene	650760		< 0.05	< 0.05	NA	< 0.05	103%	60%	130%	94%	60%	130%	93%	60%	130%
Ethylbenzene	650760		< 0.05	< 0.05	NA	< 0.05	109%	60%	130%	96%	60%	130%	95%	60%	130%
Xylene Mixture	650760		< 0.05	< 0.05	NA	< 0.05	110%	60%	130%	100%	60%	130%	102%	60%	130%
F1 (C6 to C10)	650760		< 5	< 5	NA	< 5	84%	60%	130%	99%	85%	115%	81%	70%	130%
F2 (C10 to C16)	642874		< 10	< 10	NA	< 10	108%	60%	130%	116%	80%	120%	88%	70%	130%
F3 (C16 to C34)	642874		< 50	< 50	NA	< 50	99%	60%	130%	118%	80%	120%	93%	70%	130%
F4 (C34 to C50)	642874		< 50	< 50	NA	< 50	82%	60%	130%	100%	80%	120%	90%	70%	130%
O. Reg. 153(511) - BNA (full) + PAHs (Soil)															
Naphthalene	652056		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	105%	50%	140%	86%	50%	140%
Acenaphthylene	652056		0.06	0.07	NA	< 0.05	93%	50%	140%	111%	50%	140%	87%	50%	140%
Acenaphthene	652056		0.10	0.08	NA	< 0.05	109%	50%	140%	113%	50%	140%	88%	50%	140%
Fluorene	652056		0.14	0.12	NA	< 0.05	109%	50%	140%	76%	50%	140%	104%	50%	140%
Phenanthrene	652056		0.77	0.72	6.7%	< 0.05	104%	50%	140%	73%	50%	140%	86%	50%	140%
Anthracene	652056		0.30	0.30	0.0%	< 0.05	102%	50%	140%	73%	50%	140%	90%	50%	140%
Fluoranthene	652056		1.5	1.6	6.5%	< 0.05	102%	50%	140%	71%	50%	140%	81%	50%	140%
Pyrene	652056		1.5	1.5	0.0%	< 0.05	99%	50%	140%	72%	50%	140%	82%	50%	140%
Benz(a)anthracene	652056		1.2	1.2	0.0%	< 0.05	105%	50%	140%	70%	50%	140%	76%	50%	140%
Chrysene	652056		1.2	1.2	0.0%	< 0.05	111%	50%	140%	72%	50%	140%	83%	50%	140%
Benzo(b)fluoranthene	652056		1.1	1.0	9.5%	< 0.05	96%	50%	140%	77%	50%	140%	86%	50%	140%
Benzo(k)fluoranthene	652056		0.41	0.40	2.5%	< 0.05	99%	50%	140%	74%	50%	140%	89%	50%	140%
Benzo(a)pyrene	652056		0.83	0.80	3.7%	< 0.05	99%	50%	140%	72%	50%	140%	87%	50%	140%
Indeno(1,2,3-cd)pyrene	652056		0.33	0.34	3.0%	< 0.05	118%	50%	140%	76%	50%	140%	98%	50%	140%
Dibenz(a,h)anthracene	652056		0.07	0.07	NA	< 0.05	116%	50%	140%	79%	50%	140%	91%	50%	140%
Benzo(g,h,i)perylene	652056		0.31	0.32	3.2%	< 0.05	112%	50%	140%	76%	50%	140%	101%	50%	140%
Phenol	652056		< 0.5	< 0.5	NA	< 0.5	76%	30%	130%	94%	30%	130%	94%	30%	130%
Bis(2-chloroethyl)ether	652056		< 0.1	< 0.1	NA	< 0.1	93%	50%	140%	86%	50%	140%	94%	50%	140%
2-Chlorophenol	652056		< 0.1	< 0.1	NA	< 0.1	91%	50%	140%	98%	50%	140%	105%	50%	140%
o-Cresol	652056		< 0.1	< 0.1	NA	< 0.1	81%	50%	140%	115%	50%	140%	89%	50%	140%
Bis(2-chloroisopropyl)ether	652056		< 0.1	< 0.1	NA	< 0.1	76%	50%	140%	85%	50%	140%	86%	50%	140%
m & p - Cresol	652056		< 0.1	< 0.1	NA	< 0.1	100%	50%	140%	95%	50%	140%	109%	50%	140%
2,4-Dimethylphenol	652056		< 0.2	< 0.2	NA	< 0.2	104%	30%	130%	107%	30%	130%	101%	30%	130%
2,4-Dichlorophenol	652056		< 0.1	< 0.1	NA	< 0.1	105%	50%	140%	107%	50%	140%	108%	50%	140%
1,2,4-Trichlorobenzene	652056		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	105%	50%	140%	85%	50%	140%
p-Chloroaniline	652056		< 0.5	< 0.5	NA	< 0.5	76%	30%	130%	79%	30%	130%	95%	30%	130%
2,4,6-Trichlorophenol	652056		< 0.1	< 0.1	NA	< 0.1	106%	50%	140%	113%	50%	140%	101%	50%	140%
2,4,5-Trichlorophenol	652056		< 0.1	< 0.1	NA	< 0.1	102%	50%	140%	109%	50%	140%	71%	50%	140%
1,1-Biphenyl	652056		< 0.05	< 0.05	NA	< 0.05	100%	50%	140%	106%	50%	140%	87%	50%	140%

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Quality Assurance

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

Trace Organics Analysis (Continued)

