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PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
92 PLAINS ROAD EAST, BURLINGTON, ONTARIO

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TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 1

2.0 INTRODUCTION 4
2.1 Phase Two Property Description 4
2.2 Property Ownership 4
2.3 Current and Proposed Future Uses 4
2.4 Applicable Site Condition Standards 5

3.0 BACKGROUND INFORMATION 7
3.1 Physical Setting 7
3.2 Past Investigations 7

4.0 SCOPE OF THE INVESTIGATION 9
4.1 Overview of Site Investigation 9
4.2 Media Investigation 9
4.3 Phase One Conceptual Site Model 10
4.4 Deviations from Sampling and Analysis Plan 13
4.5 Impediments 14

5.0 INVESTIGATIVE METHOD 15
5.1 General 15
5.2 Drilling and Excavating 16
5.3 Soil: Sampling 16
5.4 Soil: Field Screening Methods 16
5.5 Ground Water: Monitoring Well Installation 17
5.6 Ground Water: Field Measurements of Water Quality Parameters 18
5.7 Ground Water: Sampling 18
5.8 Sediment: Sampling 18
5.9 Analytical Testing 18
5.10 Residue Management Procedures 19
5.11 Elevation Surveying 19
5.12 Quality Assurance Quality Control Measures 19

6.0 REVIEW AND EVALUATION 21
6.1 Geology 21
6.2 Ground Water: Evaluation and Flow Direction 21
6.3 Ground Water: Hydraulic Conductivity 22
6.4 Fine-Medium Soil Texture 22
6.5 Soil: Field Screening 22
6.6 Soil Quality 22
6.7 Ground Water Quality 23
6.8 Sediment Quality 24
6.9 Quality Assurance and Quality Control Results 25
6.10 Phase Two Conceptual Site Model 25

7.0 CONCLUSIONS 30
7.1 Limitations 30
7.2 Statement of Assessor Qualifications 30

8.0 REFERENCES 32

9.0 TABLES AND FIGURES 33
9.1 Tables 33
9.1.1 Monitoring Well Installation 33
9.1.2 Water Levels 33
9.1.3 LNAPLs and DNAPLs 33
9.1.4 Soil Data 34
9.1.5 Ground Water Data 38
9.1.6 Sediment Data 42
9.1.7 Soil and Ground Water Maximum Concentration Data 43
9.2 Figures 47
9.2.1 Areas of Natural Significance and Water Bodies 47
9.2.2 Property Before Actions Taken to Reduce the Concentration of Contaminants 48
9.2.3 Interpreted Contours of Ground Water Elevations 49
9.2.4 Contaminants of Concern in Areas of Potential Environmental Concern 50

DRAWINGS
Drawing 1: Site Location Map
Drawing 2: Borehole Location Plan
Drawing 3: On-Site & Off-Site Areas of Potential Environmental Concern
Drawing 4: Impacted Locations
Drawing 5: Conceptual Model for Human & Ecological Receptors

PHOTOGRAPHS

APPENDICES
A. GENERAL
Appendix A1: Sampling and Analysis Plan
Appendix A2: Finalized Field Logs
Appendix A3: Certificates of Analysis or Analytical Reports from Laboratories
Appendix A4: Residue Management
Appendix A5: Survey of Phase Two Property

B. HISTORICAL DATA
Appendix B1: Phase One ESA Summary Issued by Terraprobe Inc.

1.0 EXECUTIVE SUMMARY

On August 31, 2017, Rubidium Environmental (Rubidium) was retained by Ember Dog Inc. to conduct a Phase Two Environmental Site Assessment (ESA) of a residential property located at 92 Plains Road East, Burlington, Ontario (the Phase Two Property).

The Phase Two Property ("subject property" or "site") is contemplated for residential/commercial redevelopment following demolition of the existing building. The Phase Two ESA is required to support a Development Approval Application with the City of Burlington and filing of a Record of Site Condition (RSC) with the Ministry of the Environment and Climate Change (MOECC), which may be required for various future redevelopment approvals such as rezoning, site plan control, and building permit applications. The Phase Two ESA Report has been prepared in accordance with Schedule E of the amended Ontario Regulation 153/04 under the Environmental Protection Act (EPA).

The Phase Two Property is a 0.20-hectare, square shaped, parcel of land located on the south side of Plains Road East in Burlington, Ontario. Building structures on the Phase Two Property include a 117 m^2, two (2) storey residential dwelling (with a partial basement). The residential dwelling is currently occupied by a residential tenant. The remaining parts of the property comprises grass, gravel, and woodchip surfaced areas.

Based on the findings of our recently completed Phase One ESA, the Phase One Study Area ("surrounding area") covers land uses within a 250 m radius of the Phase One Property. The Phase One Study Area is developed with residential, commercial, community, institutional, and industrial land uses, including an electronic manufacturer located at 1047 Cooke Boulevard, an ink manufacturer located at 1038 Cooke Boulevard, and a metal fabricator located at 1026 Cooke Boulevard.

There are no water bodies or areas of natural significance on the Phase Two Property or within the Phase One Study Area. A tributary of Grindstone Creek exists approximately 0.5 km northwest of the Phase Two Property, which flows southeastward towards Lake Ontario approximately 0.9 km south of the Phase Two Property.

Historically, the Phase Two Property was a vacant, undeveloped parcel of land prior to the construction of the residential dwelling in the early 1950s. Subsequently, a free-standing building that was formerly used as a parking garage with second floor residential space was constructed on the southern portion of the Phase Two Property in the early 1960s, which was demolished in July 2015.

Based on the findings of the historical records review, Site reconnaissance, and personal interviews; the following potentially contaminating activities (PCAs) and areas of potential environmental concern (APECs) were identified in connection with the Phase Two Property and/or Phase One Study Area (referred to as Exhibit A).

Exhibit A: Potentially Contaminating Activities and Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)		Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern (COPC)	Media Potentially Impacted (GW, Soil, and/or Sediment)
APEC1: Former Heating Oil Aboveground Storage Tank (AST)	Southern Portion of Phase One Property	Item #28 – Gasoline and Associated Products Storage in Fixed Tanks	1	On-Site – Southeast corner of former free-standing building	Petroleum Hydrocarbons (PHCs) Polycyclic Aromatic Hydrocarbons (PAHs) Metals	Soil and Ground Water
APEC2: Fill Materials	Northern Portion of Phase One Property	Item # 30 – Importation of Fill Material of Unknown Quality	2	On-Site – Previously identified fill materials	PHCs PAHs Volatile Organic Compounds (VOCs) Metals	Soil and Ground Water
APEC3: Former Gasoline Service Station	Northern Portion of Phase One Property	Item #28 – Gasoline and Associated Products Storage in Fixed Tanks	3	Off-Site – Former gasoline service station located at 71 Plains Road East	PHCs PAHs VOCs Metals	Ground Water
APEC4: Former Retail Fuel Storage Tanks and Glass Manufacturing	Northern Portion of Phase One Property	Item #28 – Gasoline and Associated Products Storage in Fixed Tanks and Item # 29 – Glass Manufacturing	4	Off-Site – Former fuel/oil storage tanks and glass manufacturing operations at 91 Plains Road East	PHCs VOCs	Ground Water

A Phase Two ESA was recommended to assess subsurface impacts as a result of the aforementioned PCAs and APECs.

The Phase Two ESA entailed the drilling of a total of three (3) sampled boreholes to depths ranging between 9.14 to 9.75 m below the existing grade at strategically selected locations on the Phase Two Property. Ground water monitoring wells were also installed in all of the boreholes.

The observed soil stratigraphy generally comprised surficial topsoil overlying sandy silt fill, which was underlain by a stratum of sand till. The soil across the property is considered to be coarse-textured for the purpose of this assessment.

Fieldwork for this investigation began on October 10, 2017 by soil sampling from a total of three (3) exterior boreholes drilled to depths of 5.18 to 6.10 m below existing grade with the installation of three (3) monitoring wells at the locations. The monitoring wells revealed dry conditions and ground water was not encountered.

Additional fieldwork was conducted on October 27, 2017 by further advancing the original boreholes depths from 5.18 to 6.10 m below existing grade to 9.14 to 9.75 m below existing grade in order to encounter ground water for monitoring and sampling purposes. The stabilized ground water levels were measured at depths of 8.30 to 8.43 m below existing grade in all three (3) monitoring wells. No free-product was measured in any of the monitoring wells.

Based on the site topography and ground water level measurements, the ground water flow is interpreted to flow across the Site in a southeasterly direction. The results of the ground water monitoring also indicate that the primary near surface water table resides within the sand (till) layer.

Nine (9) soil samples (representative of fill and native soils) and six (6) ground water samples were collected and submitted for laboratory analyses.

In comparison with the (2011) *Ontario Soil, Ground Water, and Sediment Standards for Use Under Part XV.1 of the* Environmental Protection Act (EPA) criteria, the results of the laboratory analyses on all soil and ground water samples indicated that the measured contaminant concentrations complied with the applicable Table 3 Site Condition Standards (SCS) for residential/parkland/institutional (RPI) and industrial/commercial/community (ICC) land uses with coarse-textured soils in a non-potable ground water condition.

As the soil and ground water analytical results do not exceed the applicable Table 3 SCS, it would appear that there is no significant source of contamination and no movement of contaminants of concern through ground water across the areas investigated on Phase Two Property. Therefore, in our opinion, no further actions are warranted at this time.

2.0 INTRODUCTION

On August 31, 2017, Rubidium Environmental (Rubidium) was retained by Ember Dog Inc. to conduct a Phase Two Environmental Site Assessment (ESA) of a residential property located at 92 Plains Road East, Burlington, Ontario (the Phase Two Property), as shown in **Drawing 1**.

The Phase Two ESA Report has been prepared in accordance with Schedule E of the amended *Ontario Regulation 153/04,* Record of Site Condition – Part XV.1 of the Environmental Protection Act (EPA). The Phase Two ESA is required to support a Development Approval Application with the City of Burlington and filing of a Record of Site Condition (RSC) with the Ministry of the Environment and Climate Change (MOECC), which may be required for various future redevelopment approvals such as rezoning, site plan control, and building permit applications.

The findings presented in this report may be used for this purpose subject to the limitations stated under Section 7.1. No third parties are entitled to rely upon this report without the written consent of Rubidium. Any use which a third party makes of this report is the sole responsibility of the said third party, and Rubidium accepts no responsibility for any damages.

2.1 Phase Two Property Description

The Phase Two Property is a 0.20-hectare, square shaped, parcel of land located on the south side of Plains Road East in Burlington, Ontario. Building structures on the Phase Two Property include a 117 m^2, two (2) storey residential dwelling (with a partial basement). The residential dwelling is currently occupied by a residential tenant. The remaining parts of the property comprises grass, gravel, and woodchip surfaced areas.

The Phase Two Property is located south of Highway 403, east of Waterdown Road, and west of King Road, as shown in **Drawing 1** and the photograph appendix. The municipal address is 92 Plains Road East, Burlington, Ontario with Property Identification Number (PIN) 07117-0034 (LT).

The legal description of the Phase Two Property is Part of Lots 34, 35, and 36 of Registered Plan PF725, in the City of Burlington, Province of Ontario.

2.2 Property Ownership

The current owner of the Phase Two Property is Ember Dog Inc.

2.3 Current and Proposed Future Uses

Historically, the Phase Two Property was a vacant, undeveloped parcel of land prior to the construction of the residential dwelling in the early 1950s. Subsequently, a free-standing building that was formerly used as a parking garage with second floor residential space was constructed on the southern portion of the Phase Two Property in the early 1960s, which was demolished in July 2015.

The current and proposed land uses are as follows:

Current or Proposed	Description of Property Use
Current	Residential – Occupied by a lessee.
Proposed	Residential/Commercial – A 6-storey residential apartment building with ground floor commercial units.

2.4 Applicable Site Condition Standards

The site-specific details which formed the basis of the assessment criteria selection are provided below:

Site Sensitivity:

- The site does not include, nor is there evidence to suggest it could have an adverse effect on a sensitive environment.
- The borehole drilling program revealed that the bedrock is deeper than 9.75 m below existing grade across the Site;
- The glacially-derived native sand materials are relatively permeable to depths up to at least 9.75 m below ground surface; and
- The subsurface soil pH values are between 6.82 and 8.87. Three (3) soil samples (including one (1) duplicate soil sample) were collected on October 10, 2017 at two (2) boreholes (BH/MW1 and BH/MW3) between the surface and 5.18 m below existing grade, to determine the soil pH for the Phase Two Property.

Land Use:

- The subject site is currently developed with a building to support residential land uses. Proposed residential and commercial land use redevelopment is anticipated.

Ground Water Use:

- The site is and will continue to be serviced by a municipal drinking water supply derived from Lake Ontario.

Depth and Soil Texture:

- For the purpose of the report, the assessment criteria corresponding to the full depth option will be used for comparison to the laboratory analytical results.
- One (1) soil sample was collected on October 10, 2017 at the location of BH1 between 5.18 and 6.10 m below existing grade, to determine the soil grain size for the Phase Two Property.

- Based upon field observations, and soil grain size analyses conducted by ALS Environmental, the site stratigraphy generally comprises gravelly sand, trace silt, and trace clay. Therefore, for the purpose of this report, the assessment criteria corresponding to coarse-textured soils were selected for comparison in laboratory analytical results.
- The selected soil texture is applicable to at least one-third of the Site being assessed. Therefore, the coarse textured soil standards can be used, as per *Ontario Regulation 153/04*, s.42 (1).

Based on the above information, the applicable Environmental Protection Act (EPA) site assessment criteria selected for use at this Site is the Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition (Table 3) criteria for residential/parkland/institutional and industrial/commercial/community land uses with coarse-textured soils.

3.0 BACKGROUND INFORMATION

3.1 Physical Setting

The Phase Two Property is located at a topographic elevation of approximately 101 m above mean sea level. Topography at and in the general vicinity of the Site is relatively flat with a drop in elevation to the southeast towards Lake Ontario, as shown in **Figure 9.2.1**.

The Phase Two Property is located within the broad physiographic region known as the Iroquois Plain (Chapman and Putnam, 1984). This region is a slightly sloping plain that is covered with stratified sands of carrying depths in some areas and soil formed directly on the wave-eroded surface of red shale, in others. This region borders Lake Ontario and extends around the western part of Lake Ontario from the Niagara River to the Trent River.

Local surficial geologic mapping (The Ontario Geological Survey, 2003) of the Burlington area indicates that coarse-textured glaciolacustrine deposits of sand, gravel, and minor silt and clay, underlie the Phase Two Property.

Bedrock geologic mapping of Ontario (The Ontario Geological Survey, 1990) indicates that the glacially derived overburden soil at the Phase Two Property is underlain by Upper Ordovician Age shale, limestone, dolostone, and siltstone of the Queenston Formation.

A Radon Potential Map of Ontario revealed that the subject property is located within Zone 2 (Radon Potential Map Ontario, 2013). This Zone is designated as an elevated relative radon hazard. Therefore, emissions of radon in the vicinity of the Site is of a low to medium potential environmental concern.

No water bodies or areas of natural significance were observed on the Phase Two Property or in the Phase One Study Area. However, a tributary of Grindstone Creek exists approximately 0.5 km northwest of the Site and Lake Ontario exists approximately 0.9 km south of the Site. The local hydrogeology is controlled by this waterbody, the underlying geology, and the topography and is surmised to be directed southeastward.

The regional ground water flow is surmised to be also directed southeastward due to the influence of Grindstone Creek and Lake Ontario. The static ground water level in the vicinity of the Phase Two Property is noted to be approximately 8.69 m below existing grade.

3.2 Past Investigations

Two (2) previous investigations relating to the environmental conditions at the Phase Two Property were reviewed. Rubidium attests that all data and information presented in the following reports can be relied upon (assuming that all containing information was accurate) and were used to supplement this Phase Two ESA. A summary of each of these reports is provided below.

1. **Phase One Environmental Site Assessment, 92 Plains Road East, Burlington, Ontario, issued by Rubidium (Project No.: Rb 2671).**

   Based on the findings of the historical records review, site reconnaissance, and interviews; PCAs and APECs were identified in association with the Phase One Property and/or Phase One Study Area. Refer to **Exhibit A** in the Executive Summary.

   A Phase Two ESA was recommended to assess any subsurface impacts as a result of the PCAs and APECs identified in the Phase One ESA.

2. **Phase One Environmental Site Assessment, 92 Plains Road East, Burlington, Ontario, issued by Terraprobe Inc., dated April 30, 2015 (File No. 73-15-5001).**

Based on the findings of their historical records review, interviews, and Site reconnaissance, the following areas of potential environmental concern (APEC) were identified with the Phase One Property and Surrounding Area:

APEC	Location of APEC on Phase One Property	Potentially Contaminating Activity		Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil, and/or sediment)
APEC-1	92 Plains Road East – above ground heating oil tank in southeast corner of garage	28	Gasoline and Associated Products Storage in Fixed Tanks	On-site	Metals, Petroleum Hydrocarbons (PHCs), Polycyclic Aromatic Hydrocarbons (PAHs)	Soil Ground water
APEC-2	92 Plains Road East – fill of unknown quality at northwest portion of property	30	Importation of Fill Material of Unknown Quality	On-site	Metals, PHCs, PAHs, Volatile Organic Compounds (VOCs)	Soil Ground water
APEC-3	71 Plains Road East – former gasoline/service station northwest of property	28	Gasoline and Associated Products Storage in Fixed Tanks	Off-site	Metals. PHCs, PAHs, VOCs	Ground water

A summary of the Phase One ESA is presented in **Appendix B1**.

4.0 SCOPE OF THE INVESTIGATION

4.1 Overview of Site Investigation

The Phase Two ESA was conducted in accordance with Schedule E of *Ontario Regulation 153/04*, Record of Site Condition – Part XV.1 of the EPA.

The scope of the investigation included:

- Review of previous reports to identify any APECs.
- Planning the site investigation.
- Compiling the sampling/analysis plan for the Phase Two ESA (reproduced in **Appendix A1**.)
- Underground utility clearances and layout of three (3) boreholes on the Phase Two Property.
- Mobilizing, drilling, and logging of three (3) sampled boreholes to depths of 9.14 to 9.75 m below existing grade.
- Installation of a 50-mm diameter perforated polyvinyl chloride (PVC) ground water monitoring well in three (3) of the boreholes.
- Screening of soil sample head-space for soil vapours using a portable photo ionization detector (PID) *Thermo 580B.*
- Measuring the static ground water levels in the three (3) monitoring wells to complete a comprehensive ground water elevation measurement round to confirm ground water flow direction at the Site.
- Purging and collection of ground water samples from three (3) monitoring wells.
- Conducting chemical analyses on nine (9) representative soil samples and six (6) ground water samples at an accredited laboratory.
- Preparation of this report of significant findings, conclusions, and our recommendations.
- Submission of this report to the Owner of the Phase Two Property.