RPT Date: Nov 04, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Dimethyl Phthalate	652056		< 0.1	< 0.1	NA	< 0.1	114%	50%	140%	114%	50%	140%	90%	50%	140%
Diethyl Phthalate	652056		< 0.1	< 0.1	NA	< 0.1	114%	50%	140%	78%	50%	140%	97%	50%	140%
Pentachlorophenol	652056		< 0.1	< 0.1	NA	< 0.1	93%	50%	140%	107%	50%	140%	90%	50%	140%
3,3'-Dichlorobenzidine	652056		< 0.5	< 0.5	NA	< 0.5	102%	30%	130%	90%	30%	130%	75%	30%	130%
Bis(2-Ethylhexyl)phthalate	652056		< 0.2	< 0.2	NA	< 0.2	110%	50%	140%	74%	50%	140%	88%	50%	140%
2,4-Dinitrophenol	652056		< 2.0	< 2.0	NA	< 2.0	97%	30%	130%	107%	30%	130%	92%	30%	130%
O. Reg. 153(511) - OC Pesticides (Soil)															
Hexachloroethane	635802		< 0.01	< 0.01	NA	< 0.01	81%	50%	140%	88%	50%	140%	78%	50%	140%
Gamma-Hexachlorocyclohexane	635802		< 0.005	< 0.005	NA	< 0.005	83%	50%	140%	87%	50%	140%	83%	50%	140%
Heptachlor	635802		< 0.005	< 0.005	NA	< 0.005	86%	50%	140%	88%	50%	140%	87%	50%	140%
Aldrin	635802		< 0.005	< 0.005	NA	< 0.005	92%	50%	140%	94%	50%	140%	93%	50%	140%
Heptachlor Epoxide	635802		< 0.005	< 0.005	NA	< 0.005	86%	50%	140%	87%	50%	140%	89%	50%	140%
Endosulfan	635802		< 0.005	< 0.005	NA	< 0.005	96%	50%	140%	89%	50%	140%	84%	50%	140%
Chlordane	635802		< 0.007	< 0.007	NA	< 0.007	86%	50%	140%	89%	50%	140%	88%	50%	140%
DDE	635802		< 0.007	< 0.007	NA	< 0.007	94%	50%	140%	88%	50%	140%	94%	50%	140%
DDD	635802		< 0.007	< 0.007	NA	< 0.007	95%	50%	140%	83%	50%	140%	92%	50%	140%
DDT	635802		< 0.007	< 0.007	NA	< 0.007	106%	50%	140%	94%	50%	140%	89%	50%	140%
Dieldrin	635802		< 0.005	< 0.005	NA	< 0.005	88%	50%	140%	83%	50%	140%	96%	50%	140%
Endrin	635802		< 0.005	< 0.005	NA	< 0.005	98%	50%	140%	85%	50%	140%	88%	50%	140%
Methoxychlor	635802		< 0.005	< 0.005	NA	< 0.005	103%	50%	140%	89%	50%	140%	91%	50%	140%
Hexachlorobenzene	635802		< 0.005	< 0.005	NA	< 0.005	92%	50%	140%	91%	50%	140%	91%	50%	140%
Hexachlorobutadiene	635802		< 0.01	< 0.01	NA	< 0.01	85%	50%	140%	81%	50%	140%	86%	50%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	659438		0.31	0.34	9.2%	< 0.05	91%	50%	140%	85%	50%	140%	86%	50%	140%
Acenaphthylene	659438		< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	95%	50%	140%	95%	50%	140%
Acenaphthene	659438		0.23	0.28	NA	< 0.05	104%	50%	140%	94%	50%	140%	93%	50%	140%
Fluorene	659438		0.20	0.25	NA	< 0.05	112%	50%	140%	105%	50%	140%	105%	50%	140%
Phenanthrene	659438		0.09	0.12	NA	< 0.05	107%	50%	140%	106%	50%	140%	111%	50%	140%
Anthracene	659438		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	111%	50%	140%	113%	50%	140%
Fluoranthene	659438		0.11	0.09	NA	< 0.05	108%	50%	140%	109%	50%	140%	115%	50%	140%
Pyrene	659438		0.08	0.07	NA	< 0.05	109%	50%	140%	108%	50%	140%	115%	50%	140%
Benz(a)anthracene	659438		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	103%	50%	140%	105%	50%	140%
Chrysene	659438		< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	108%	50%	140%	108%	50%	140%
Benzo(b)fluoranthene	659438		< 0.05	< 0.05	NA	< 0.05	100%	50%	140%	95%	50%	140%	91%	50%	140%
Benzo(k)fluoranthene	659438		< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	116%	50%	140%	116%	50%	140%
Benzo(a)pyrene	659438		< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	109%	50%	140%	98%	50%	140%
Indeno(1,2,3-cd)pyrene	659438		< 0.05	< 0.05	NA	< 0.05	86%	50%	140%	86%	50%	140%	96%	50%	140%
Dibenz(a,h)anthracene	659438		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	91%	50%	140%	89%	50%	140%
Benzo(g,h,i)perylene	659438		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	80%	50%	140%	88%	50%	140%

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Quality Assurance

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

Trace Organics Analysis (Continued)

RPT Date: Nov 04, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	670078		< 0.05	< 0.05	NA	< 0.05	104%	50%	140%	92%	50%	140%	104%	50%	140%
Vinyl Chloride	670078		< 0.02	< 0.02	NA	< 0.02	104%	50%	140%	106%	50%	140%	94%	50%	140%
Bromomethane	670078		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	90%	50%	140%	79%	50%	140%
Trichlorofluoromethane	670078		< 0.05	< 0.05	NA	< 0.05	94%	50%	140%	82%	50%	140%	87%	50%	140%
Acetone	670078		< 0.50	< 0.50	NA	< 0.50	108%	50%	140%	92%	50%	140%	94%	50%	140%
1,1-Dichloroethylene	670078		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	102%	60%	130%	91%	50%	140%
Methylene Chloride	670078		< 0.05	< 0.05	NA	< 0.05	79%	50%	140%	93%	60%	130%	97%	50%	140%
Trans- 1,2-Dichloroethylene	670078		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	90%	60%	130%	90%	50%	140%
Methyl tert-butyl Ether	670078		< 0.05	< 0.05	NA	< 0.05	115%	50%	140%	98%	60%	130%	96%	50%	140%
1,1-Dichloroethane	670078		< 0.02	< 0.02	NA	< 0.02	102%	50%	140%	94%	60%	130%	114%	50%	140%
Methyl Ethyl Ketone	670078		< 0.50	< 0.50	NA	< 0.50	71%	50%	140%	92%	50%	140%	83%	50%	140%
Cis- 1,2-Dichloroethylene	670078		< 0.02	< 0.02	NA	< 0.02	92%	50%	140%	114%	60%	130%	96%	50%	140%
Chloroform	670078		< 0.04	< 0.04	NA	< 0.04	95%	50%	140%	94%	60%	130%	70%	50%	140%
1,2-Dichloroethane	670078		< 0.03	< 0.03	NA	< 0.03	89%	50%	140%	99%	60%	130%	107%	50%	140%
1,1,1-Trichloroethane	670078		< 0.05	< 0.05	NA	< 0.05	82%	50%	140%	102%	60%	130%	94%	50%	140%
Carbon Tetrachloride	670078		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	99%	60%	130%	98%	50%	140%
Benzene	670078		< 0.02	< 0.02	NA	< 0.02	77%	50%	140%	97%	60%	130%	79%	50%	140%
1,2-Dichloropropane	670078		< 0.03	< 0.03	NA	< 0.03	92%	50%	140%	93%	60%	130%	86%	50%	140%
Trichloroethylene	670078		< 0.03	< 0.03	NA	< 0.03	71%	50%	140%	98%	60%	130%	91%	50%	140%
Bromodichloromethane	670078		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	92%	60%	130%	89%	50%	140%
Methyl Isobutyl Ketone	670078		< 0.50	< 0.50	NA	< 0.50	97%	50%	140%	104%	50%	140%	111%	50%	140%
1,1,2-Trichloroethane	670078		< 0.04	< 0.04	NA	< 0.04	109%	50%	140%	108%	60%	130%	116%	50%	140%
Toluene	670078		< 0.05	< 0.05	NA	< 0.05	82%	50%	140%	109%	60%	130%	86%	50%	140%
Dibromochloromethane	670078		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	103%	60%	130%	91%	50%	140%
Ethylene Dibromide	670078		< 0.04	< 0.04	NA	< 0.04	120%	50%	140%	117%	60%	130%	117%	50%	140%
Tetrachloroethylene	670078		< 0.05	< 0.05	NA	< 0.05	82%	50%	140%	114%	60%	130%	81%	50%	140%
1,1,1,2-Tetrachloroethane	670078		< 0.04	< 0.04	NA	< 0.04	90%	50%	140%	107%	60%	130%	88%	50%	140%
Chlorobenzene	670078		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	115%	60%	130%	95%	50%	140%
Ethylbenzene	670078		< 0.05	< 0.05	NA	< 0.05	73%	50%	140%	101%	60%	130%	74%	50%	140%
m & p-Xylene	670078		< 0.05	< 0.05	NA	< 0.05	79%	50%	140%	105%	60%	130%	80%	50%	140%
Bromoform	670078		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	108%	60%	130%	97%	50%	140%
Styrene	670078		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	102%	60%	130%	82%	50%	140%
1,1,2,2-Tetrachloroethane	670078		< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	115%	60%	130%	114%	50%	140%
o-Xylene	670078		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	109%	60%	130%	89%	50%	140%
1,3-Dichlorobenzene	670078		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	114%	60%	130%	109%	50%	140%
1,4-Dichlorobenzene	670078		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	108%	60%	130%	110%	50%	140%
1,2-Dichlorobenzene	670078		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	115%	60%	130%	112%	50%	140%
1,3-Dichloropropene	670078		< 0.04	< 0.04	NA	< 0.04	89%	50%	140%	107%	60%	130%	93%	50%	140%

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Quality Assurance

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AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

Trace Organics Analysis (Continued)

RPT Date: Nov 04, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
n-Hexane	670078		< 0.05	< 0.05	NA	< 0.05	99%	50%	140%	108%	60%	130%	96%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popnikolof

AGAT Laboratories

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Method Summary

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AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	EPA SW 846 6010C; MSA, Part 3, Ch.21	ICP/OES
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6068	SW 846 Method 3060A; Method 7196A	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE CN-3015 & E 3009 A;SM 4500 CN	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010C	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER
Sieve Analysis - 75 µm (retained)	INOR-93-6065	ASTM D1140	SIEVE
Sieve Analysis - 75 µm (passing)	INOR-93-6065	ASTM D1140	SIEVE

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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http://www.agatlabs.com

Method Summary

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Acenaphthylene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Acenaphthene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Fluorene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Phenanthrene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Anthracene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Fluoranthene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Pyrene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Benz(a)anthracene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Chrysene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Phenol	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Bis(2-chloroethyl)ether	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
2-Chlorophenol	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
o-Cresol	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Bis(2-chloroisopropyl)ether	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
m & p - Cresol	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
2,4-Dimethylphenol	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
2,4-Dichlorophenol	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
1,2,4-Trichlorobenzene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
p-Chloroaniline	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
2,4,6-Trichlorophenol	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
2,4,5-Trichlorophenol	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
1,1-Biphenyl	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Dimethyl Phthalate	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
2,4 and 2,6-Dinitrotoluene	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Diethyl Phthalate	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Pentachlorophenol	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
3,3'-Dichlorobenzidine	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Bis(2-Ethylhexyl)phthalate	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
2,4-Dinitrophenol	ORG-91-5114	EPA SW-846 3541 & 8270E	GC/MS
Moisture Content		MOE E3139	BALANCE
2,4,6-Tribromophenol	ORG-91-5114	EPA SW-846 3541 & 8270C	GC/MS
Chrysene-d12	ORG-91-5114	EPA SW-846 3541 & 8270C	GC/MS
Hexachloroethane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Aldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor Epoxide	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endosulfan	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Chlordane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDE	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDD	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD

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Method Summary

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
DDT	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Dieldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Methoxychlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobenzene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobutadiene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
TCMX	ORG-91-5112	EPA SW-846 3541,3620 & 8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Moisture Content	ORG-91-5106	EPA SW-846 3541 & 8270E	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 19H535392

PROJECT: #2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:2248 Centre St.