4.2 Media Investigation

The media investigated on the Phase Two Property is as follows:

Media Investigated	Rationale
Soil	Soil was investigated for PCAs identified during the Phase One ESA
Ground Water	Ground water was investigated for PCAs that were identified during the Phase One ESA

Representative samples of soil and ground water media were obtained through the completion of a sampling program that included the drilling of boreholes and the installation of ground water monitoring wells, as shown in **Drawing 2**. Soil and ground water quality data was obtained from visual and olfactory observations, field screening methods, and laboratory analytical data.

4.3 Phase One Conceptual Site Model

Site Description

The Phase One Property is a 0.20-hectare, square shaped, parcel of land comprising a 117 m^2, two (2) storey residential dwelling (with a partial basement). The residential dwelling is currently occupied by a residential tenant.

Historically, the Phase One Property was a vacant, undeveloped parcel of land prior to the construction of the residential dwelling in the early 1950s. Subsequently, a free-standing building that was formerly used as a parking garage with second floor residential space was constructed on the southern portion of the Phase One Property in the early 1960s, which was demolished in July 2015.

The remaining parts of the Site comprise grass, gravel, and woodchip surfaced areas.

Water Bodies / Areas of Natural Significance

There are no water bodies or areas of natural significance on the Phase One Property or within the Phase One Study Area.

A tributary of Grindstone Creek exists approximately 0.5 km northwest of the Phase One Property, which flows southeastward towards Lake Ontario approximately 0.9 km south of the Phase One Property.

Drinking Water Wells

There is no drinking water well records for the Phase One Property; however, there are seven (7) well records within a 0.25 km search radius. These records relate to abandoned or monitoring wells in the vicinity of the Phase One Property. The Site reconnaissance confirmed that there is one (1) abandoned potable well on the Phase One Property along the south side of the residential dwelling. An interview with the property Owner confirmed that the well is abandoned, and the property is connected to the municipal drinking water system.

Neighboring Land Use

The Phase One Study Area is developed with residential, commercial, community, institutional, and industrial land uses, including an electronic manufacturer located at 1047 Cooke Boulevard, an ink manufacturer located at 1038 Cooke Boulevard, and a metal fabricator located at 1026 Cooke Boulevard, as presented in **Figure 9.2.2**.

Areas of Potential Environmental Concerns (APECs)

Based on the findings of the historical records review, Site reconnaissance, and personal interviews; the following PCAs and APECs were identified in connection with the Phase One Property and/or Phase One Study Area, as presented in **Drawing 3**. The following APECs were found to be associated with the current or historical land uses of the Phase One Property and the Phase One Study Area:

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)		Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern (COPC)	Media Potentially Impacted (GW, Soil, and/or Sediment)
APEC1: Former Heating Oil Aboveground Storage Tank (AST)	Southern Portion of Phase One Property	Item #28 – Gasoline and Associated Products Storage in Fixed Tanks	1	On-Site – Southeast corner of former free-standing building	Petroleum Hydrocarbons (PHCs) Polycyclic Aromatic Hydrocarbons (PAHs) Metals	Soil and Ground Water
APEC2: Fill Materials	Northern Portion of Phase One Property	Item # 30 – Importation of Fill Material of Unknown Quality	2	On-Site – Previously identified fill materials	PHCs PAHs Volatile Organic Compounds (VOCs) Metals	Soil and Ground Water
APEC3: Former Gasoline Service Station	Northern Portion of Phase One Property	Item #28 – Gasoline and Associated Products Storage in Fixed Tanks	3	Off-Site – Former gasoline service station located at 71 Plains Road East	PHCs PAHs VOCs Metals	Ground Water
APEC4: Former Retail Fuel Storage Tanks and Glass Manufacturing	Northern Portion of Phase One Property	Item #28 – Gasoline and Associated Products Storage in Fixed Tanks and Item # 29 – Glass Manufacturing	4	Off-Site – Former fuel/oil storage tanks and glass manufacturing operations at 91 Plains Road East	PHCs VOCs	Ground Water

Additional PCAs that were identified in association with the Phase One Study Area that are **not** of concern include:

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)		Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern (COPC)	Media Potentially Impacted (GW, Soil, and/or Sediment)
APEC5: Former Glass Manufacturing	N/A Property is Cross-Gradient from Phase One Property	Item #29 – Glass Manufacturing	5	Off-Site – Former glass manufacturing operations at 115 Plains Road East	PHCs VOCs	Ground Water
APEC6: Former Lawn Mower Sales & Service	N/A Property is Cross-Gradient from Phase One Property	Item #52 – Storage, Maintenance, Fuelling, and Repair of Equipment, Vehicles, and Material Used to Maintain Transportation Systems	6	Off-Site – Former lawn equipment repair operations at 133 Plains Road East	PHCs VOCs Metals	Ground Water
APEC7: Former Gasoline Service Station	N/A Property is Cross-Gradient from Phase One Property	Item #28 – Gasoline and Associated Products Storage in Fixed Tanks	7	Off-Site – Former gasoline service station at 30 Plains Road East	PHCs VOCs Metals	Ground Water
APEC8: Former Automotive Repair Garage	N/A Property is Cross-Gradient from Phase One Property	Item #52 – Storage, Maintenance, Fuelling, and Repair of Equipment, Vehicles, and Material Used to Maintain Transportation Systems	8	Off-Site – Former automotive repair garage at 14 Plains Road East	PHCs VOCs Metals	Ground Water
APEC9: Existing Electronic Manufacturer	N/A Property is Cross-Gradient from Phase One Property	Item # 19 – Electronic and Computer Equipment Manufacturing	9	Off-Site – Existing electronic manufacturer at 1047 Cooke Boulevard	VOCs Metals	Ground Water
APEC10: Existing Ink Manufacturer	N/A Property is Cross-Gradient from Phase One Property	Item # 31 – Ink Manufacturing, Processing, and Bulk Storage	10	Off-Site – Existing ink manufacturer at 1038 Cooke Boulevard	VOCs	Ground Water

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)		Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern (COPC)	Media Potentially Impacted (GW, Soil, and/or Sediment)
APEC11: Existing Metal Fabricator	N/A Property is Cross-Gradient from Phase One Property	Item # 34 – Metal Fabrication	11	Off-Site – Existing metal fabricator at 1026 Cooke Boulevard	VOCs Metals	Ground Water

Description of Assessment

PCAs with known or potential to affect the Phase One Property are as follows:

PCA #	Location of APEC on Phase One Property	Contaminants of Concern	Impact to Phase One Property (Known or Potential)
1	Southern Portion of Phase One Property	PHCs PAHs Metals	Potential
2	Northern Portion of Phase One Property	PHCs PAHs VOCs Metals	Potential
3			
4			

Additional PCAs that **do not** affect the Phase One Property are as follows:

PCA #	Location of APEC on Phase One Property	Contaminants of Concern	Impact to Phase One Property (Known or Potential)
5	N/A Properties are inferred to be located hydraulically cross-gradient from the Phase One Property	PHCs VOCs	N/A Properties are inferred to be located hydraulically cross-gradient from the Phase One Property
6		PHCs VOCs Metals	
7			
8			
9		VOCs Metals	
10		VOCs	
11		VOCs Metals	

Underground utilities are expected to be present on the subject property (sanitary sewer, potable water, city water, natural gas, telephone, electricity) and could potentially act as preferential pathways.

Local surficial geologic mapping (The Ontario Geological Survey, 2003) of the Burlington area indicates that coarse-textured glaciolacustrine deposits of sand, gravel, and minor silt and clay, underlie the Phase One Property.

The Phase One Property is located approximately 0.5 km southeast of a tributary of Grindstone Creek, which flows southeastward towards Lake Ontario approximately 0.9 km southeast of the Phase One Property. The local hydrogeology is controlled by this waterbody, the underlying geology, and the topography and is surmised to be directed southeastward. The regional ground water flow is surmised to be directed southeastward due to the influence of Grindstone Creek and Lake Ontario.

It is not expected that any uncertainty or absence of information would affect the validity of the Conceptual Site Model (CSM).

4.4 Deviations from Sampling and Analysis Plan

No deviations from the sampling and analysis plan occurred during this investigation. All parameters were tested within the media identified, as previously described in *Section 3.2*. The sampling and analysis plan is reproduced as **Appendix A1**.

4.5 Impediments

No physical impediments or documentation of any denial of access took place during this investigation.

5.0 INVESTIGATIVE METHOD

Fieldwork for this investigation began on October 10, 2017 by soil sampling from a total of three (3) exterior boreholes drilled to depths of 5.18 to 6.10 m below existing grade with the installation of three (3) monitoring wells at the locations shown in **Figure 9.2.2**. The monitoring wells revealed dry conditions and ground water was not encountered.

Additional fieldwork was conducted on October 27, 2017 by further advancing the original boreholes depths from 5.18 to 6.10 m below existing grade to 9.14 to 9.75 m below existing grade in order to encounter ground water for monitoring and sampling purposes. The stabilized ground water levels were measured at depths of 8.30 to 8.43 m below existing grade in all three (3) monitoring wells. No free-product was measured in any of the monitoring wells.

5.1 General

The borehole locations were established in the field by Rubidium engineers and technicians prior to drilling. *Ontario One-Call* was contracted to locate and clear buried utility lines including telephone cables, natural gas mains, and hydro power lines. All the detected underground lines were identified on the ground by marking paints of various colours, as shown in **Drawing 2**.

Soil

Representative soil samples were recovered at each of the borehole locations. The soil stratigraphy was logged during drilling as soil samples were collected with dedicated dual tubes. Visual observations of any foreign materials or odours were also logged. The Finalized Field Logs are presented in **Appendix A2**.

Soil samples were split into portions that were collected into a plastic bag and a sample jar. Head space vapour concentrations were determined by allowing the bags to warm up to ambient temperature, probing into partially opened bags using a monitoring probe, and measuring the sample head space with a PID. Selected samples were placed in laboratory-supplied glass jars or vials and stored in a cooler during transport to the laboratory.

Ground Water

Upon completion of drilling, a 50-mm diameter PVC monitoring well was installed in three (3) boreholes for ground water monitoring. Initial ground water levels were measured, and a dedicated set of polyethylene tubing was inserted into the wells.

The wells were purged to waste and fresh ground water samples were drawn for chemical analyses using a low-flow peristaltic pump. Samples were also placed in laboratory-supplied glass bottles or vials and stored in a cooler during transport to the laboratory.

5.2 Drilling and Excavating

On October 10, 2017, boreholes were advanced by using a *Geoprobe 7822DT* mounted on a track equipped with augers and dual tubes. On October 27, 2017, boreholes were further advanced by using a Mobile B57 mounted on a track equipped with augurs and dual tubes. Both drill rigs were supplied and operated by Landshark Drilling under the direction of Rubidium staff.

Disposable nitrile gloves were used and replaced between the handling of samples and all soil sampling equipment (stainless steel trowels, spatulas, etc.) were thoroughly decontaminated between soil sample locations to prevent potential cross-contamination. Decontamination activities included physical removal of any adhered debris, wash/scrub in "Alconox" soap solution, distilled water rinse, methanol rinse, and air dry.

Samples were collected continuously from the dual tubes. Samples submitted to the laboratory were based on visual observations, results of headspace screening, and identified APECs and associated parameters of concern.

5.3 Soil: Sampling

All soil samples were collected in accordance with strict environmental sampling protocols to ensure reliable results. Any equipment used to collect the soil samples are previously discussed in Section 5.0, 5.1, and 5.2.

The observed soil stratigraphy generally comprised surficial topsoil overlying sandy silt fill, which was underlain by a stratum of sand till, as described in the following table:

Borehole/ Monitoring Well ID	Soil Stratigraphy	Depth (m)	Observations
BH/MW1	Topsoil Fill	0 to 0.08	No staining observed on the surface
	Sand Till – Brown; gravel throughout, trace clay	0.08 to 9.75	No staining observed in this stratum
BH/MW2	Topsoil Fill	0 to 0.08	No staining observed on the surface
	Sandy Silt Fill	0.08 to 1.52	No staining observed on the surface
	Sand Till – Brown; gravel throughout, trace clay	1.52 to 9.14	No staining observed in this stratum
BH/MW3	Topsoil Fill	0 to 0.08	No staining observed on the surface
	Sandy Silt Fill	0.08 to 1.07	No staining observed on the surface
	Sand Till – Brown, gravel throughout, trace clay	1.07 to 9.14	No staining observed in this stratum

5.4 Soil: Field Screening Methods

All soil samples were screened in the field for evidence of staining and odours. Soil sample headspace screening was also performed to facilitate sample selections for laboratory analysis and to provide an assessment of the vertical contaminant distributions at each borehole location.

The soil sample headspace screening was conducted with a PID Thermo 580B calibrated to a known isobutylene gas. The PID readings were recorded in parts per million (ppm), as shown in the Finalized Field Logs in **Appendix A2**.

5.5 Ground Water: Monitoring Well Installation

Upon completion of drilling, a 50-mm diameter, flush-joint threaded PVC monitoring well was installed in three (3) of the boreholes for ground water monitoring by Landshark Drilling under the direction of Rubidium staff.

The monitoring wells included a 3 m length of slotted intake screen. The tops of the intake screens were then extended to the ground surface using solid riser pipe. A silica sand filter pack was placed between the intake screen and the wall of the borehole. The filter pack was extended approximately 0.6 m above the top of the well screen to allow for settlement of the sand packs and to accommodate expansion of the overlying well seals. A bentonite seal was placed above the sand pack and extended to approximately 0.3 m below grade. No glue was used in the construction of the monitoring wells.

Elevations and associated monitoring well construction are shown in **Table 9.1.1**. The locations of the monitoring wells are shown in **Figure 9.2.3**, and the well completion diagrams are also shown on the Finalized Field Logs in **Appendix A2**.

All ground water monitoring wells installed at the Phase Two Property were instrumented with sufficient lengths of low density polyethylene tubing to facilitate well development and purging requirements. Following the initial installation, depths to the static water level were measured and each monitoring well was developed by purging the well dry at least once to remove any fluids that may have been introduced into the well during drilling and to remove particulates that may have become entrained in the well and filter pack, and to stabilize and grade the filter pack, improve connectivity between the well and the formation, and restore ground water that may have been disturbed or altered during the drilling process to ensure the samples to be representative of true formation waters. The purging activities were carried out using the dedicated tubing and a low-flow peristaltic pump.

Purging of the three (3) installed monitoring wells commenced on October 27, 2017 and was as follows:

Monitoring Well ID	Date of Development/Purging	Time of Development/Purging	Volume of Fluid Removed from Well (L)
MW1	October 27, 2017	12:30 – 1:10 pm	5.00
MW2	October 27, 2017	2:00 – 2:30 pm	4.00
MW3	October 27, 2017	3:00 – 3:25 pm	3.00

The development was completed on the aforementioned date as all three (3) monitoring wells were purged of three (3) well volumes.

5.6 Ground Water: Field Measurements of Water Quality Parameters

On October 27, 2017, after the monitoring wells were purged of three (3) well volumes, the following water quality field parameters were measured using a Quanta multi-probe prior to sampling:

Monitoring Well ID	pH (pH units)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	Temperature (ºC)
MW1	7.05	3.04	6.48	12.84
MW2	7.61	2.58	5.97	14.57
MW3	7.46	2.74	5.13	13.59

5.7 Ground Water: Sampling

All ground water samples were collected in accordance with strict environmental sampling protocols to ensure reliable results. Any equipment used to collect the ground water samples are previously discussed in *Section 5.0, 5.1,* and *5.2*.

The wells were purged to waste and fresh ground water samples were drawn for chemical analyses. During the sampling round, ground water samples were collected using a low-flow peristaltic pump, with dedicated tubing installed in each of the monitoring wells. This method minimizes the velocity of the formation waters entering the well screen, as the drawdown is kept to a minimum (i.e., less than 10 cm) by adjusting the pumping rate. The samples were placed in laboratory-supplied glass bottles or vials and stored in a cooler during transport to the laboratory.

Ground water monitoring, including measuring the depth to the stabilized water level, was conducted on October 10, 11, 13, 16, and 27, 2017. Measurements of ground water depth were made using an electronic oil water interface probe. All depth measurements are shown in **Table 9.1.2**.

In addition, the ground water was screened (during all monitoring events) in the field for evidence of free product including presence of liquid petroleum hydrocarbons (LPH), sheen (iridescence), odour and colour, as summarized in **Table 9.1.3**.

5.8 Sediment: Sampling

Sediment sampling was not part of this investigation; there is no surface water body located at the site.

5.9 Analytical Testing

Soil and ground water samples collected during the Phase Two investigation were submitted for laboratory analysis. The soil and ground water laboratory chemical analysis was conducted by ALS Environmental of Waterloo, Ontario. ALS Environmental is a Standards Council of Canada certified laboratory in accordance with ISO/IEC 17025: 1999 – "*General Requirements for the Competence of Testing and Calibration Laboratories*" for the tested parameters set out in the Soil, Ground Water, and Sediment Standards.

Based on visual observations, results of headspace screening, and identified APECs and associated parameters of concern, nine (9) selected soil samples (representative of fill materials and native soils), and six (6) ground water samples were submitted to ALS Environmental, for the following analyses:

- PHCs on four (4) soil and four (4) ground water samples (including one (1) QA/QC sample for soil and one (1) QA/QC sample for ground water);
- VOCs on four (4) soil and five (5) ground water samples (including one (1) QA/QC sample for soil and two (2) QA/QC samples for ground water);
- PAHs on four (4) soil and four (4) ground water samples (including one (1) QA/QC sample for soil and one (1) QA/QC sample for ground water); and,
- Metals on four (4) soil and four (4) ground water samples (including one (1) QA/QC sample for soil and one (1) QA/QC sample for ground water).

The Laboratory Certificate of Analyses and Analytical Reports are reproduced in **Appendix A3**.

5.10 Residue Management Procedures

Any soil cuttings from the borehole drilling activities, water from the well development and purging, and any fluids from equipment cleaning are stored in secure containers on the Phase Two Property.

The secure containers were collected from the Site for off-Site disposal on November 8, 2017 by Landshark Drilling. A copy of the waste manifest is presented in **Appendix A4**.

5.11 Elevation Surveying

Reference point elevations are geodetic and are derived from a high sensitivity Garmin Oregon 600 GPS with GLONASS satellite tracking using the UTM coordinate system (WGS-84). The GPS barometric altimeter and compass were calibrated prior to use at the Phase Two Property and the accuracy of the GPS was recorded to be 3 m.

A legal survey of the Phase Two Property can be seen in **Appendix A5**.

5.12 Quality Assurance Quality Control Measures

A strict Quality Assurance/Quality Control (QA/QC) program was implemented and maintained throughout the project to ensure the Phase Two Property data represents the actual Site conditions.

The QA/QC program provides a method of documented checks to assess the precision and accuracy of collected data. Rubidium field and QA/QC protocols have been developed to meet or exceed those defined in the Ministry of the Environment (MOE) documents entitled *Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04* (June 2011) and *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the EPA* (March 9, 2004, amended as of July 1, 2011).

The QA/QC program included the following set of standard procedures or protocols:

I. The use of personal protective equipment (PPE);

II. Thorough documentation of all field activities and sample handling practices;

III. Thorough decontamination of all sampling equipment used during all investigation phases;

IV. The incorporation of duplicate samples into the sampling and analytical programs to assess the validity of the data received from the analytical laboratory;

V. The use of laboratory analytical protocols and method detection limits that have been established in accordance with regulatory requirements for the province of Ontario;

VI. All sample jars, bottles, and vials were pre-cleaned, inspected, clearly labeled, and their contents recorded on the Finalized Field Log Sheets and Chain-of-Custody forms; and

VII. Chain-of-Custody forms included sample identification, location, sampling date, and the analyses prescribed were completed and delivered to the laboratory with the cooled samples within 10 hours of sampling.

6.0 REVIEW AND EVALUATION

6.1 Geology

The subsurface profiles and associated below grade elevations encountered at the Phase Two Property are described in the Finalized Field Logs in **Appendix A2**.

The estimated thickness of each geologic unit is as follows:

	Geologic Unit	Depth
Surface	Topsoil	0.00 to 0.08 m
Fill Strata	Sandy Silt Fill	0.08 to 1.52 m
Till Strata	Sand Till (gravel throughout, trace clay)	0.08 to 9.75 m
Bedrock	Not Encountered.	

The soil across the property is considered to be coarse-textured for the purpose of this ESA.

6.2 Ground Water: Evaluation and Flow Direction

The ground water elevations recorded across the Phase Two Property at the monitoring wells were as follows:

Monitoring Well ID	Date Monitored (M-D-Y)	Ground Surface Elevation (m)	Depth of Water Below Ground Surface (m)	Ground Water Elevation (m)	Observations
MW1	10-10-17	106	Dry	N/A	Dry
	10-11-17		Dry	N/A	Dry
	10-13-17		Dry	N/A	Dry
	10-16-17		Dry	N/A	Dry
	10-27-17		8.43	97.57	None Observed
MW2	10-10-17	106	Dry	N/A	Dry
	10-11-17		Dry	N/A	Dry
	10-13-17		Dry	N/A	Dry
	10-16-17		Dry	N/A	Dry
	10-27-17		8.30	97.70	None Observed
MW3	10-10-17	105	Dry	N/A	Dry
	10-11-17		Dry	N/A	Dry
	10-13-17		Dry	N/A	Dry
	10-16-17		Dry	N/A	Dry
	10-27-17		8.38	96.62	None Observed

The results of the ground water monitoring indicated that the primary near surface water table resides within the sand (till) layer.

As summarized in **Table 9.1.3**, no free-product was observed in any of the monitoring wells monitored on the Phase Two Property.

Based on the overburden ground water elevations and the Site topography, the ground water in the overburden layer is interpreted to flow across the Site in a southeasterly direction. The ground water elevations and interpreted flow direction is presented in **Figure 9.2.3**.

Temporal variability in the ground water flow direction could not be assessed during this Phase Two investigation since ground water elevations were obtained from all monitoring wells during one season and no historical ground water data was available.

6.3 Ground Water: Hydraulic Conductivity

The horizontal hydraulic gradient (as shown in **Figure 9.2.3**) was calculated using ground water monitoring data across the site, which revealed the following:

		Native (Till) Unit
Horizontal	Average	0.026 m/m

Based on grain size analysis testing, the hydraulic conductivity of the native till is on the order of $1.96x10^{-2}$ m/s. Therefore, the soil's ability to transmit water across the site (in the native till materials) is moderate to high on the Phase Two Property. Furthermore, a hydraulic conductivity of $1.96x10^{-2}$ m/s is consistent with a silty sand or clean sand (Freeze and Cherry, 1979) which represents a moderately permeable unit.

The hydraulic conductivity results were derived by using Hazen's formula, which comprises the use of a coefficient of 1.0 m (Terzaghi and Peck, 1948) and a D10 of 0.14 mm (refer to laboratory grain size analyses provided in **Appendix A3**).

6.4 Fine-Medium Soil Texture

Fine-medium soil texture was not used for this investigation, as soil grain size analyses conducted by ALS Environmental on one (1) soil sample collected from the native till unit (BH/MW1), revealed gravelly sand (with trace silt and clay), comprising 65% sand, as previously discussed in *Section 2.4*.

6.5 Soil: Field Screening

Sample headspace screening with the PID yielded readings of non-detect and 1.9 parts per million (ppm), as shown in the Finalized Field Logs in **Appendix A2**.

These readings and any field observations (staining, odours, etc.) were considered when selecting soil samples for laboratory analyses.

6.6 Soil Quality

In total, five (5) soil samples (exclusive of field duplicates) were collected during the borehole drilling and soil sampling activities and were submitted to the laboratory for analysis of PHCs, VOCs, PAHs, and Metals. Blind duplicate samples were collected for each aforementioned parameter in accordance with the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the EPA (the "Analytical Protocol"), MOE, March 9, 2004, amended as of July 1, 2011.

The results of the soil sample analyses, and their respective EPA Table 3 criteria, are summarized in **Table Series 9.1.4**.

PHCs

A total of four (4) soil samples, including one (1) QA/QC duplicate sample (BH/MW3-1D) were submitted for analysis of PHCs (F1-F4).

No contaminant concentrations in exceedance of EPA Table 3 criteria were found during the sampling event. In addition, no visible LPH was observed in the soil samples obtained from the Phase Two Property.

VOCs

A total of four (4) soil samples, including one (1) QA/QC duplicate sample (BH/MW3-1D) were submitted for analysis of VOCs.

No contaminant concentrations in exceedance of EPA Table 3 criteria were found during the sampling event. Trace amounts of acetone was found to be well within the EPA Table 3 criteria.

PAHs

A total of four (4) soil samples, including one (1) QA/QC duplicate sample (BH/MW3-1D) were submitted for analysis of PAHs.

No contaminant concentrations in exceedance of EPA Table 3 criteria were found during the sampling event. Trace amounts of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g, h, i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene were found to be well within the EPA Table 3 criteria.

Metals

A total of four (4) soil samples, including one (1) QA/QC duplicate sample (BH/MW2-3D) were submitted for analysis of Metals.

No contaminant concentrations in exceedance of EPA Table 3 criteria were found during the sampling event. Trace amounts of arsenic, barium, chromium, cobalt, copper, lead, nickel, vanadium, and zinc were found to be well within the EPA Table 3 criteria.

Soil maximum concentration data can also be seen in **Table Series 9.1.7**.

6.7 Ground Water Quality

In total, three (3) ground water samples (exclusive of field duplicates) were submitted to the laboratory for analysis of PHCs, VOCs, PAHs, and Metals.

The results of the ground water sample analyses, and their respective EPA Table 3 criteria, are summarized in **Table Series 9.1.5**.

PHCs

A total of four (4) ground water samples, including one (1) QA/QC duplicate sample (MW3D) were submitted for analysis of PHCs (F1-F4).

No contaminant concentrations in exceedance of EPA Table 3 criteria were found during the sampling event. In addition, no visible LPH was observed in any of the monitoring wells on the Phase Two Property during the sampling event, as previously discussed in *Section 5.7* and *Section 6.2*.

VOCs

A total of five (5) ground water samples, including two (2) QA/QC samples (MW1D and TRIP), were submitted to the laboratory for analysis of VOCs.

No contaminant concentrations in exceedance of EPA Table 3 criteria were found during the sampling event.

PAHs

A total of four (4) ground water samples, including one (1) QA/QC sample (MW3D), were submitted to the laboratory for analysis of PAHs.

No contaminant concentrations in exceedance of EPA Table 3 criteria were found during the sampling event.

Metals

A total of four (4) ground water samples, including one (1) QA/QC sample (MW2D), were submitted to the laboratory for analysis of Metals.

No contaminant concentrations in exceedance of EPA Table 3 criteria were found during the sampling event. Trace amounts of dissolved arsenic, barium, boron, cadmium, cobalt, copper, molybdenum, nickel, selenium, sodium, thallium, uranium, and zinc were found to be well within the EPA Table 3 criteria.

Ground water maximum concentration data can also be seen in **Table Series 9.1.7**.

6.8 Sediment Quality

Sediment sampling was not part of this investigation, as previously discussed in *Section 5.8* and **Table 9.1.6**.

6.9 Quality Assurance and Quality Control Results

The "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the *EPA* (the "Analytical Protocol"), MOE Laboratory Services Branch, March 9, 2004, amended as of July 1, 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 laboratory duplicates, specified recovery ranges for spiked samples and surrogates (compounds added to samples in known concentrations for calibration purposes), Reporting Detection Limits (RDLs) and specified precision required when analyzing laboratory duplicate and spike/controlled reference material samples.

All samples/sample extracts were analyzed within their applicable hold times using approved analytical methods. The RDLs were met for all tested parameters. No tested parameter was present in a detectable concentration in any laboratory Method Blank.

Surrogate recoveries were within acceptable ranges in cases for all samples. Agreement between the corresponding datasets for the reference material samples were applicable and recoveries reported for spiked sample/blanks, where applicable, is acceptable. Agreement between the corresponding datasets for the laboratory duplicate samples is considered acceptable. In summary, the analytical results reported for samples collected during this investigation are considered to have met the performance criteria of the Analytical Protocol.

The results of the field duplicate sample analyses indicate that the sampling results are generally reproducible with relative percent differences (RPD) for the primary and duplicate samples reporting within acceptable ranges.

6.10 Phase Two Conceptual Site Model

Section i. A description and assessment of:

A. Potentially Contaminating Activities (PCAs)

There are two (2) PCAs (1-2) on the Phase Two Property and two (2) PCAs (3-4) within the Phase One Study Area:

PCA 1 (Item #28)	On-Site	Former Heating Oil Tank
PCA 2 (Item #30)	On-Site	Fill Materials of Unknown Quality
PCA 3 (Item #28)	Off-Site – 71 Plains Road East	Former Gasoline Service Station
PCA 4 (Item #28 and #29)	Off-Site – 91 Plains Road East	Former Retail Fuel Storage Tanks and Glass Manufacturing

Refer to **Drawing 3.**

<table>
<tr><td>B. Areas of Potential Environmental Concerns (APECs)</td><td>There are three (3) APECs on the Phase Two Property where PCAs (both on-site and off-site) may have affected the soil and/or ground water on, in, or under the Phase Two Property:

<table>
<tr><td>APEC 1</td><td>Former heating oil aboveground storage tank (AST) located on the Phase Two Property potentially impacting the southern portion of the Phase Two Property.</td></tr>
<tr><td>APEC 2</td><td>Fill materials located on the Phase Two Property potentially impacting the northwestern portion of the Phase Two Property.</td></tr>
<tr><td>APEC 3</td><td>Former gasoline service station located in the Phase One Study Area potentially impacting the northwestern portion of the Phase Two Property.</td></tr>
<tr><td>APEC 4</td><td>Former retail fuel storage tanks and glass manufacturing located in the Phase One Study Area potentially impacting the northern portion of the subject Site.</td></tr>
</table>

Refer to Drawing 3.</td></tr>
<tr><td>C. Any subsurface structures and utilities on, in, or under the Phase Two Property</td><td>Subsurface structures identified on, in, or under the Phase Two Property include a partial basement associated with the residential building located on the northern portion of the Site.

Subsurface utilities identified on, in, or under the Phase Two Property include:

• Sanitary sewer, municipal water service; and

Refer to Drawing 2.

Site-wide, subsurface structures and utilities are generally installed above the ground water table at the site.</td></tr>
</table>

Section ii. A description of the physical setting of the Phase Two Property:

<table>
<tr><td colspan="2">The Phase Two Property is a 0.20-hectare, square shaped, parcel of land located on the south side of Plains Road East in Burlington, Ontario

Refer to Drawing 2.</td></tr>
<tr><td>A. Stratigraphy from ground surface to the deepest aquifer or aquitard investigated</td><td>The observed soil stratigraphy comprised:

<table>
<tr><th></th><th>Geologic Unit</th><th>Depth</th></tr>
<tr><td>Surface</td><td>Topsoil</td><td>0.00 to 0.08 m</td></tr>
<tr><td>Fill Strata</td><td>Sandy Silt Fill</td><td>0.08 to 1.52 m</td></tr>
<tr><td>Till Strata</td><td>Sand Till
(gravel throughout, trace clay)</td><td>0.08 to 9.75 m</td></tr>
<tr><td>Bedrock</td><td colspan="2">Not Encountered.</td></tr>
</table>

Fill strata was identified between 0.08 and 1.52 m below existing grade; however, no evidence of any man-made materials (i.e. waste, debris, concrete, etc.) was observed in the strata. Therefore, the observed fill material is considered to be re-worked native materials.

Refer to Cross-Sections A-A’ and B-B’.</td></tr>
</table>

<table>
<tr><td>B. Hydrogeological characteristics</td><td>The results of the ground water monitoring indicated that the primary near surface water table resides within the sand (till) layer.

Ground water flow is interpreted to flow across the Site in a southeasterly direction. Refer to Figure 9.2.3.

The horizontal hydraulic gradient was calculated using ground water monitoring data across the site, which revealed the following:

<table><tr><th></th><th></th><th>Native (Till) Unit</th></tr><tr><td>Horizontal</td><td>Average</td><td>0.026 m/m</td></tr></table>
Based on grain size analysis testing, the hydraulic conductivity of the native till is on the order of $1.96x10^{-2}$ m/s. Therefore, the soil's ability to transmit water across the site (in the native till materials) is moderate to high on the Phase Two Property. Furthermore, a hydraulic conductivity of $1.96x10^{-2}$ m/s is consistent with a silty sand or clean sand (Freeze and Cherry, 1979) which represents a moderately permeable unit.

The hydraulic conductivity results were derived by using Hazen's formula, which comprises the use of a coefficient of 1.0 m (Terzaghi and Peck, 1948) and a D10 of 0.14 mm.</td></tr>
<tr><td>C. Approximate depth of bedrock</td><td>Bedrock was not encountered during the Phase Two ESA. Therefore, it is assumed that bedrock exists greater than 9.75 m below existing grade across the Phase Two Property.

Well records published for wells installed in the vicinity of the Phase Two Property indicated that the bedrock generally exists approximately 22 m below existing grade.</td></tr>
<tr><td>D. Approximate depth to water table</td><td>Ground water was observed between 8.30 to 8.43 m below ground surface generally in the lower native (till) unit.</td></tr>
<tr><td>E. Any respect in which Section 41 or 43.1 of the regulation applies to the property</td><td>None.</td></tr>
<tr><td>F. Areas where soil has been brought from another property and placed on, in, or under the Phase Two Property</td><td>Fill materials were observed along the northern portion of the property in order to raise the ground surface elevation of the Site.

Soil samples on the northern portion of the property revealed topsoil and sandy silt fill materials that ranged from 0.08 to 1.52 m below existing grade.

No contaminant exceedances were revealed in the vicinity of the fill materials on the northern portion of the Phase Two Property.</td></tr>
<tr><td>G. Approximate locations, if known, of any proposed buildings and other structures</td><td>The proposed redevelopment will comprise residential and commercial land uses.

Redevelopment activities will include the construction of a 6-storey residential apartment building with ground floor commercial units on the central portion of the Phase Two Property.</td></tr>
</table>

Section iii. Where a contaminant is present on, in, or under the Phase Two Property at a concentration greater than the applicable site condition standard, identification of:

A.	Each area where a contaminant is present on, in or under the Phase Two Property	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation.
B.	The contaminants associated with each of the areas referred to in subparagraph A	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation.
C.	Each medium in which a contaminant associated with an area referred to in subparagraph is present	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation.
D.	A description and assessment of what is known about each of the areas referred to in subparagraph A	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation.
E.	The distribution, in each of the areas referred to in subparagraph A	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation. However, **Drawing 4** shows the profile locations for **Cross-Sections A-A' and B-B'**, which depicts the soil stratigraphy with no impacted areas.
F.	Anything known about the reason for the discharge of the contaminants present on, in or under the Phase Two Property at a concentration greater than the applicable site condition standard into the natural environment	See Item D.
G.	Anything known about migration of the contaminants present on, in or under the Phase Two Property at a concentration greater than the applicable site condition standard away from any area of potential environmental concern, including the identification of any preferential pathways	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation.
H.	Climatic or meteorological conditions that may have influenced distribution and migration of the contaminants	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation. Meteorological conditions may have influenced the distribution and migration of the contaminants by raising the ground water table. However, the calculated hydraulic conductivity revealed the soil's ability to transmit water across the site (in the native till materials) is moderate on the Phase Two Property. Ground water data for the Site does not suggest considerable influence on seasonal ground water levels due to climatic or meteorological conditions.

I.	If applicable, information concerning soil vapour intrusion of the contaminants into building including, (1) relevant construction features of a building, such as a basement or crawl space, (2) building heating, ventilation and air conditioning design and operation, (3) subsurface utilities	This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation.

Section iv. Where contamination is present on, in, or under the Phase Two Property at a concentration greater than the applicable site condition standard, one or more cross-sections:

This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation. Refer to **Cross-Section A-A' and Cross-Section B-B'.**

Section v. For each area where a contaminant is present on, in or under the property at a concentration greater than the applicable site condition standard for the contaminant, a diagram identifying the release mechanisms, contaminant transport pathway, the human and ecological receptors located on, in, or under the Phase Two Property, receptor exposure points, and routes of exposure:

This does not apply to the Phase Two Property. No areas of contamination were identified on, in, or under the Phase Two Property during this investigation**.** Refer to **Drawing 5.**

Summary of Remedial Activities:

Remedial activities were not required at the Phase Two property. All soil and ground water samples collected and analyzed for Contaminants of Potential Concern (COPC) were well within the applicable EPA Table 3 Site Condition Standards (SCS) for residential/parkland/institutional and industrial/commercial/community land uses with coarse-textured soils in a non-potable ground water condition.

7.0 CONCLUSIONS

In comparison with the (2011) *Ontario Soil, Ground Water, and Sediment Standards for Use Under Part XV.1 of the* Environmental Protection Act (EPA) criteria, the results of the laboratory analyses on all soil and ground water samples indicated that the measured contaminant concentrations complied with the applicable Table 3 Site Condition Standards (SCS) for residential/parkland/institutional (RPI) and industrial/commercial/community (ICC) land uses with coarse-textured soils in a non-potable ground water condition.

As the soil and ground water analytical results do not exceed the applicable Table 3 SCS, it would appear that there is no significant source of contamination and no movement of contaminants of concern through ground water across the areas investigated on Phase Two Property. Therefore, in our opinion, no further actions are warranted at this time.

7.1 Limitations

Services performed by Rubidium were conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the environmental consulting engineering profession. This report does not exhaustively cover all possible environmental conditions or circumstances that may exist on the property. If a service is not expressly indicated, it should not be assumed that it was provided.

In evaluating the subject site, Rubidium has relied on the Client to provide all existing relevant reports. Furthermore, we also relied in good faith on information provided by any other individuals noted in the report. We assume that all the information provided is factual and accurate. We accept no responsibility for any deficiencies, misstatements, or inaccuracies contained in this report as a result of omissions, misrepresentation, or fraudulent acts by the Client or any persons contacted.