SAMPLED BY:I. Spice

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 19H535392

Cooler Quantity: 1G cooler

Arrival Temperatures: 6.0 | 6.2 | 6.5 / 5.8 | 6 | 5.8

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes: ON ICE

Report Information:

Company: SPICE ENVIRONMENTAL INC.
Contact: IAN SPICE
Address: 673 INVERHALY ROAD
BURLINGTON ON L7L 2E8
Phone: 905 510 5217 Fax:
Reports to be sent to:
1. Email: ian101@live.ca
2. Email:

Regulatory Requirements:

(Please check all applicable boxes) ☐ No Regulatory Requirement

☒ Regulation 153/04
Table 3 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture

Soil Texture (Check One)
☐ Coarse
☒ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm

Region ____ (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other ____ (Indicate One)

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply): ____

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: # 2020-001
Site Location: 2248 CENTRE ST.
Sampled By: I. SPICE
AGAT Quote #: ____ PO: ____
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N	Field Filtered - Metals, Hg, CrVI	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (Incl. Hydrides))	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr6+ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☒ VOC ☐ BTEX ☐ THM	PHCs F1 - F4 + BTEX	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use		GRAIN SIZE				Potentially Hazardous or High Concentration (Y/N)
BH1 - S1	OCT 22/19		1	S				X																			
BH2 - S2	OCT 22		1	S										X													
BH3 - S3	OCT 22		1	S										X													
BH4 - S2	OCT 22		1	S				X																			
BH4 - S3	OCT 22		1	S									X														
BH5 - S1	OCT 22		1	S									X														
BH5 - S2	OCT 22		1	S											X												
BH6 - S2	OCT 22		1	S													X										
BH6 - S6	OCT 22		1	S												X											
BH7 - S3	OCT 22		2	S										X		X											
BH8 - S2	OCT 22		1	S												X											

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
IAN SPICE	OCT 25/19	11:38A	Daniella JAIC	OCT 25/19	11:40am
Daniella JAIC	OCT 25/19	2:00pm	John Chypyha	Oct 25	3:02
			John Chypyha	Oct 25	4:00

Page 1 of 2

Nº: T 091170

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

Document ID: DIV 75 1511 010

Date Issued: March 22, 2019

AGAT Laboratories

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Mississauga, Ontario L4Z 1Y2
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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 19H535392

Cooler Quantity: LG Cooler

Arrival Temperatures: 6.0 | 6.2 | 6.5
5.8 | 6 | 5.8

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: ON ICE

Report Information:

Company: SPICE ENVIRONMENTAL INC.
Contact: IAN SPICE
Address: 673 INVERARY ROAD
BURLINGTON, ON L7L 2L8
Phone: 905 510 5217 Fax:
Reports to be sent to:
1. Email: ian101@live.ca
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☒ Regulation 153/04
Table 3 *Indicate One*
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture *(Check One)*
☐ Coarse
☒ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region _____ *Indicate One*
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
_____ *Indicate One*

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

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For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: # 2020-001
Site Location: 2248 CENTRE ST - I SPICE
Sampled By:
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (Incl. Hydrides))	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☒ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use		GRAIN SIZE				Potentially Hazardous or High Concentration (Y/N)
MW1-S1	OCT22/19		1				X																				
MW2-S1	OCT22		2									X	X														
MW3-S1	OCT22		3									X	X	X													
MW4-S1	OCT22		1				X																				
MW4-S3	OCT22		1												X												
BH22	OCT22		2									X	X														
BH4A	OCT22		1												X												
BH1-S2	OCT22																						X				
MW2-S4	OCT22																						X				

Samples Relinquished By (Print Name and Sign): IAN SPICE	Date: OCT 25/19	Time: 11:38.	Samples Received By (Print Name and Sign): Daniella Jaic	Date: OCT 25/19	Time: 11:40am		
Samples Relinquished By (Print Name and Sign): Daniella JAIC	Date: OCT 25/19	Time: 2:00pm	Samples Received By (Print Name and Sign): John Onyeyha	Date: Oct 25	Time: 2:02	Page 2 of 2	
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign): John Onyeyha	Date: Oct 25	Time: 4:00	N°: T 091722	

Document ID: DW 7R 1511 015

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

<u>Attachment 5</u> – Certificates of Analyses (GROUNDWATER)
Phase Two Environmental Assessment
2248 Centre Street - Thorold, Ontario

<u>AGAT Work Order</u>	*<u>Sampling Location</u>*
20T575195	*BTEX/PHCs, Metals + Inorganics, PAHs, VOCs*

AGAT Laboratories

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CLIENT NAME: SPICE ENVIRONMENTAL
673 INVERARY ROAD
BURLINGTON, ON L7L2L8
(905) 510-5217

ATTENTION TO: IAN SPICE

PROJECT: 2020-001

AGAT WORK ORDER: 20T575195

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: Feb 26, 2020

PAGES (INCLUDING COVER): 14

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*Notes

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Certificate of Analysis

AGAT WORK ORDER: 20T575195

PROJECT: 2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PAHs (Water)