It should be recognized that the passage of time affects the information provided in this report. Environmental conditions of a property can change. Opinions relating to the site conditions are based upon information that existed at the time the conclusions were formulated. It should also be noted that current environmental guidelines and regulations are subject to change; such changes, when put into effect, could alter the conclusions and recommendations noted through this report.

Rubidium makes no representations whatsoever for the legal significance of its findings, or any legal matters referred to in this report.

7.2 Statement of Assessor Qualifications

The Phase Two Environmental Site Assessment was conducted by Mr. Andrew Beck, B.Eng, EIT, Project Engineering Specialist with Rubidium. He has two (2) years' experience in conducting soil and ground water sampling procedures in accordance with Ontario Regulation 153/04 and 511/09 and the CSA Z768-01 and Z769-00 environmental protocols. Mr. Beck, B.Eng, EIT, has conducted numerous Environmental Site Assessments (ESAs) identifying potentially contaminating activities, following industry standard environmental guidelines, and report writing.

The Phase Two Environmental Site Assessment was managed by Ms. Sarah Sipak, B.Sc., Environmental Due Diligence Manager with Rubidium. She has numerous years experience conducting Phase One and Two ESAs and soil and ground water sampling in accordance with Ontario Regulation 153/04 and 511/09, the Canadian Standards Association (CSA) Z768-01 and Z769-00 environmental protocols, the Consulting Engineers of Ontario's Generally Accepted Standards for Environmental Investigations, and the Canadian Mortgage and Housing Corporation (CMHC) environmental site investigation procedures for mortgage loan insurance. The aforementioned ESAs have covered agricultural, residential, institutional, commercial, and industrial properties across Canada. Ms. Sipak, B.Sc. has also gained experience in preparing and filing Record of Site Conditions (RSCs) with the Ministry of the Environment and Climate Change (MOECC).

The Phase Two Environmental Site Assessment was overseen by Robin Brown, P.Eng, TSRP, President of Rubidium. Mr. is a licensed Toxics Substance Reduction Planner (TSRP) from the Ontario Ministry of the Environment & Climate Change (MOECC). Robin is a licensed Professional Engineer (P.Eng.) in Ontario and is registered as a Qualified Person for Environmental Site Assessments (QP) pursuant to Ontario Regulation 153/04.

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8.0 REFERENCES

- Atlas of Canada, Topographic Maps;
  - http://atlas.nrcan.gc.ca/Site/english/toporama/index.html
- Chapman and Putnam, The Physiography of Southern Ontario, 1984;
- The Ontario Geological Survey, 1990;
- The Ontario Geological Survey, 2003;
- City of Burlington, Interactive Maps, 2017;
- Freeze, Alan R. and Cherry, John A., Groundwater, 1979;
- Phase One Environmental Site Assessment, 92 Plains Road East, Burlington, Ontario, Issued by Terraprobe Inc., dated April 30, 2015, File No. 73-15-5001;
- Phase One Environmental Site Assessment, 92 Plains Road East, Burlington, Ontario, Issued by Rubidium Environmental Inc., dated October 31, 2017 Rb Project No. 2671;
- Google Earth, 2017;
- Terzaghi and Peck, Soil Mechanics in Engineering Practice, 1948.

9.0 TABLES AND FIGURES

9.1 Tables

9.1.1 Monitoring Well Installation

Monitoring Well ID	Ground Surface Elevation (m)	Monitoring Well Construction Details	Associated Elevations Below Grade (m)
MW1	106	50-mm PVC solid riser pipe	106 to 99.45
		50-mm PVC slotted intake screen	99.45 to 96.40
MW2	106	50-mm PVC solid riser pipe	106 to 100.06
		50-mm PVC slotted intake screen	100.06 to 97.01
MW3	105	50-mm PVC solid riser pipe	105 to 99.06
		50-mm PVC slotted intake screen	99.06 to 96.01

9.1.2 Water Levels

Monitoring Well ID	Date Monitored (M-D-Y)	Ground Surface Elevation (m)	Depth of Water Below Ground Surface (m)	Ground Water Elevation (m)
MW1	10-10-17	106	Dry	-
	10-11-17		Dry	-
	10-13-17		Dry	-
	10-16-17		Dry	-
	10-27-17		8.43	97.57
MW2	10-10-17	106	Dry	-
	10-11-17		Dry	-
	10-13-17		Dry	-
	10-16-17		Dry	-
	10-27-17		8.30	97.70
MW3	10-10-17	105	Dry	-
	10-11-17		Dry	-
	10-13-17		Dry	-
	10-16-17		Dry	-
	10-27-17		8.38	96.62

9.1.3 LNAPLs and DNAPLs

No light or dense non-aqueous phase liquid measurements were detected at the Phase Two Property, as discussed in *Sections 5.7, 6.2,* and *6.7.*

9.1.4 Soil Data

a) Petroleum Hydrocarbons (F_1-F_4)

Soil Analytical Results: Petroleum Hydrocarbons (PHCs)

				PHCs				
				F1 (C6-C10)	F1 (C6-C10) - BTEX*	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
				µg/g	µg/g	µg/g	µg/g	µg/g
O.Reg. 153/04 MOECC Guideline (2011), Res/Park/Inst Property Use, Coarse Textured Soil, Non-Potable Ground Water Condition				55	55	98	300	2800
Sample Location	Sample ID	Sample Interval (mbgs)	Sample Date					
BH/MW1	**1-2**	0.91 - 1.52	10/10/2017	<5.0	<5.0	<10	<50	<50
BH/MW2	**2-1**	0.08 - 0.61	10/10/2017	<5.0	<5.0	<10	<50	<50
BH/MW3	**3-1**	0.08 - 1.07	10/10/2017	<5.0	<5.0	<10	<50	<50
BH/MW3	**3-1D**	0.08 - 1.07	10/10/2017	<5.0	<5.0	<10	<50	<50

Notes:

1. --- *In guideline row(s) denotes no criteria for that parameter*
2. --- *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. BOLD *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse-Textured Soils*
6. * *F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result*

b) Volatile Organic Compounds (VOCs)

Soil Analytical Results: Volatile Organic Compounds (VOCs)

				VOCs																																						
				Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroform	Dibromochloromethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethylene	cis-1,2-Dichloroethylene	trans-1,2-Dichloroethylene	1,2-Dichloropropane	1,3-Dichloropropene (cis) + (trans)	Ethylbenzene	Ethylene Dibromide	Hexane (n)	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Methyl tert-Butyl Ether (MTBE)	Methylene Chloride	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	Vinyl Chloride	Xylenes, Total (Xylene Mixture)	1,4-Dioxane
				µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g
O.Reg. 153/04 MOECC Guideline (2011), Res/Park/Inst Property Use, Coarse Textured Soil, Non-Potable Ground Water Condition				16	0.21	13	0.27	0.05	0.05	2.4	0.05	9.4	3.4	4.8	0.083	16	3.5	0.05	0.05	3.4	0.084	0.05	0.05	2	0.05	2.8	16	1.7	0.75	0.1	0.7	0.058	0.05	0.28	2.3	0.38	0.05	0.061	4	0.02	3.1	1.8
Sample Location	Sample ID	Sample Interval (mbgs)	Sample Date																																							
BH/MW1	**1-2**	0.91 - 1.52	10/10/2017	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.042	<0.018	<0.050	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.050	---
BH/MW2	**2-1**	0.08 - 0.61	10/10/2017	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.042	<0.018	<0.050	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.050	---
BH/MW3	**3-1**	0.08 - 1.07	10/10/2017	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.042	<0.018	<0.050	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.050	---
BH/MW3	**3-1D**	0.08 - 1.07	10/10/2017	<0.50	<0.0068	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.042	<0.018	<0.050	<0.050	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.080	<0.050	<0.050	<0.010	<0.050	<0.020	<0.050	---

Notes:
1. --- *In guideline row(s) denotes no criteria for that parameter*
2. --- *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. BOLD *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse-Textured Soils*

c) Polycyclic Aromatic Hydrocarbons (PAHs)

Soil Analytical Results: Polycyclic Aromatic Hydrocarbons (PAHs)

				PAHs																
				Methylnaphthalenes, 2-(1-)***	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
				µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g
O.Reg. 153/04 MOECC Guideline (2011), Res/Park/Inst Property Use, Coarse Textured Soil, Non-Potable Ground Water Condition				0.99	7.9	0.15	0.67	0.5	0.3	0.78	6.6	0.78	7	0.1	0.69	62	0.38	0.6	6.2	78
Sample Location	Sample ID	Sample Interval (mbgs)	Sample Date																	
BH/MW1	**1-2**	0.91 - 1.52	10/10/2017	<0.042	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH/MW2	**2-1**	0.08 - 0.61	10/10/2017	<0.042	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
BH/MW3	**3-1**	0.08 - 1.07	10/10/2017	<0.042	<0.050	<0.050	<0.050	<0.050	<0.050	0.056	<0.050	<0.050	<0.050	<0.050	0.065	<0.050	<0.050	<0.050	<0.050	0.057
BH/MW3	**3-1D**	0.08 - 1.07	10/10/2017	<0.042	<0.050	<0.050	<0.050	0.096	0.113	0.157	0.071	0.057	0.110	<0.050	0.103	<0.050	0.077	<0.050	<0.050	0.087

Notes:

1. --- *In guideline row(s) denotes no criteria for that parameter*
2. --- *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. BOLD *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse-Textured Soils*
6. *** *The methyl naphthalenes standards are applicable to both 1-methyl naphthalene and 2-methyl naphthalene with the provision that if both are detected the sum of the two must not exceed the standard*

d) Metals

Soil Analytical Results: Metals

				Metals																			
				Antimony	Arsenic	Barium	Beryllium	Boron (total)	Boron (Hot Water Soluble)*	Cadmium	Chromium Total	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Sodium	Thallium	Uranium	Vanadium	Zinc
				µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g	µg/g
O.Reg. 153/04 MOECC Guideline (2011), Res/Park/Inst Property Use, Coarse Textured Soil, Non-Potable Ground Water Condition				7.5	18	390	4	120	1.5	1.2	160	22	140	120	6.9	100	2.4	20	---	1	23	86	340
Sample Location	Sample ID	Sample Interval (mbgs)	Sample Date																				
BH/MW1	**1-1**	0.08 - 0.91	10/10/2017	<1.0	3.9	41.8	<0.50	<5.0	---	<0.50	12.0	4.3	17.2	44.9	<1.0	9.7	<1.0	<0.20	---	<0.50	<1.0	17.0	54.6
BH/MW2	**2-3**	1.52 - 2.13	10/10/2017	<1.0	2.5	11.1	<0.50	<5.0	---	<0.50	4.2	2.6	10.9	3.3	<1.0	5.5	<1.0	<0.20	---	<0.50	<1.0	8.4	12.2
BH/MW2	**2-3D**	1.52 - 2.13	10/10/2017	<1.0	2.9	12.6	<0.50	<5.0	---	<0.50	5.1	3.2	12.6	3.8	<1.0	6.8	<1.0	<0.20	---	<0.50	<1.0	10.6	14.4
BH/MW3	**3-1**	0.08 - 1.07	10/10/2017	<1.0	3.7	27.7	<0.50	<5.0	---	<0.50	7.3	3.8	15.5	16.1	<1.0	7.7	<1.0	<0.20	---	<0.50	<1.0	13.9	45.9

Notes:

1. --- *In guideline row(s) denotes no criteria for that parameter*
2. --- *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. BOLD *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse-Textured Soils*
6. * *Denotes the boron standards are for hot water soluble extract for all surface soils. For subsurface soils the standards are for total boron (mixed strong acid digest), as ecological criteria are not considered*

9.1.5 Ground Water Data

a) Petroleum Hydrocarbons (F_1-F_4)

Ground Water Analytical Results: Petroleum Hydrocarbons (PHCs)

			PHCs				
			F1 (C6-C10)	F1 (C6-C10) - BTEX*	F2 (C10-C16)	F3 (C16-C34)	F4 (C34-C50)
			µg/L	µg/L	µg/L	µg/L	µg/L
O.Reg. 153/04 MOECC Guideline (2011), All Types of Property Use, Coarse Textured Soil, Non-Potable Ground Water Condition			750	750	150	500	500
Sample Location	Sample ID	Sample Date					
BH/MW1	**MW1**	27/10/2017	<25	<25	<100	<250	<250
BH/MW1	**MW1D**	27/10/2017	<25	<25	<100	<250	<250
BH/MW2	**MW2**	27/10/2017	<25	<25	<100	<250	<250
BH/MW3	**MW3**	27/10/2017	<25	<25	<100	<250	<250

Notes:

1. --- *In guideline row(s) denotes no criteria for that parameter*
2. --- *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. BOLD *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for All Types of Property Use with Coarse-Textured Soils*
6. * *F1 fraction does not include BTEX; however, the proponent has the choice as to whether or not to subtract BTEX from the analytical result*

b) Volatile Organic Compounds (VOCs)

Ground Water Analytical Results: Volatile Organic Compounds (VOCs)

			VOCs																																						
			Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroform	Dibromochloromethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethylene	cis-1,2-Dichloroethylene	trans-1,2-Dichloroethylene	1,2-Dichloropropane	1,3-Dichloropropene (cis) + (trans)	Ethylbenzene	Ethylene Dibromide	Hexane (n)	Methyl Ethyl Ketone	Methyl Isobutyl Ketone	Methyl tert-Butyl Ether (MTBE)	Methylene Chloride	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene	Trichlorofluoromethane	Vinyl Chloride	Xylenes, Total (Xylene Mixture)	1,4-Dioxane
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
O.Reg. 153/04 MOECC Guideline (2011), All Types of Property Use, Coarse Textured Soil, Non-Potable Ground Water Condition			130000	44	85000	380	5.6	0.79	630	2.4	82000	4600	9600	8	4400	320	1.6	1.6	1.6	1.6	16	5.2	2300	0.25	51	470000	140000	190	610	1300	3.3	3.2	1.6	18000	640	4.7	1.6	2500	0.5	4200	1900000
Sample Location	Sample ID	Sample Date																																							
BH/MW1	**MW1**	27/10/2017	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<1.0	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.50	<20	<20	<2.0	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---
BH/MW1	**MW1D**	27/10/2017	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<1.0	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.50	<20	<20	<2.0	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---
BH/MW2	**MW2**	27/10/2017	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<1.0	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.50	<20	<20	<2.0	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---
BH/MW3	**MW3**	27/10/2017	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<1.0	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.50	<20	<20	<2.0	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---
---	**TRIP**	27/10/2017	<30	<0.50	<2.0	<5.0	<0.50	<0.20	<0.50	<1.0	<2.0	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.50	<20	<20	<2.0	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	---

Notes:

1. --- *In guideline row(s) denotes no criteria for that parameter*
2. --- *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. BOLD *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for All Types of Property Use with Coarse-Textured Soils*

c) Polycyclic Aromatic Hydrocarbons (PAHs)

Ground Water Analytical Results: Polycyclic Aromatic Hydrocarbons (PAHs)

			PAHs																
			Methylnaphthalenes, 2-(1-)***	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
O.Reg. 153/04 MOECC Guideline (2011), All Types of Property Use, Coarse Textured Soil, Non-Potable Ground Water Condition			1800	600	1.8	2.4	4.7	0.81	0.75	0.2	0.4	1	0.52	130	400	0.2	1400	580	68
Sample Location	Sample ID	Sample Date																	
BH/MW1	**MW1**	27/10/2017	<0.028	<0.020	<0.020	<0.020	<0.020	<0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.050	<0.020	<0.020
BH/MW2	**MW2**	27/10/2017	<0.028	<0.020	<0.020	<0.020	<0.020	<0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.050	<0.020	<0.020
BH/MW3	**MW3**	27/10/2017	<0.028	<0.020	<0.020	<0.020	<0.020	<0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.050	<0.020	<0.020
BH/MW3	**MW3D**	27/10/2017	<0.028	<0.020	<0.020	<0.020	<0.020	<0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.050	<0.020	<0.020

Notes:

1. --- *In guideline row(s) denotes no criteria for that parameter*
2. --- *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. BOLD *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for All Types of Property Use with Coarse-Textured Soils*
6. *** *The methyl naphthalenes standards are applicable to both 1-methyl naphthalene and 2-methyl naphthalene with the provision that if both are detected the sum of the two must not exceed the standard*

d) Metals

Ground Water Analytical Results: Metals

			Metals																	
			Antimony	Arsenic	Barium	Beryllium	Boron (total)	Cadmium	Chromium Total	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Sodium	Thallium	Uranium	Vanadium	Zinc
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
O.Reg. 153/04 MOECC Guideline (2011), All Types of Property Use, Coarse Textured Soil, Non-Potable Ground Water Condition			20000	1900	29000	67	45000	2.7	810	66	87	25	9200	490	63	1.5	2300000	510	420	250	1100
Sample Location	Sample ID	Sample Date																			
BH/MW1	**MW1**	27/10/2017	<1.0	<1.0	290	<1.0	<100	<0.10	<5.0	<1.0	5.0	<0.50	2.90	<5.0	0.84	<0.50	377000	<0.10	1.08	<5.0	<10
BH/MW2	**MW2**	27/10/2017	<1.0	<1.0	186	<1.0	<100	<0.10	<5.0	<1.0	2.1	<0.50	4.24	<5.0	1.57	<0.50	412000	<0.10	1.02	<5.0	<10
BH/MW2	**MW2D**	27/10/2017	<1.0	<1.0	188	<1.0	<100	<0.10	<5.0	<1.0	2.6	<0.50	4.28	<5.0	1.58	<0.50	417000	<0.10	1.04	<5.0	<10
BH/MW3	**MW3**	27/10/2017	<0.10	0.23	258	<0.10	104	0.014	<0.50	0.77	5.08	0.082	2.01	2.21	0.985	<0.050	203000	0.020	1.06	<0.50	1.9

Notes:

1. --- *In guideline row(s) denotes no criteria for that parameter*
2. --- *In data row(s) denotes parameter not analyzed*
3. mbgs *Denotes metres below ground surface*
4. BOLD *Denotes entries exceed the criteria*
5. *Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for All Types of Property Use with Coarse-Textured Soils*

9.1.6 Sediment Data

Sediment sampling was not part of this investigation, as a water body was not on the Phase Two Property.