DATE RECEIVED: 2020-02-18

DATE REPORTED: 2020-02-26

		SAMPLE DESCRIPTION:		MW4
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2020-02-16
Parameter	Unit	G / S	RDL	947802
Naphthalene	µg/L	6400	0.20	<0.20
Acenaphthylene	µg/L	1.8	0.20	<0.20
Acenaphthene	µg/L	1700	0.20	<0.20
Fluorene	µg/L	400	0.20	<0.20
Phenanthrene	µg/L	580	0.10	<0.10
Anthracene	µg/L	2.4	0.10	<0.10
Fluoranthene	µg/L	130	0.20	<0.20
Pyrene	µg/L	68	0.20	<0.20
Benz(a)anthracene	µg/L	4.7	0.20	<0.20
Chrysene	µg/L	1	0.10	<0.10
Benzo(b)fluoranthene	µg/L	0.75	0.10	<0.10
Benzo(k)fluoranthene	µg/L	0.4	0.10	<0.10
Benzo(a)pyrene	µg/L	0.81	0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20
Dibenz(a,h)anthracene	µg/L	0.52	0.20	<0.20
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	1800	0.20	<0.20
Surrogate	Unit	Acceptable Limits		
Naphthalene-d8	%	50-140		99
Acenaphthene-d10	%	50-140		114
Chrysene-d12	%	50-140		117

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

947802 Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopowkolof

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Certificate of Analysis

AGAT WORK ORDER: 20T575195

PROJECT: 2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Water)

DATE RECEIVED: 2020-02-18

DATE REPORTED: 2020-02-26

		SAMPLE DESCRIPTION:		MW1s	MW1d	MW3
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2020-02-16	2020-02-16	2020-02-16
Parameter	Unit	G / S	RDL	947796	947797	947800
F1 (C6 - C10)	µg/L	750	25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	750	25	<25	<25	<25
F2 (C10 to C16)	µg/L	150	100	<100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA	NA	NA
Surrogate	Unit	Acceptable Limits				
Terphenyl	%	60-140		90	86	107

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

947796-947800 The C6-C10 fraction is calculated using Toluene response factor.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contribution.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popowkolof

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 20T575195

PROJECT: 2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2020-02-18

DATE REPORTED: 2020-02-26

		SAMPLE DESCRIPTION:		MW1s	MW1d	MW2	MW3
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2020-02-16	2020-02-16	2020-02-16	2020-02-16
Parameter	Unit	G / S	RDL	947796	947797	947798	947800
Dichlorodifluoromethane	µg/L	4400	0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	1.7	0.17	<0.17	<0.17	<0.17	<0.17
Bromomethane	µg/L	56	0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	2500	0.40	<0.40	<0.40	<0.40	0.73
Acetone	µg/L	130000	1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethylene	µg/L	17	0.30	<0.30	<0.30	<0.30	<0.30
Methylene Chloride	µg/L	5500	0.30	<0.30	<0.30	<0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20	<0.20
Methyl tert-butyl ether	µg/L	1400	0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	3100	0.30	<0.30	<0.30	<0.30	<0.30
Methyl Ethyl Ketone	µg/L	1500000	1.0	<1.0	<1.0	<1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	µg/L	22	0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L	12	0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	6700	0.30	<0.30	<0.30	<0.30	<0.30
Carbon Tetrachloride	µg/L	8.4	0.20	<0.20	<0.20	<0.20	<0.20
Benzene	µg/L	430	0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	µg/L	140	0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	µg/L	85000	0.20	<0.20	<0.20	<0.20	<0.20
Methyl Isobutyl Ketone	µg/L	580000	1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	µg/L	30	0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	18000	0.20	0.61	0.93	0.84	0.44
Dibromochloromethane	µg/L	82000	0.10	<0.10	<0.10	<0.10	<0.10
Ethylene Dibromide	µg/L	0.83	0.10	<0.10	<0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	17	0.20	<0.20	<0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	28	0.10	<0.10	<0.10	<0.10	<0.10
Chlorobenzene	µg/L	630	0.10	<0.10	<0.10	<0.10	<0.10
Ethylbenzene	µg/L	2300	0.10	<0.10	<0.10	<0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20

Certified By: N Popowkolof

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Certificate of Analysis

AGAT WORK ORDER: 20T575195

PROJECT: 2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2020-02-18

DATE REPORTED: 2020-02-26

		SAMPLE DESCRIPTION:		MW1s	MW1d	MW2	MW3
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2020-02-16	2020-02-16	2020-02-16	2020-02-16
Parameter	Unit	G / S	RDL	947796	947797	947798	947800
Bromoform	µg/L	770	0.10	<0.10	<0.10	<0.10	<0.10
Styrene	µg/L	9100	0.10	<0.10	<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	15	0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	9600	0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	67	0.10	<0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	9600	0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichloropropene	µg/L	45	0.30	<0.30	<0.30	<0.30	<0.30
Xylene Mixture	µg/L	4200	0.20	<0.20	<0.20	<0.20	<0.20
n-Hexane	µg/L	520	0.20	<0.20	<0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits					
Toluene-d8	% Recovery	50-140		105	104	103	105
4-Bromofluorobenzene	% Recovery	50-140		92	94	95	91

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

947796-947800 Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popowkolof

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Certificate of Analysis

AGAT WORK ORDER: 20T575195

PROJECT: 2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals & Inorganics (Water)