9.1.7 Soil and Ground Water Maximum Concentration Data

Soil Maximum Concentration Data

Parameter	MOECC Table 3 Residential/ Parkland/ Institutional	Maximum Soil Concentration (µg/g)	Location of Maximum Concentration	Sample Depth (m)
PHCs and BTEX				
F1 (C6-C10)	55	<5.0	-	-
F1 (C6-C10) – BTEX	55	<5.0	-	-
F2 (C10-C16)	98	<10	-	-
F3 (C16-C34)	300	<50	-	-
F4 (C34-C50)	2800	<50	-	-
Benzene	0.21	<0.0068	-	-
Toluene	2.3	<0.080	-	-
Ethylbenzene	2	<0.018	-	-
Total Xylenes	3.1	<0.050	-	-
VOCs				
Acetone	16	<0.50	-	-
Benzene	0.21	<0.0068	-	-
Bromodichloromethane	13	<0.050	-	-
Bromoform	0.27	<0.050	-	-
Bromomethane	0.05	<0.050	-	-
Carbon Tetrachloride	0.05	<0.050	-	-
Chlorobenzene	2.4	<0.050	-	-
Chloroform	0.05	<0.050	-	-
Dibromochloromethane	9.4	<0.050	-	-
1,2-Dichlorobenzene	3.4	<0.050	-	-
1,3-Dichlorobenzene	4.8	<0.050	-	-
1,4-Dichlorobenzene	0.083	<0.050	-	-
Dichlorodifluoromethane	16	<0.050	-	-
1,1-Dichloroethane	3.5	<0.050	-	-
1,2-Dichloroethane	0.05	<0.050	-	-
1,1-Dichloroethylene	0.05	<0.050	-	-
cis-1,2-Dichloroethylene	3.4	<0.050	-	-
trans-1,2-Dichloroethylene	0.084	<0.050	-	-
1,2-Dichloropropane	0.05	<0.050	-	-
1,3-Dichloropropene (cis) + (trans)	0.05	<0.042	-	-
Ethylbenzene	2	<0.018	-	-
Ethylene Dibromide	0.05	<0.050	-	-
Hexane (n)	2.8	<0.050	-	-
Methyl Ethyl Ketone	16	<0.50	-	-
Methyl Isobutyl Ketone	1.7	<0.50	-	-
Methyl tert-Butyl Ether (MTBE)	0.75	<0.050	-	-
Methylene Chloride	0.1	<0.050	-	-
Styrene	0.7	<0.050	-	-
1,1,1,2-Tetrachloroethane	0.058	<0.050	-	-
1,1,2,2-Tetrachloroethane	0.05	<0.050	-	-
Tetrachloroethylene	0.28	<0.050	-	-
Toluene	2.3	<0.080	-	-
1,1,1-Trichloroethane	0.38	<0.050	-	-

1,1,2-Trichloroethane	0.05	<0.050	-	-
Trichloroethylene	0.061	<0.010	-	-
Trichlorofluoromethane	4	<0.050	-	-
Vinyl Chloride	0.02	<0.020	-	-
Xylenes, Total (Xylene Mixture)	3.1	<0.050	-	-
PAHs				
Methylnaphthalenes, 2-(1-)	0.99	<0.042	-	-
Acenaphthene	7.9	<0.050	-	-
Acenaphthylene	0.15	<0.050	-	-
Anthracene	0.67	<0.050	-	-
Benzo(a)anthracene	0.5	0.096	BH/MW3-1D	0.08 – 1.07
Benzo(a)pyrene	0.3	0.113	BH/MW3-1D	0.08 – 1.07
Benzo(b)fluoranthene	0.78	0.157	BH/MW3-1D	0.08 – 1.07
Benzo(g,h,i)perylene	6.6	0.071	BH/MW3-1D	0.08 – 1.07
Benzo(k)fluoranthene	0.78	0.057	BH/MW3-1D	0.08 – 1.07
Chrysene	7	0.110	BH/MW3-1D	0.08 – 1.07
Dibenzo(a,h)anthracene	0.1	<0.050	-	-
Fluoranthene	0.69	0.103	BH/MW3-1D	0.08 – 1.07
Fluorene	62	<0.050	-	-
Indeno(1,2,3-cd)pyrene	0.38	0.077	BH/MW3-1D	0.08 – 1.07
Naphthalene	0.6	<0.050	-	-
Phenanthrene	6.2	<0.050	-	-
Pyrene	78	0.087	BH/MW3-1D	0.08 – 1.07
Metals				
Antimony (Sb)	7.5	<1.0	-	-
Arsenic (As)	18	3.9	1-1	0.08 – 0.91
Barium (Ba)	390	41.8	1-1	0.08 – 0.91
Beryllium (Be)	4	<0.50	-	-
Boron (B)	120	<5.0	-	-
Cadmium (Cd)	1.2	<0.50	-	-
Chromium (Cr)	160	12.0	1-1	0.08 – 0.91
Cobalt (Co)	22	4.3	1-1	0.08 – 0.91
Copper (Cu)	140	17.2	1-1	0.08 – 0.91
Lead (Pb)	120	44.9	1-1	0.08 – 0.91
Molybdenum (Mo)	6.9	<1.0	-	-
Nickel (Ni)	100	9.7	1-1	0.08 – 0.91
Selenium (Se)	2.4	<1.0	-	-
Silver (Ag)	20	<0.20	-	-
Thallium (Tl)	1	<0.50	-	-
Uranium (U)	23	<1.0	-	-
Vanadium (V)	86	17.0	1-1	0.08 – 0.91
Zinc (Zn)	340	54.6	1-1	0.08 – 0.91

Note:

1. Bold entries exceed the Criteria.
2. Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse-Textured Soils.

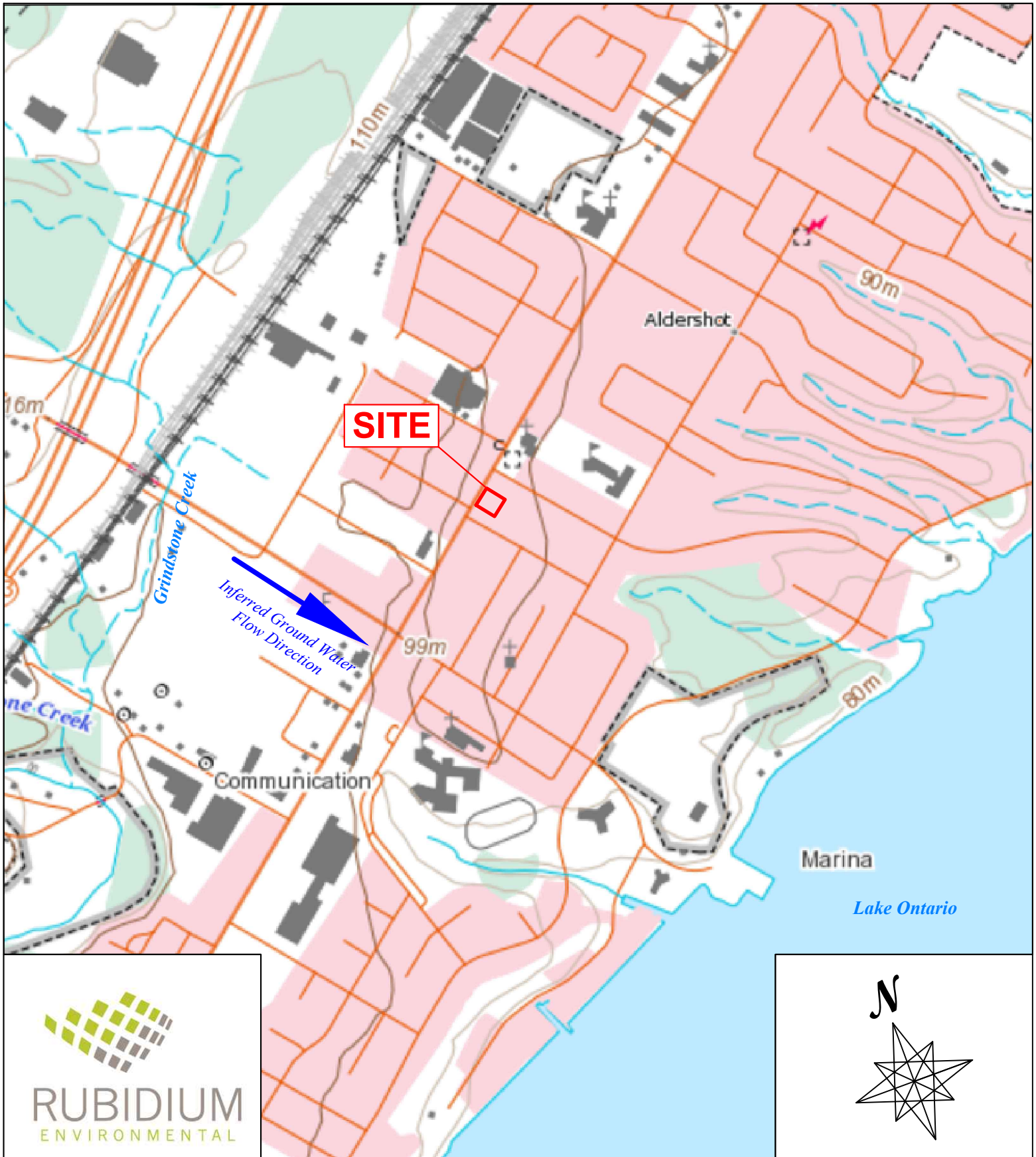
Ground Water Maximum Concentration Data

Parameter	MOECC Table 3 Residential/ Parkland/ Institutional	Maximum Ground Water Concentration (µg/g)	Location of Maximum Concentration
PHCs and BTEX			
F1 (C6-C10)	750	<25	-
F1 (C6-C10) – BTEX	750	<25	-
F2 (C10-C16)	150	<100	-
F3 (C16-C34)	500	<250	-
F4 (C34-C50)	500	<250	-
Benzene	44	<0.50	-
Toluene	18000	<0.50	-
Ethylbenzene	2300	<0.50	-
Total Xylenes	4200	<0.50	-
VOCs			
Acetone	130000	<30	-
Benzene	44	<0.50	-
Bromodichloromethane	85000	<2.0	-
Bromoform	380	<5.0	-
Bromomethane	5.6	<0.50	-
Carbon Tetrachloride	0.79	<0.20	-
Chlorobenzene	630	<0.50	-
Chloroform	2.4	<1.0	-
Dibromochloromethane	82000	<2.0	-
1,2-Dibromoethane	0.25	<0.20	-
1,2-Dichlorobenzene	4600	<0.50	-
1,3-Dichlorobenzene	9600	<0.50	-
1,4-Dichlorobenzene	8	<0.50	-
Dichlorodifluoromethane	4400	<2.0	-
1,1-Dichloroethane	320	<0.50	-
1,2-Dichloroethane	1.6	<0.50	-
1,1-Dichloroethylene	1.6	<0.50	-
cis-1,2-Dichloroethylene	1.6	<0.50	-
trans-1,2-Dichloroethylene	1.6	<0.50	-
1,2-Dichloropropane	16	<0.50	-
1,3-Dichloropropene (cis) + (trans)	5.2	<0.50	-
Ethylbenzene	2300	<0.50	-
Hexane (n)	51	<0.50	-
Methyl Ethyl Ketone	470000	<20	-
Methyl Isobutyl Ketone	140000	<20	-
Methyl-tert-Butyl Ether	190	<2.0	-
Methylene Chloride	610	<5.0	-
Styrene	1300	<0.50	-
1,1,1,2-Tetrachloroethane	3.3	<0.50	-
1,1,2,2-Tetrachloroethane	3.2	<0.50	-
Tetrachloroethylene	1.6	<0.50	-
Toluene	18000	<0.50	-
1,1,1-Trichloroethane	640	<0.50	-
1,1,2-Trichloroethane	4.7	<0.50	-
Trichloroethylene	1.6	<0.50	-
Trichlorofluoromethane	2500	<5.0	-

Vinyl Chloride	0.5	<0.50	-
Xylenes, Total (Xylene Mixture)	4200	<0.50	-
PAHs			
Methylnaphthalenes, 2-(1-)	1800	<0.028	-
Acenaphthene	600	<0.020	-
Acenaphthylene	1.8	<0.020	-
Anthracene	2.4	<0.020	-
Benzo(a)anthracene	4.7	<0.020	-
Benzo(a)pyrene	0.81	<0.010	-
Benzo(b)fluoranthene	0.75	<0.020	-
Benzo(g,h,i)perylene	0.2	<0.020	-
Benzo(k)fluoranthene	0.4	<0.020	-
Chrysene	1	<0.020	-
Dibenzo(a,h)anthracene	0.52	<0.020	-
Fluoranthene	130	<0.020	-
Fluorene	400	<0.020	-
Indeno(1,2,3-cd)pyrene	0.2	<0.020	-
Naphthalene	1400	<0.050	-
Phenanthrene	580	<0.020	-
Pyrene	68	<0.020	-
Metals			
Antimony	20000	<1.0	-
Arsenic	1900	<1.0	-
Barium	29000	290	MW1
Beryllium	67	<1.0	-
Boron (total)	45000	104	MW3
Cadmium	2.7	0.014	MW3
Chromium Total	810	<5.0	-
Cobalt	66	0.77	MW3
Copper	87	5.08	MW3
Lead	25	0.082	MW3
Molybdenum	9200	4.28	MW2D
Nickel	490	2.21	MW3
Selenium	63	1.58	MW2D
Silver	1.5	<0.50	-
Sodium	2300000	417000	MW2D
Thallium	510	0.020	MW3
Uranium	420	1.08	MW1
Vanadium	250	<5.0	-
Zinc	1100	1.9	MW3

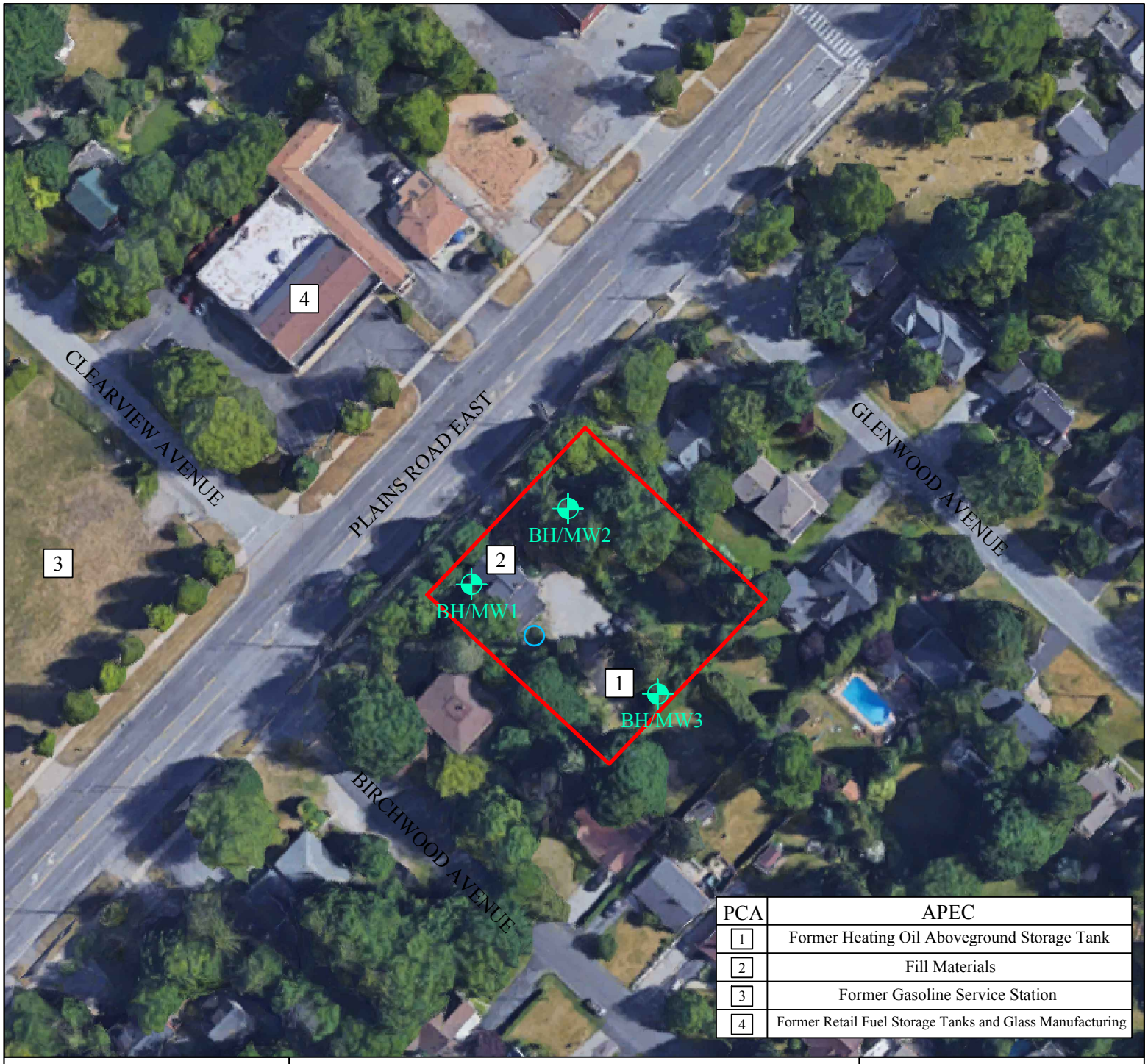
Note:

1. Bold entries exceed the Criteria.
2. Criteria is Ontario Regulation 153/04, Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse-Textured Soils.