DATE RECEIVED: 2020-02-18

DATE REPORTED: 2020-02-26

SAMPLE DESCRIPTION:				MW2	MW22		MW4
SAMPLE TYPE:				Water	Water		Water
DATE SAMPLED:				2020-02-16	2020-02-16		2020-02-16
Parameter	Unit	G / S	RDL	947798	947799	RDL	947802
Antimony	µg/L	20000	1.0	<1.0	<1.0	1.0	<1.0
Arsenic	µg/L	1900	1.0	4.3	3.3	1.0	<1.0
Barium	µg/L	29000	2.0	38.4	38.6	2.0	41.2
Beryllium	µg/L	67	0.5	<0.5	<0.5	0.5	<0.5
Boron	µg/L	45000	10.0	284	280	10.0	153
Cadmium	µg/L	2.7	0.2	0.3	<0.2	0.2	<0.2
Chromium	µg/L	810	2.0	<2.0	<2.0	2.0	<2.0
Cobalt	µg/L	66	0.5	0.6	0.5	0.5	<0.5
Copper	µg/L	87	1.0	4.5	2.1	1.0	1.5
Lead	µg/L	25	0.5	<0.5	<0.5	0.5	<0.5
Molybdenum	µg/L	9200	0.5	2.4	2.7	0.5	0.9
Nickel	µg/L	490	1.0	7.6	7.8	1.0	1.3
Selenium	µg/L	63	1.0	2.5	2.0	1.0	<1.0
Silver	µg/L	1.5	0.2	0.2	<0.2	0.2	<0.2
Thallium	µg/L	510	0.3	<0.3	<0.3	0.3	<0.3
Uranium	µg/L	420	0.5	12.7	12.5	0.5	4.6
Vanadium	µg/L	250	0.4	<0.4	<0.4	0.4	<0.4
Zinc	µg/L	1100	5.0	6.1	<5.0	5.0	<5.0
Mercury	µg/L	2.8	0.02	<0.02	<0.02	0.02	<0.02
Chromium VI	µg/L	140	5	<5	<5	5	<5
Cyanide	µg/L	66	2	<2	<2	2	<2
Sodium	µg/L	2300000	50000	981000	958000	2500	43400
Chloride	µg/L	2300000	10000	3450000	3150000	500	35500
Electrical Conductivity	uS/cm		2	11000	11000	2	1090
pH	pH Units		NA	7.59	7.62	NA	7.89

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

947798-947802 Elevated RDLs indicate the degree of sample dilutions prior to the analysis to keep analytes within the calibration range or reduce matrix interference.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: Iris Verástegui

AGAT Laboratories

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Guideline Violation

AGAT WORK ORDER: 20T575195

PROJECT: 2020-001

CLIENT NAME: SPICE ENVIRONMENTAL

ATTENTION TO: IAN SPICE

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
947798	MW2	ON T3 NPGW MFT	O. Reg. 153(511) - Metals & Inorganics (Water)	Chloride	µg/L	2300000	3450000
947799	MW22	ON T3 NPGW MFT	O. Reg. 153(511) - Metals & Inorganics (Water)	Chloride	µg/L	2300000	3150000

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Quality Assurance

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 20T575195

PROJECT: 2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Feb 26, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - VOCs (Water)															
Dichlorodifluoromethane	951648		< 0.20	< 0.20	NA	< 0.20	93%	50%	140%	95%	50%	140%	102%	50%	140%
Vinyl Chloride	951648		< 0.17	< 0.17	NA	< 0.17	91%	50%	140%	114%	50%	140%	77%	50%	140%
Bromomethane	951648		< 0.20	< 0.20	NA	< 0.20	115%	50%	140%	110%	50%	140%	103%	50%	140%
Trichlorofluoromethane	951648		< 0.40	< 0.40	NA	< 0.40	90%	50%	140%	103%	50%	140%	72%	50%	140%
Acetone	951648		< 1.0	< 1.0	NA	< 1.0	102%	50%	140%	96%	50%	140%	91%	50%	140%
1,1-Dichloroethylene	951648		< 0.30	< 0.30	NA	< 0.30	85%	50%	140%	103%	60%	130%	104%	50%	140%
Methylene Chloride	951648		< 0.30	< 0.30	NA	< 0.30	107%	50%	140%	106%	60%	130%	117%	50%	140%
trans- 1,2-Dichloroethylene	951648		< 0.20	< 0.20	NA	< 0.20	101%	50%	140%	108%	60%	130%	104%	50%	140%
Methyl tert-butyl ether	951648		< 0.20	< 0.20	NA	< 0.20	105%	50%	140%	97%	60%	130%	78%	50%	140%
1,1-Dichloroethane	951648		< 0.30	< 0.30	NA	< 0.30	106%	50%	140%	113%	60%	130%	107%	50%	140%
Methyl Ethyl Ketone	951648		< 1.0	< 1.0	NA	< 1.0	108%	50%	140%	108%	50%	140%	78%	50%	140%
cis- 1,2-Dichloroethylene	951648		< 0.20	< 0.20	NA	< 0.20	107%	50%	140%	112%	60%	130%	103%	50%	140%
Chloroform	951648		< 0.20	< 0.20	NA	< 0.20	109%	50%	140%	111%	60%	130%	109%	50%	140%
1,2-Dichloroethane	951648		< 0.20	< 0.20	NA	< 0.20	96%	50%	140%	100%	60%	130%	101%	50%	140%
1,1,1-Trichloroethane	951648		< 0.30	< 0.30	NA	< 0.30	102%	50%	140%	110%	60%	130%	82%	50%	140%
Carbon Tetrachloride	951648		< 0.20	< 0.20	NA	< 0.20	106%	50%	140%	78%	60%	130%	104%	50%	140%
Benzene	951648		< 0.20	< 0.20	NA	< 0.20	114%	50%	140%	75%	60%	130%	113%	50%	140%
1,2-Dichloropropane	951648		< 0.20	< 0.20	NA	< 0.20	75%	50%	140%	99%	60%	130%	87%	50%	140%
Trichloroethylene	951648		< 0.20	< 0.20	NA	< 0.20	87%	50%	140%	104%	60%	130%	94%	50%	140%
Bromodichloromethane	951648		< 0.20	< 0.20	NA	< 0.20	96%	50%	140%	107%	60%	130%	84%	50%	140%
Methyl Isobutyl Ketone	951648		< 1.0	< 1.0	NA	< 1.0	102%	50%	140%	93%	50%	140%	86%	50%	140%
1,1,2-Trichloroethane	951648		< 0.20	< 0.20	NA	< 0.20	104%	50%	140%	110%	60%	130%	98%	50%	140%
Toluene	951648		< 0.20	< 0.20	NA	< 0.20	104%	50%	140%	111%	60%	130%	95%	50%	140%
Dibromochloromethane	951648		< 0.10	< 0.10	NA	< 0.10	112%	50%	140%	102%	60%	130%	70%	50%	140%
Ethylene Dibromide	951648		< 0.10	< 0.10	NA	< 0.10	98%	50%	140%	105%	60%	130%	89%	50%	140%
Tetrachloroethylene	951648		< 0.20	< 0.20	NA	< 0.20	103%	50%	140%	114%	60%	130%	90%	50%	140%
1,1,1,2-Tetrachloroethane	951648		< 0.10	< 0.10	NA	< 0.10	110%	50%	140%	110%	60%	130%	84%	50%	140%
Chlorobenzene	951648		< 0.10	< 0.10	NA	< 0.10	106%	50%	140%	111%	60%	130%	95%	50%	140%
Ethylbenzene	951648		< 0.10	< 0.10	NA	< 0.10	100%	50%	140%	104%	60%	130%	88%	50%	140%
m & p-Xylene	951648		< 0.20	< 0.20	NA	< 0.20	99%	50%	140%	103%	60%	130%	106%	50%	140%
Bromoform	951648		< 0.10	< 0.10	NA	< 0.10	102%	50%	140%	102%	60%	130%	73%	50%	140%
Styrene	951648		< 0.10	< 0.10	NA	< 0.10	97%	50%	140%	99%	60%	130%	83%	50%	140%
1,1,2,2-Tetrachloroethane	951648		< 0.10	< 0.10	NA	< 0.10	103%	50%	140%	105%	60%	130%	96%	50%	140%
o-Xylene	951648		< 0.10	< 0.10	NA	< 0.10	103%	50%	140%	107%	60%	130%	93%	50%	140%
1,3-Dichlorobenzene	951648		< 0.10	< 0.10	NA	< 0.10	107%	50%	140%	110%	60%	130%	92%	50%	140%
1,4-Dichlorobenzene	951648		< 0.10	< 0.10	NA	< 0.10	104%	50%	140%	107%	60%	130%	90%	50%	140%
1,2-Dichlorobenzene	951648		< 0.10	< 0.10	NA	< 0.10	105%	50%	140%	105%	60%	130%	90%	50%	140%
1,3-Dichloropropene	951648		< 0.30	< 0.30	NA	< 0.30	94%	50%	140%	99%	60%	130%	105%	50%	140%
n-Hexane	951648		< 0.20	< 0.20	NA	< 0.20	110%	50%	140%	106%	60%	130%	117%	50%	140%