RUBIDIUM ENVIRONMENTAL

ADDRESS: 3228 SOUTH SERVICE ROAD - SUITE 208 BURLINGTON, ON L7N 3H8	DRAWING NAME: Areas of Natural Significance and Water Bodies	CLIENT NAME: Ember Dog Inc.	SCALE: 0 250m
RB #: 2671	DRAWN BY: AB	SITE ADDRESS: 92 Plains Road East, Burlington, ON	NOTES: Figure 9.2.1
DATE: September 22, 2017	CHECKED BY: SS	REVISION #: 0	



PCA	APEC
1	Former Heating Oil Aboveground Storage Tank
2	Fill Materials
3	Former Gasoline Service Station
4	Former Retail Fuel Storage Tanks and Glass Manufacturing

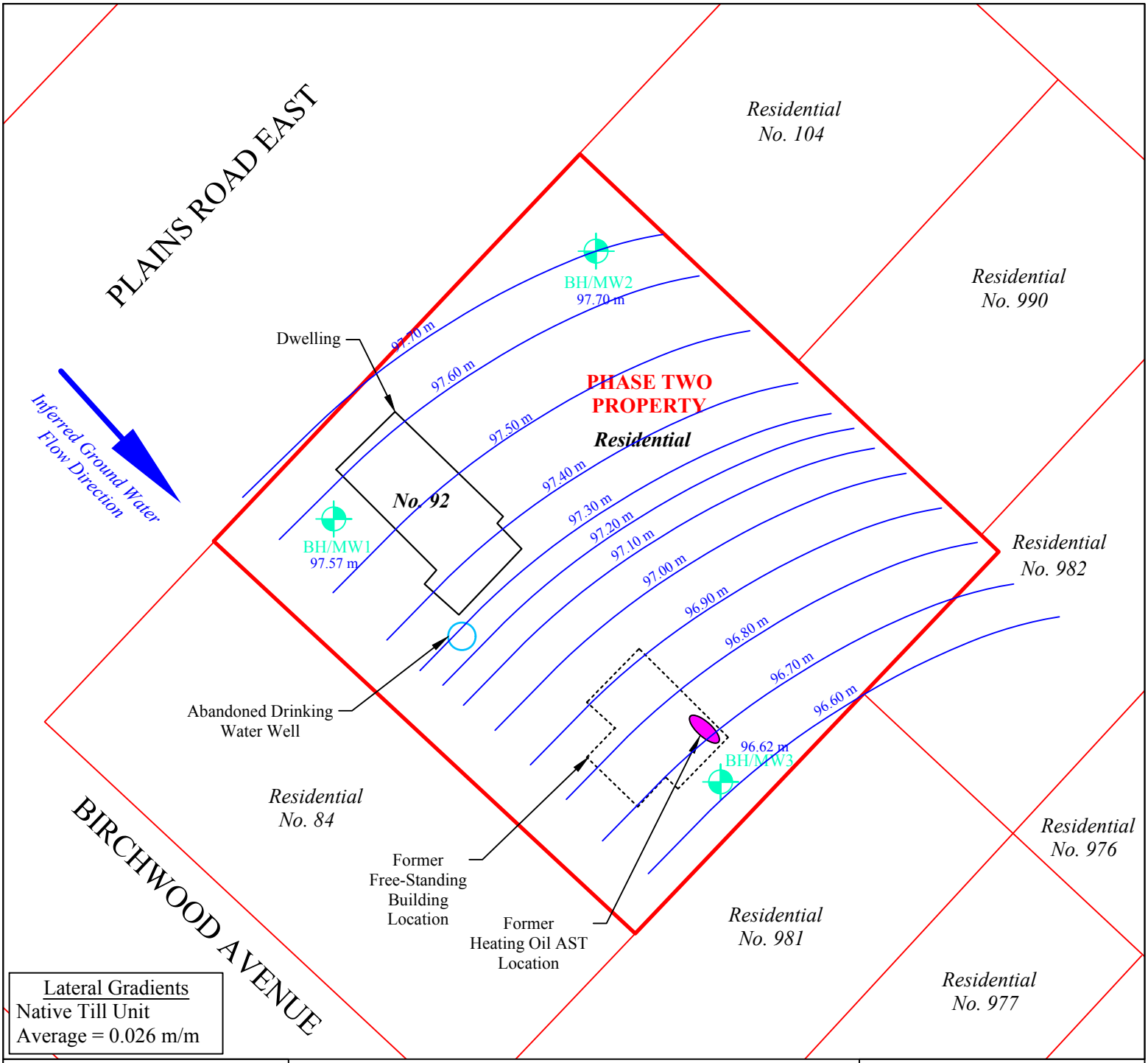
RUBIDIUM ENVIRONMENTAL

LEGEND

- Approximate Location of Phase Two Property Boundary
- Location of Ground Water Monitoring Well
- BH/MW3 — Borehole/Monitoring Well ID
- Approximate Location of Abandoned Drinking Water Well

N

ADDRESS: 3228 SOUTH SERVICE ROAD - SUITE 208 BURLINGTON, ON L7N 3H8	DRAWING NAME: Property Before Actions Taken to Reduce the Concentration of Contaminants	CLIENT NAME: Ember Dog Inc.	SCALE: 0 50m
RB #: 2671	DRAWN BY: AB	SITE ADDRESS: 92 Plains Road East, Burlington, ON	NOTES: Figure 9.2.2
DATE: September 22, 2017	CHECKED BY: SS	REVISION #: 0	



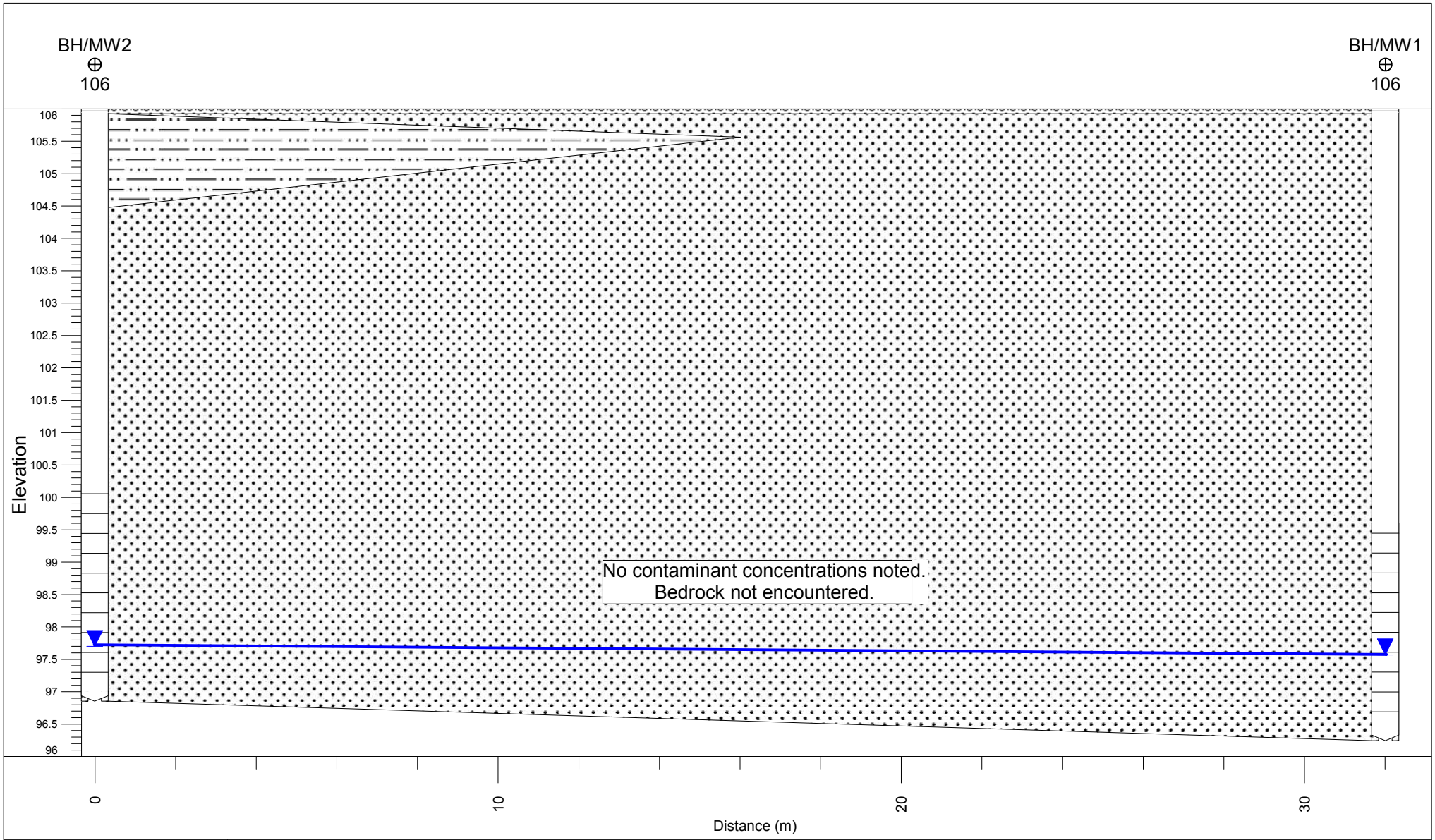
RUBIDIUM ENVIRONMENTAL

LEGEND

- Approximate Site Boundary
- Location of Groundwater Monitoring Well
- BH/MW1 — Borehole/Monitoring Well ID
- 97.70 — Ground Water Elevation (m)

N

ADDRESS: 3228 SOUTH SERVICE ROAD - SUITE 208 BURLINGTON, ON L7N 3H8	DRAWING NAME: Interpreted Contours of Ground Water Elevations	CLIENT NAME: Ember Dog Inc.	SCALE: 0 — 15 m
RB #: 2671	DRAWN BY: AB	SITE ADDRESS: 92 Plains Road East, Burlington, ON	NOTES: Figure 9.2.3
DATE: September 22, 2017	CHECKED BY: SS	REVISION #: 0	



Cross-Section: A-A'

Project No.: Rb2671

Project: Phase Two Environmental Site Assessment

Location: 92 Plains Road East, Burlington, ON

Drawn By: AB

Checked By: SS

Date: November 6, 2017

RUBIDIUM ENVIRONMENTAL

LEGEND

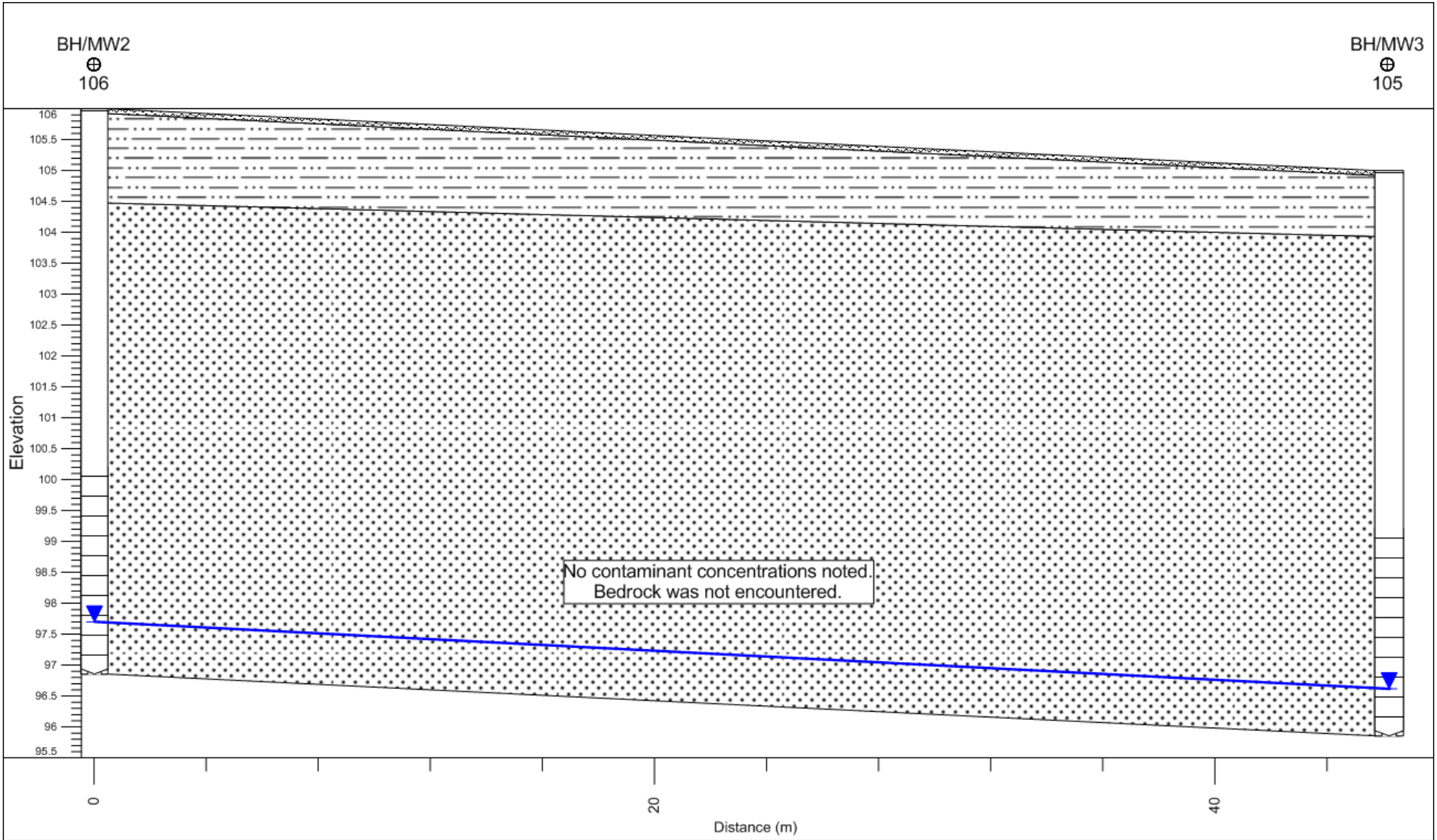
Sand

Topsoil

Sandy Silt

SCALE (m)

0 1 2 3 4 5 6 7 8 9 10



Cross-Section: B-B'

Project No.: Rb2671

Project: Phase Two Environmental Site Assessment

Location: 92 Plains Road East, Burlington, ON

Drawn By: AB

Checked By: SS

Date: November 6, 2017

RUBIDIUM ENVIRONMENTAL

LEGEND

Sand

Topsoil

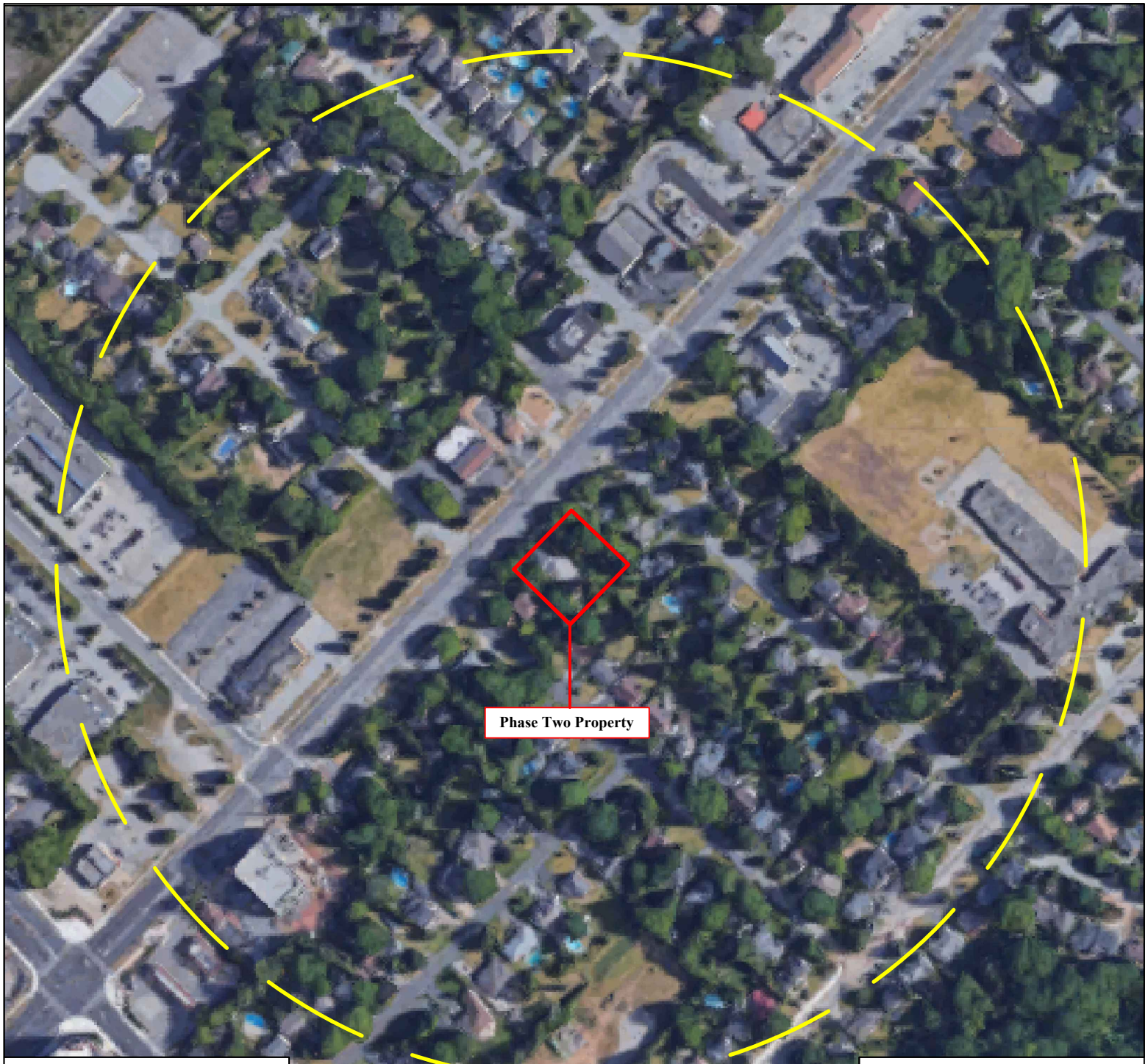
Sandy Silt

SCALE (m)

0 1 2 3 4 5 6 7 8 9 10

RUBIDIUM
ENVIRONMENTAL

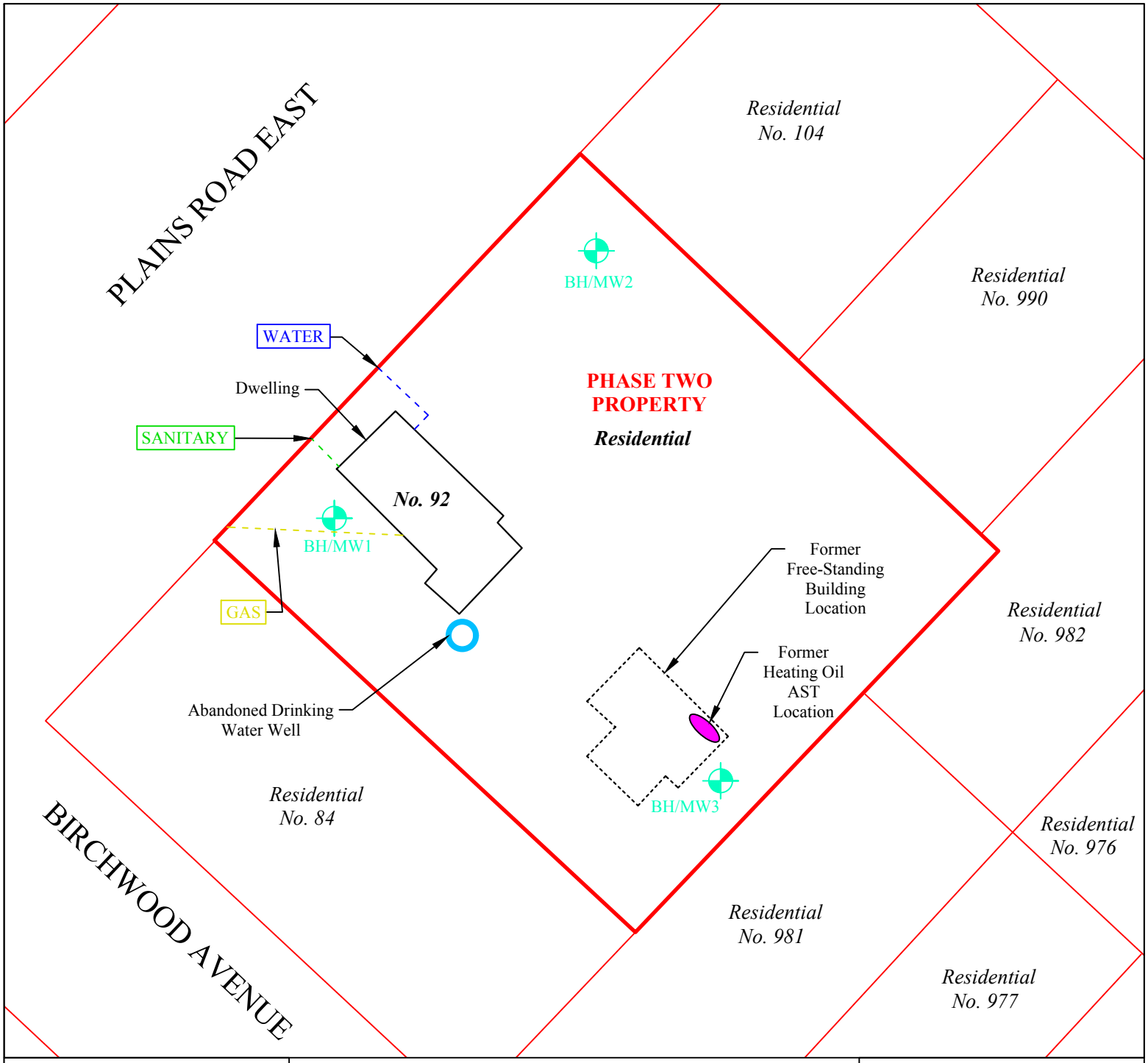
DRAWINGS



RUBIDIUM ENVIRONMENTAL

N

ADDRESS: 3228 SOUTH SERVICE ROAD - SUITE 208 BURLINGTON, ON L7N 3H8	DRAWING NAME: Site Location Map	CLIENT NAME: Ember Dog Inc.	SCALE: 0 100 m
RB #: 2671	DRAWN BY: AB	SITE ADDRESS: 92 Plains Road East, Burlington, ON	NOTES: Drawing 1
DATE: September 22, 2017	CHECKED BY: SS	REVISION #: 0	