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Quality Assurance

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 20T575195

PROJECT: 2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Feb 26, 2020

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Water)															
F1 (C6 - C10)	940879		< 25	< 25	NA	< 25	106%	60%	140%	113%	60%	140%	98%	60%	140%
F2 (C10 to C16)	934721		< 100	< 100	NA	< 100	121%	60%	140%	122%	60%	140%	87%	60%	140%
F3 (C16 to C34)	934721		< 100	< 100	NA	< 100	120%	60%	140%	98%	60%	140%	96%	60%	140%
F4 (C34 to C50)	934721		< 100	< 100	NA	< 100	100%	60%	140%	98%	60%	140%	100%	60%	140%
O. Reg. 153(511) - PAHs (Water)															
Naphthalene		TW	< 0.20	< 0.20	NA	< 0.20	103%	50%	140%	115%	50%	140%	106%	50%	140%
Acenaphthylene		TW	< 0.20	< 0.20	NA	< 0.20	114%	50%	140%	116%	50%	140%	113%	50%	140%
Acenaphthene		TW	< 0.20	< 0.20	NA	< 0.20	115%	50%	140%	112%	50%	140%	115%	50%	140%
Fluorene		TW	< 0.20	< 0.20	NA	< 0.20	111%	50%	140%	107%	50%	140%	116%	50%	140%
Phenanthrene		TW	< 0.10	< 0.10	NA	< 0.10	94%	50%	140%	112%	50%	140%	115%	50%	140%
Anthracene		TW	< 0.10	< 0.10	NA	< 0.10	110%	50%	140%	110%	50%	140%	112%	50%	140%
Fluoranthene		TW	< 0.20	< 0.20	NA	< 0.20	106%	50%	140%	113%	50%	140%	118%	50%	140%
Pyrene		TW	< 0.20	< 0.20	NA	< 0.20	104%	50%	140%	107%	50%	140%	115%	50%	140%
Benz(a)anthracene		TW	< 0.20	< 0.20	NA	< 0.20	76%	50%	140%	106%	50%	140%	105%	50%	140%
Chrysene		TW	< 0.10	< 0.10	NA	< 0.10	110%	50%	140%	118%	50%	140%	102%	50%	140%
Benzo(b)fluoranthene		TW	< 0.10	< 0.10	NA	< 0.10	77%	50%	140%	117%	50%	140%	119%	50%	140%
Benzo(k)fluoranthene		TW	< 0.10	< 0.10	NA	< 0.10	100%	50%	140%	114%	50%	140%	114%	50%	140%
Benzo(a)pyrene		TW	< 0.01	< 0.01	NA	< 0.01	88%	50%	140%	118%	50%	140%	107%	50%	140%
Indeno(1,2,3-cd)pyrene		TW	< 0.20	< 0.20	NA	< 0.20	72%	50%	140%	112%	50%	140%	113%	50%	140%
Dibenz(a,h)anthracene		TW	< 0.20	< 0.20	NA	< 0.20	84%	50%	140%	112%	50%	140%	108%	50%	140%
Benzo(g,h,i)perylene		TW	< 0.20	< 0.20	NA	< 0.20	84%	50%	140%	105%	50%	140%	106%	50%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popowkolof