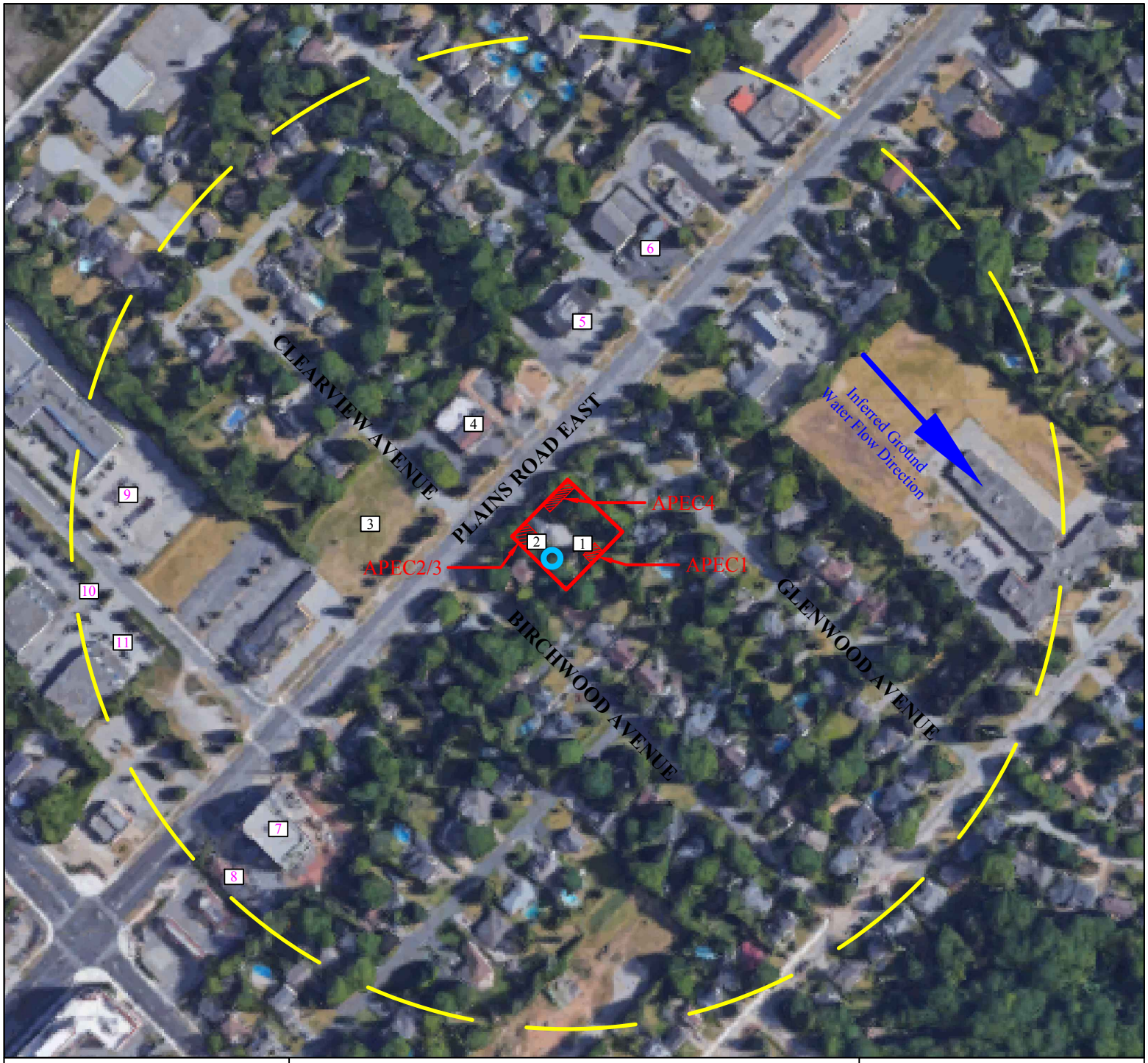
RUBIDIUM ENVIRONMENTAL

LEGEND

- Phase Two Property Boundary
- Location of Ground Water Monitoring Well
- BH/MW3 — Borehole/Monitoring Well ID

N

ADDRESS: 3228 SOUTH SERVICE ROAD - SUITE 208 BURLINGTON, ON L7N 3H8	DRAWING NAME: Borehole Location Plan	CLIENT NAME: Ember Dog Inc.	SCALE: 0 — 15 m
RB #: 2671	DRAWN BY: AB	SITE ADDRESS: 92 Plains Road East, Burlington, ON	NOTES: Drawing 2
DATE: November 2, 2017	CHECKED BY: SS	REVISION #: 0	



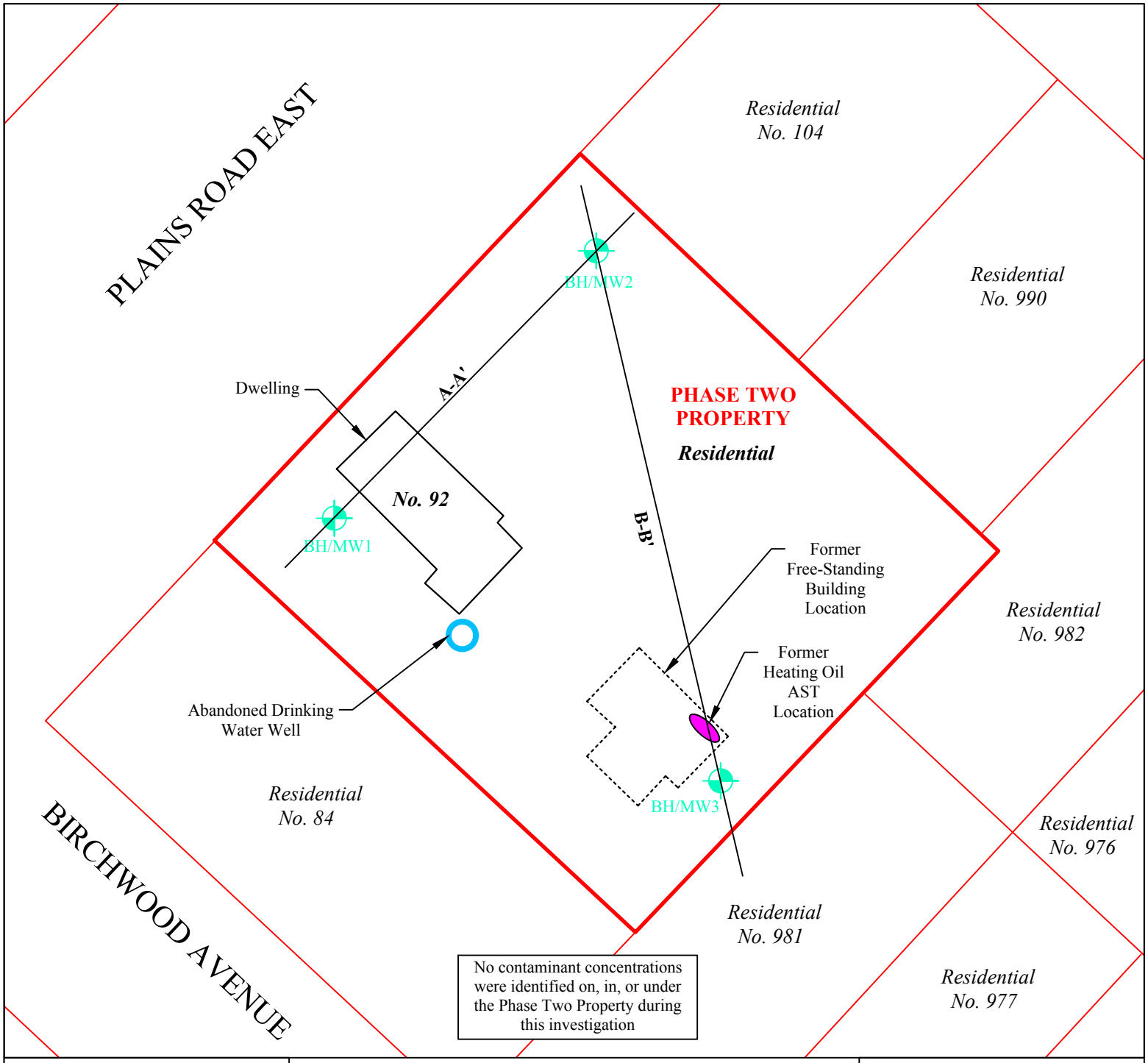
RUBIDIUM ENVIRONMENTAL

LEGEND

- Approximate Study Area Boundary
- Phase Two Property Boundary
- Approximate Location of Drinking Water Well
- 4 PCAs
- 11 PCAs Not of Concern

N

ADDRESS: 3228 SOUTH SERVICE ROAD - SUITE 208 BURLINGTON, ON L7N 3H8	DRAWING NAME: On-Site & Off-Site Areas of Potential Environmental Concern	CLIENT NAME: Ember Dog Inc.	SCALE: 0 100 m
RB #: 2671	DRAWN BY: AB	SITE ADDRESS: 92 Plains Road East, Burlington, ON	NOTES: Drawing 3
DATE: September 22, 2017	CHECKED BY: SS	REVISION #: 0	



RUBIDIUM ENVIRONMENTAL

LEGEND

Phase Two Property Boundary

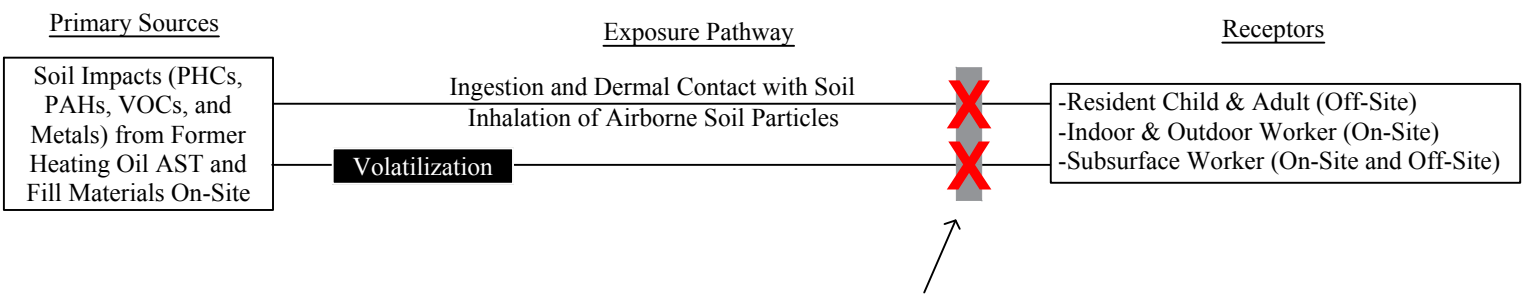
Location of Ground Water Monitoring Well

BH/MW3 Borehole/Monitoring Well ID

N

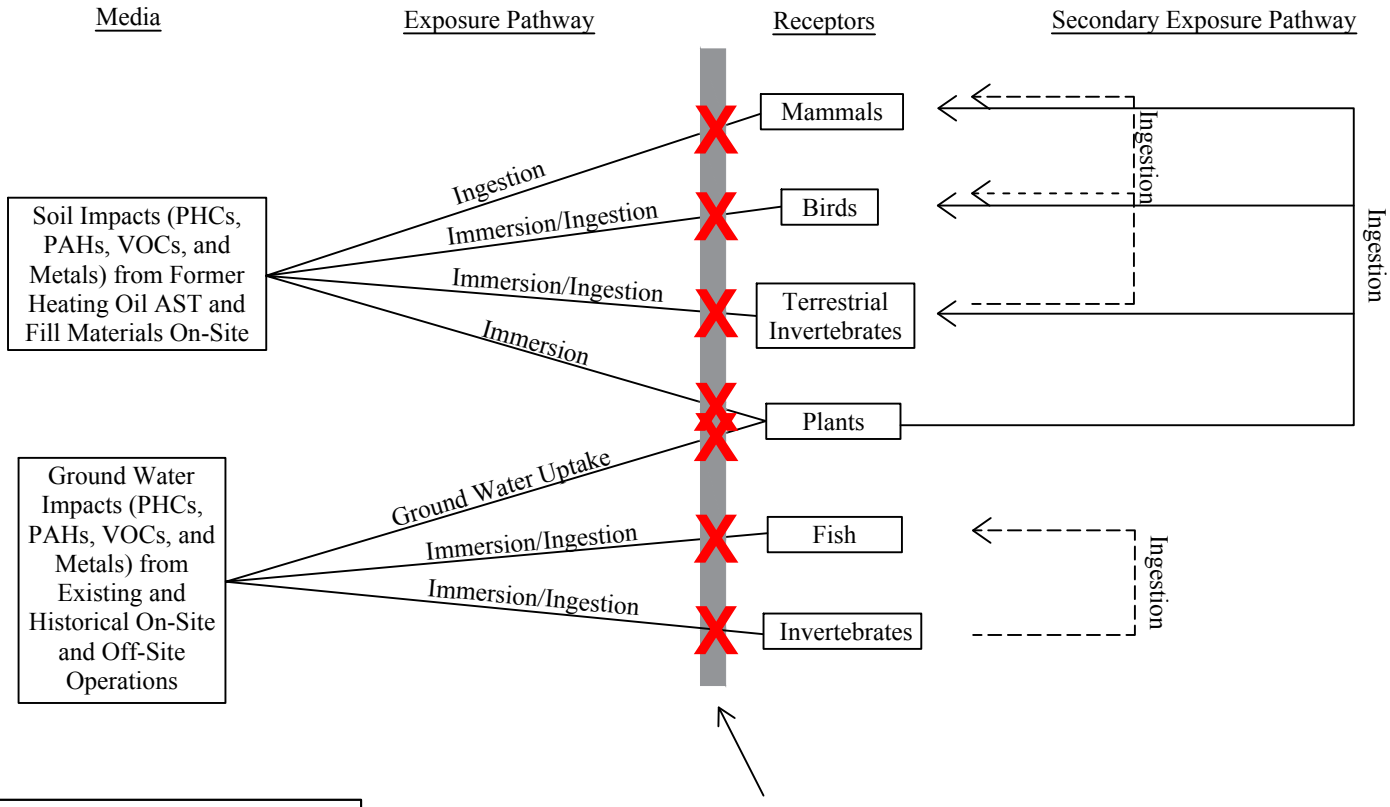
ADDRESS: 3228 SOUTH SERVICE ROAD - SUITE 208 BURLINGTON, ON L7N 3H8	DRAWING NAME: Impacted Locations	CLIENT NAME: Ember Dog Inc.	SCALE: 0 15 m
RB #: 2671	DRAWN BY: AB	SITE ADDRESS: 92 Plains Road East, Burlington, ON	NOTES: Drawing 4
DATE: September 26, 2017	CHECKED BY: SS	REVISION #: 0	

Human Receptors



Receptor pathways are incomplete as no evidence of soil contamination was identified during this Phase Two Environmental Site Assessment

Ecological Receptors



Exposure pathways are incomplete as no evidence of soil and ground water contamination were identified during this Phase Two Environmental Site Assessment

RUBIDIUM ENVIRONMENTAL

ADDRESS: 3228 SOUTH SERVICE ROAD - SUITE 208 BURLINGTON, ON L7N 3H8	DRAWING NAME: Conceptual Model for Human & Ecological Receptors	CLIENT NAME: Ember Dog Inc.	SCALE: Not to Scale
RB #: 2671	DRAWN BY: AB	SITE ADDRESS: 92 Plains Road East, Burlington, ON	NOTES: Drawing 5
DATE: November 2, 2017	CHECKED BY: SS	REVISION #: 0	

PHOTOGRAPHS

Photograph Log
Phase Two Environmental Site Assessment
92 Plains Road East, Burlington, Ontario
Rb Project No. 2671

	
Photograph 1 Photo depicts view of drilling at BH/MW1.	**Photograph 2** Photo depicts view of auguring at BH/MW3.
	
Photograph 3 Photo depicts view of auguring at BH/MW1.	**Photograph 4** Photo depicts view of installed well with monument casing at BH/MW 2.

Photographs taken by Andrew Beck on October 10, 2017

RUBIDIUM
ENVIRONMENTAL

APPENDIX A - GENERAL:
A1 – Sampling and Analysis Plan

RUBIDIUM ENVIRONMENTAL

Phase Two ESA
Sampling and Analysis Plan

Site: 92 Plains Road East, Burlington, Ontario – Ember Dog Inc. Project #: Rb2671

Location ID	Media	Sample No.	Approximate Depth (m)	Date of Sample Collection	Date of Analysis	Chemical Analyses	Purpose and Justification
BH/MW1	Soil	1-1	0.08 – 0.91	Oct 10, 2017	Oct 13 and 16, 2017	Metals pH	Worst case soil sample. Collected to verify and/or refute APEC 1 and characterize the soil conditions across the Phase Two Property.
		1-2	0.91 – 1.52	Oct 10, 2017	Oct 16-18, 2017	PHCs (F_1 – F_4) VOCs PAHs	Worst case soil sample. Collected to verify and/or refute APEC 2, 3, and 4.
		1-8	5.18 – 6.10	Oct 10, 2017	Oct 25, 2017	Grain Size (Texture)	Characterize soil texture on the Phase Two Property.
	GW	MW1	N/A	Oct 27, 2017	Oct 31, 2017, Nov 1-2, 2017	PHCs VOCs PAHs Metals	Characterize ground water conditions downgradient from potential contamination source. Collected to verify and/or refute APEC 2, 3, and 4.
		MW1D	N/A	Oct 27, 2017	Nov 1-2, 2017	PHCs VOCs	QA/QC. Duplicate sample of MW1.
BH/MW2	Soil	2-1	0.08 – 0.30	Oct 10, 2017	Oct 16-18, 2017	PHCs (F_1 – F_4) VOCs PAHs	Worst case soil sample. Collected to verify and/or refute APEC 3 and 4.
		2-3	1.52 – 2.13	Oct 10, 2017	Oct 16, 2017	Metals	Worst case soil sample. Collected to verify and/or refute APEC 3.
		2-3D	1.52 – 2.13	Oct 10, 2017	Oct 16, 2017	Metals	QA/QC. Duplicate sample of 2-3.
	GW	MW2	N/A	Oct 27, 2017	Oct 31, 2017, Nov 1-2, 2017	PHCs VOCs PAHs Metals	Characterize ground water conditions downgradient from potential contamination source. Collected to verify and/or refute APEC 3 and 4.
		MW2D	N/A	Oct 27, 2017	Oct 31, 2017	Metals	QA/QC. Duplicate sample of MW2.