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Quality Assurance

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 20T575195

PROJECT: 2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: Feb 26, 2020

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Water)															
Antimony	947928		<1.0	<1.0	NA	< 1.0	104%	70%	130%	105%	80%	120%	101%	70%	130%
Arsenic	947928		<1.0	1.8	NA	< 1.0	101%	70%	130%	99%	80%	120%	99%	70%	130%
Barium	947928		228	225	1.3%	< 2.0	91%	70%	130%	91%	80%	120%	94%	70%	130%
Beryllium	947928		<5	<5	NA	< 0.5	108%	70%	130%	106%	80%	120%	106%	70%	130%
Boron	947928		475	457	3.9%	< 10.0	100%	70%	130%	104%	80%	120%	109%	70%	130%
Cadmium	947928		0.2	<0.2	NA	< 0.2	108%	70%	130%	107%	80%	120%	94%	70%	130%
Chromium	947928		<2.0	<2.0	NA	< 2.0	102%	70%	130%	103%	80%	120%	108%	70%	130%
Cobalt	947928		4.2	3.9	7.4%	< 0.5	104%	70%	130%	104%	80%	120%	104%	70%	130%
Copper	947928		2.0	1.9	NA	< 1.0	105%	70%	130%	106%	80%	120%	97%	70%	130%
Lead	947928		<0.5	<0.5	NA	< 0.5	97%	70%	130%	98%	80%	120%	83%	70%	130%
Molybdenum	947928		1.6	1.3	NA	< 0.5	106%	70%	130%	107%	80%	120%	111%	70%	130%
Nickel	947928		8.6	8.5	1.2%	< 1.0	107%	70%	130%	106%	80%	120%	101%	70%	130%
Selenium	947928		3.2	2.9	NA	< 1.0	106%	70%	130%	100%	80%	120%	94%	70%	130%
Silver	947928		<0.2	<0.2	NA	< 0.2	107%	70%	130%	108%	80%	120%	87%	70%	130%
Thallium	947928		<0.3	<0.3	NA	< 0.3	109%	70%	130%	110%	80%	120%	102%	70%	130%
Uranium	947928		4.5	4.3	4.5%	< 0.5	97%	70%	130%	97%	80%	120%	95%	70%	130%
Vanadium	947928		<0.4	<0.4	NA	< 0.4	100%	70%	130%	100%	80%	120%	112%	70%	130%
Zinc	947928		<5.0	<5.0	NA	< 5.0	103%	70%	130%	109%	80%	120%	94%	70%	130%
Mercury	947798	947798	<0.02	<0.02	NA	< 0.02	100%	70%	130%	99%	80%	120%	97%	70%	130%
Chromium VI	953845		<5	<5	NA	< 5	102%	70%	130%	100%	80%	120%	102%	70%	130%
Cyanide	933106		<2	<2	NA	< 2	101%	70%	130%	94%	80%	120%	98%	70%	130%
Sodium	954595		82400	81900	0.6%	< 500	101%	70%	130%	98%	80%	120%	96%	70%	130%
Chloride	947802	947802	35500	38200	7.3%	< 100	90%	70%	130%	92%	70%	130%	111%	70%	130%
Electrical Conductivity	947073		13100	13100	0.0%	< 2	97%	90%	110%	NA			NA		
pH	947073		8.03	8.07	0.5%	NA	100%	90%	110%	NA			NA		

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Certified By: Iris Verástegui

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Method Summary

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 20T575195

PROJECT: 2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Fluorene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Anthracene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Pyrene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Chrysene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Acenaphthene-d10	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Chrysene-d12	ORG-91-5105	modified from EPA 3541 and EPA 8270E	GC/MS
F1 (C6 - C10)	VOL-91- 5010	MOE PHC E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC / FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC / FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC E3421	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID
Dichlorodifluoromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Acetone	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Methylene Chloride	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
trans- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Chloroform	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Benzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Bromoform	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Styrene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: SPICE ENVIRONMENTAL

AGAT WORK ORDER: 20T575195

PROJECT: 2020-001

ATTENTION TO: IAN SPICE

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Antimony	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Barium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Boron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Selenium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Silver	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Thallium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Uranium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Chromium VI	INOR-93-6034	modified from SM 3500-CR B	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE METHOD CN- 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Sodium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Chloride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Electrical Conductivity	INOR-93-6000	SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE

AGAT Laboratories

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Laboratory Use Only

Work Order #: 20T575195

Cooler Quantity:
Arrival Temperatures: 5.5 | 4.5 | 6.5

Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes: O.K.I. ICE

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: SPICE ENVIRONMENTAL INC.
Contact: IAN SPICE
Address: 673 INVERARY ROAD
BURLINGTON, ON L7L 2L8
Phone: 905 510 5217 Fax:
Reports to be sent to:
1. Email: ian101@live.ca
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

[X] Regulation 153/04
Table 3 *Indicate One*
☐Ind/Com
[X]Res/Park
☐Agriculture

Soil Texture *(Check One)*
☐Coarse
[X]Fine

☐Sewer Use
☐Sanitary
☐Storm
Region ______ *Indicate One*
☐MISA

☐Regulation 558
☐CCME
☐Prov. Water Quality Objectives (PWQO)
☐Other
Indicate One

Is this submission for a **Record of Site Condition?**
~~[X] Yes~~ [X] No (circled)

Report Guideline on Certificate of Analysis
[X] Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT [X] 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: # 2020-001
Site Location: 2248 CENTRE
Sampled By: I. SPICE / J. GILL
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis

Invoice Information:

Bill To Same: Yes [X] No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	☐ All Metals ☐ 153 Metals (excl. Hydrides)	☐ Hydride Metals ☐ 153 Metals (incl. Hydrides)	ORPs: ☐ B-HWS ☐ Cl ☐ CN	☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg	☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: [X] VOC ~~[X] BTEX~~ ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
MW1s	FEB 16/20	9AM		GW												X	X							
MW1d	FEB 16/20	10AM		GW												X	X							
MW2	FEB 16/20	11 AM		GW		X	X									X								
MW22	FEB 16/20	11 AM		GW		X	X																	
MW3	FEB	12AM		GW												X	X							
MW4	FEB 16/20	1pm.		GW		X	X												X					

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
IAN SPICE	FEB 18/20	12:14 p.	NEAL G		

'20FEB18 12:15PM

Page 1 of 1

Nº: T 092966

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Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

Date Issued: March 28, 2019