Location ID	Media	Sample No.	Approximate Depth (m)	Date of Sample Collection	Date of Analysis	Chemical Analyses	Purpose and Justification
BH/MW3	Soil	3-1	0.08 – 1.07	Oct 10, 2017	Oct 16-18, 2017	PHCs (F_1 – F_4) VOCs PAHs Metals	Worst case soil sample. Collected to verify and/or refute APEC 1.
		3-1D	0.08 – 1.07	Oct 10, 2017	Oct 16-18, 2017	PHCs (F_1 – F_4) VOCs PAHs	QA/QC. Duplicate sample of 3-1.
		3-8	4.88 – 5.18	Oct 10, 2017	Oct 13, 2017	pH	Characterize the soil conditions across the Phase Two Property.
		3-8D	4.88 – 5.18	Oct 10, 2017	Oct 13, 2017	pH	QA/QC. Duplicate sample of 3-3.
	GW	MW3	N/A	Oct 27, 2017	Oct 31, 2017, Nov 1-2, 2017	PHCs VOCs PAHs Metals	Characterize ground water conditions downgradient from potential contamination source. Collected to verify and/or refute APEC 1.
		MW3D	N/A	Oct 27, 2017	Nov 1, 2017	PAHs	QA/QC. Duplicate sample of MW3.

APPENDIX A - GENERAL:
A2 – Finalized Field Logs

RUBIDIUM ENVIRONMENTAL

Project No.: Rb2671 **Location:** 92 Plains Road East, Burlington, ON

Project: Phase Two Environmental Site Assessment

Client: Ember Dog Inc.

Log of Borehole BH/MW1

Drilled By: Landshark Drilling **Drill Date:** 10/10/2017 **Northing:** 4795746

Drill Method: Direct Push with Dual Tube (DT) **Logged By:** AB **Easting:** 593296

Hole Size: 2" **Checked By:** SS **Ground Surface Elevation (m):** 106

SUBSURFACE PROFILE				SAMPLE DATA					WELL DATA	
Depth (ft)	Depth (m)	Graphic Log	Lithographic Description	Elevation (m)	Sample No.	Sample Type	Vapour Screening (ppm or % LEL)	Remarks	Laboratory Analysis	Construction	Remarks
0	0		TOPSOIL	105.92	1	DT	ND		Metals		Concrete
2	0.5										
4	1			105.09	2	DT	ND		PHC, VOC, PAH		
6	1.5			104.48	3	DT	ND				
8	2			103.56	4	DT	ND				
10	2.5			102.95	5	DT	ND				Bentonite Seal
12	3										
14	3.5			102.04	6	DT	ND				
16	4		SAND - Brown changing to white at 18 ft., Trace gravel, Clay seam from 13 to 14.25 ft., Gravel throughout from 17 to 20 ft., Wet from 13 to 15 ft.	101.43	7	DT	ND				
18	4.5			100.82	8	DT	ND				
20	5			99.9							
22	5.5										
24	6										
26	6.5										Filter Sand
28	7										Ground Water Elevation: 97.57 m
30	7.5										
32	8			96.25							
34	8.5										
	9										
	9.5										
	10										

RUBIDIUM ENVIRONMENTAL

Project No.: Rb2671 **Location:** 92 Plains Road East, Burlington, ON

Project: Phase Two Environmental Site Assessment

Client: Ember Dog Inc.

Log of Borehole BH/MW2

Drilled By: Landshark Drilling **Drill Date:** 10/10/2017 **Northing:** 4795771

Drill Method: Direct Push with Dual Tube (DT) **Logged By:** AB **Easting:** 593316

Hole Size: 2" **Checked By:** SS **Ground Surface Elevation (m):** 106

SUBSURFACE PROFILE				SAMPLE DATA					WELL DATA	
Depth (ft)	Depth (m)	Graphic Log	Lithographic Description	Elevation (m)	Sample No.	Sample Type	Vapour Screening (ppm or % LEL)	Remarks	Laboratory Analysis	Construction	Remarks
0	0		TOPSOIL	105.92	1	DT	1.9		PHC, VOC, PAH		Concrete
2	0.5		SANDY SILT - Brown, Some clay, Trace gravel	105.39	2	DT	ND				
4	1										
6	1.5			104.48	3	DT	ND		Metals		
8	2			103.87	4	DT	ND				
10	2.5										Bentonite Seal
12	3			102.95	5	DT	ND				
14	3.5			102.49	6	DT	ND				
16	4			101.89	7	DT	ND				
18	4.5			101.43	8	DT	ND				
20	5		SAND - Brown, Trace gravel, Some clay from 11.5 to 13.5 ft., Moist at 15 ft.	100.82	9	DT	ND				
22	5.5			99.9							
24	6										Filter Sand
26	6.5										
28	7										Ground Water Elevation: 97.70 m
30	7.5										
32	8			96.86							
	8.5										
	9										
	9.5										

RUBIDIUM ENVIRONMENTAL

Project No.: Rb2671 **Location:** 92 Plains Road East, Burlington, ON

Project: Phase Two Environmental Site Assessment

Client: Ember Dog Inc.

Log of Borehole BH/MW3

Drilled By: Landshark Drilling **Drill Date:** 10/10/2017 **Northing:** 4795727

Drill Method: Direct Push with Dual Tube (DT) **Logged By:** AB **Easting:** 593330

Hole Size: 2" **Checked By:** SS **Ground Surface Elevation (m):** 105

SUBSURFACE PROFILE				SAMPLE DATA					WELL DATA	
Depth (ft)	Depth (m)	Graphic Log	Lithographic Description	Elevation (m)	Sample No.	Sample Type	Vapour Screening (ppm or % LEL)	Remarks	Laboratory Analysis	Construction	Remarks
0	0		TOPSOIL - Woodchips throughout	104.92							Concrete
2	0.5		SANDY SILT - Brown, Some clay, Trace gravel		1	DT	ND		Metals, PHC, VOC, PAH		
4	1			103.93	2	DT	ND				
6	1.5			103.48	3	DT	ND				
8	2			102.87	4	DT	ND				
10	2.5										Bentonite Seal
12	3			101.95	5	DT	ND				
14	3.5			101.34	6	DT	ND				
16	4			100.43	7	DT	ND				
18	4.5		SAND - Brown changing to white at 16 ft., Trace gravel, gravel through at 16 ft.	100.12	8	DT	ND				
20	5			99.82							
22	5.5										
24	6										
26	6.5										Filter Sand
28	7										
30	7.5										Ground Water Elevation: 96.62 m
32	8			95.86							
	8.5										
	9										
	9.5										

APPENDIX A - GENERAL:
A3 – Certificates of Analysis or Analytical Reports from Laboratories

RUBIDIUM ENVIRONMENTAL INC.
ATTN: Sarah Sipak
3228 South Service Road
Suite 208
Burlington ON L7N 3H8

Date Received: 11-OCT-17
Report Date: 26-OCT-17 09:19 (MT)
Version: FINAL

Client Phone: 905-635-4063

Certificate of Analysis

Lab Work Order #: L2005624

Project P.O. #: RB2671
Job Reference: BR2671
C of C Numbers: 15-610695
Legal Site Desc:

Amanda Fazekas
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

Summary of Guideline Exceedances

ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit	Guideline

Ontario Regulation 153/04 - April 15, 2011 Standards - T3-Soil-Res/Park/Inst. Property Use (Coarse)

(No parameter exceedances)

Ontario Regulation 153/04 - April 15, 2011 Standards - T3-Soil-Ind/Com/Commu. Property Use (Coarse)

(No parameter exceedances)

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Physical Tests - SOIL

	Lab ID	L2005624-1	L2005624-2	L2005624-4	L2005624-8	L2005624-9	L2005624-10	L2005624-11
	Sample Date	10-OCT-17	10-OCT-17	10-OCT-17	10-OCT-17	10-OCT-17	10-OCT-17	10-OCT-17
	Sample ID	1-1	1-2	2-1	3-1	3-1D	3-8	3-8D
Analyte	Unit	Guide Limits #1	Guide Limits #2					
% Moisture	%	-	-		6.82	8.87	7.55	7.91		
pH	pH units	-	-	7.24					7.89	7.90

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Ind/Com/Commu. Property Use (Coarse)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Metals - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID: L2005624-1 / Sample Date: 10-OCT-17 / Sample ID: 1-1	Lab ID: L2005624-5 / Sample Date: 10-OCT-17 / Sample ID: 2-3	Lab ID: L2005624-6 / Sample Date: 10-OCT-17 / Sample ID: 2-3D	Lab ID: L2005624-8 / Sample Date: 10-OCT-17 / Sample ID: 3-1
Antimony (Sb)	ug/g	7.5	40	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	18	3.9	2.5	2.9	3.7
Barium (Ba)	ug/g	390	670	41.8	11.1	12.6	27.7
Beryllium (Be)	ug/g	4	8	<0.50	<0.50	<0.50	<0.50
Boron (B)	ug/g	120	120	<5.0	<5.0	<5.0	<5.0
Cadmium (Cd)	ug/g	1.2	1.9	<0.50	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	160	160	12.0	4.2	5.1	7.3
Cobalt (Co)	ug/g	22	80	4.3	2.6	3.2	3.8
Copper (Cu)	ug/g	140	230	17.2	10.9	12.6	15.5
Lead (Pb)	ug/g	120	120	44.9	3.3	3.8	16.1
Molybdenum (Mo)	ug/g	6.9	40	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	100	270	9.7	5.5	6.8	7.7
Selenium (Se)	ug/g	2.4	5.5	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	20	40	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	1	3.3	<0.50	<0.50	<0.50	<0.50
Uranium (U)	ug/g	23	33	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	86	17.0	8.4	10.6	13.9
Zinc (Zn)	ug/g	340	340	54.6	12.2	14.4	45.9

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Ind/Com/Commu. Property Use (Coarse)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Volatile Organic Compounds - SOIL

				Lab ID	L2005624-2	L2005624-4	L2005624-8	L2005624-9
				Sample Date	10-OCT-17	10-OCT-17	10-OCT-17	10-OCT-17
				Sample ID	1-2	2-1	3-1	3-1D
		Guide Limits						
Analyte	Unit	#1	#2					
Acetone	ug/g	16	16	<0.50	0.83	<0.50	<0.50
Benzene	ug/g	0.21	0.32	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	ug/g	13	18	<0.050	<0.050	<0.050	<0.050
Bromoform	ug/g	0.27	0.61	<0.050	<0.050	<0.050	<0.050
Bromomethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050
Carbon tetrachloride	ug/g	0.05	0.21	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	ug/g	2.4	2.4	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	ug/g	9.4	13	<0.050	<0.050	<0.050	<0.050
Chloroform	ug/g	0.05	0.47	<0.050	<0.050	<0.050	<0.050
1,2-Dibromoethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	ug/g	3.4	6.8	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	ug/g	4.8	9.6	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	ug/g	0.083	0.2	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	ug/g	16	16	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	ug/g	3.5	17	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	ug/g	0.05	0.064	<0.050	<0.050	<0.050	<0.050
cis-1,2-Dichloroethylene	ug/g	3.4	55	<0.050	<0.050	<0.050	<0.050
trans-1,2-Dichloroethylene	ug/g	0.084	1.3	<0.050	<0.050	<0.050	<0.050
Methylene Chloride	ug/g	0.1	1.6	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	ug/g	0.05	0.16	<0.050	<0.050	<0.050	<0.050
cis-1,3-Dichloropropene	ug/g	-	-	<0.030	<0.030	<0.030	<0.030
trans-1,3-Dichloropropene	ug/g	-	-	<0.030	<0.030	<0.030	<0.030
1,3-Dichloropropene (cis & trans)	ug/g	0.05	0.18	<0.042	<0.042	<0.042	<0.042
Ethylbenzene	ug/g	2	9.5	<0.018	<0.018	<0.018	<0.018
n-Hexane	ug/g	2.8	46	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	ug/g	16	70	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	1.7	31	<0.50	<0.50	<0.50	<0.50
MTBE	ug/g	0.75	11	<0.050	<0.050	<0.050	<0.050
Styrene	ug/g	0.7	34	<0.050	<0.050	<0.050	<0.050

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Ind/Com/Commu. Property Use (Coarse)

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Volatile Organic Compounds - SOIL

				Lab ID	L2005624-2	L2005624-4	L2005624-8	L2005624-9
				Sample Date	10-OCT-17	10-OCT-17	10-OCT-17	10-OCT-17
				Sample ID	1-2	2-1	3-1	3-1D
		Guide Limits						
Analyte	Unit	#1	#2					
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.087	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	ug/g	0.28	4.5	<0.050	<0.050	<0.050	<0.050
Toluene	ug/g	2.3	68	<0.080	<0.080	<0.080	<0.080
1,1,1-Trichloroethane	ug/g	0.38	6.1	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	ug/g	0.061	0.91	<0.010	<0.010	<0.010	<0.010
Trichlorofluoromethane	ug/g	4	4	<0.050	<0.050	<0.050	<0.050
Vinyl chloride	ug/g	0.02	0.032	<0.020	<0.020	<0.020	<0.020
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	<0.020
m+p-Xylenes	ug/g	-	-	<0.030	<0.030	<0.030	<0.030
Xylenes (Total)	ug/g	3.1	26	<0.050	<0.050	<0.050	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	110.6	96.7	94.9	96.0
Surrogate: 1,4-Difluorobenzene	%	-	-	118.1	102.3	102.6	102.8

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Ind/Com/Commu. Property Use (Coarse)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Hydrocarbons - SOIL

				Lab ID	L2005624-2	L2005624-4	L2005624-8	L2005624-9
				Sample Date	10-OCT-17	10-OCT-17	10-OCT-17	10-OCT-17
				Sample ID	1-2	2-1	3-1	3-1D
		Guide Limits						
Analyte	Unit	#1	#2					
F1 (C6-C10)	ug/g	55	55		<5.0	<5.0	<5.0	<5.0
F1-BTEX	ug/g	55	55		<5.0	<5.0	<5.0	<5.0
F2 (C10-C16)	ug/g	98	230		<10	<10	<10	<10
F2-Naphth	ug/g	-	-		<10	<10	<10	<10
F3 (C16-C34)	ug/g	300	1700		<50	<50	<50	<50
F3-PAH	ug/g	-	-		<50	<50	<50	<50
F4 (C34-C50)	ug/g	2800	3300		<50	<50	<50	<50
Total Hydrocarbons (C6-C50)	ug/g	-	-		<72	<72	<72	<72
Chrom. to baseline at nC50		-	-		YES	YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-		87.8	77.6	81.0	80.1
Surrogate: 3,4-Dichlorotoluene	%	-	-		105.2	99.1	88.4	96.1

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Ind/Com/Commu. Property Use (Coarse)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Polycyclic Aromatic Hydrocarbons - SOIL

		Guide Limits					
Lab ID				L2005624-2	L2005624-4	L2005624-8	L2005624-9
Sample Date				10-OCT-17	10-OCT-17	10-OCT-17	10-OCT-17
Sample ID				1-2	2-1	3-1	3-1D
Analyte	**Unit**	**#1**	**#2**				
Acenaphthene	ug/g	7.9	96	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	ug/g	0.15	0.15	<0.050	<0.050	<0.050	<0.050
Anthracene	ug/g	0.67	0.67	<0.050	<0.050	<0.050	<0.050
Benzo(a)anthracene	ug/g	0.5	0.96	<0.050	<0.050	<0.050	0.096
Benzo(a)pyrene	ug/g	0.3	0.3	<0.050	<0.050	<0.050	0.113 DUPH
Benzo(b)fluoranthene	ug/g	0.78	0.96	<0.050	<0.050	0.056	0.157 DUPH
Benzo(g,h,i)perylene	ug/g	6.6	9.6	<0.050	<0.050	<0.050	0.071
Benzo(k)fluoranthene	ug/g	0.78	0.96	<0.050	<0.050	<0.050	0.057
Chrysene	ug/g	7	9.6	<0.050	<0.050	<0.050	0.110 DUPH
Dibenzo(ah)anthracene	ug/g	0.1	0.1	<0.050	<0.050	<0.050	<0.050
Fluoranthene	ug/g	0.69	9.6	<0.050	<0.050	0.065	0.103 DUPH
Fluorene	ug/g	62	62	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	ug/g	0.38	0.76	<0.050	<0.050	<0.050	0.077
1+2-Methylnaphthalenes	ug/g	0.99	76	<0.042	<0.042	<0.042	<0.042
1-Methylnaphthalene	ug/g	0.99	76	<0.030	<0.030	<0.030	<0.030
2-Methylnaphthalene	ug/g	0.99	76	<0.030	<0.030	<0.030	<0.030
Naphthalene	ug/g	0.6	9.6	<0.050	<0.050	<0.050	<0.050
Phenanthrene	ug/g	6.2	12	<0.050	<0.050	<0.050	<0.050
Pyrene	ug/g	78	96	<0.050	<0.050	0.057	0.087
Surrogate: 2-Fluorobiphenyl	%	-	-	92.4	95.9	93.0	95.9
Surrogate: p-Terphenyl d14	%	-	-	70.6	70.8	72.5	97.4

Guide Limit #1: T3-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T3-Soil-Ind/Com/Commu. Property Use (Coarse)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DUPH	Duplicate results outside ALS DQO, due to sample heterogeneity.

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

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

Hydrocarbon results are expressed on a dry weight basis.

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

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

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

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

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

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

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

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

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

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

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
		Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).	
MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)
		This method uses a heated strong acid digestion with HNO3 and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.	
		Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).	
METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	Gravimetric: Oven Dried
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270
		A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Depending on the analytical GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.	
		Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).	
PH-WT	Soil	pH	MOEE E3137A
		A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.	
		Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).	
VOC-1,3-DCP-CALC-WT	Soil	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Soil	VOC-O.Reg 153/04 (July 2011)	SW846 8260 (511)
		Soil and sediment samples are extracted in methanol and analyzed by headspace-GC/MS.	
		Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).	
XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION
		Total xylenes represents the sum of o-xylene and m&p-xylene.	

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

Chain of Custody Numbers:

15-610695

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

Laboratory Definition Code	Laboratory Location

Reference Information

WT ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

GLOSSARY OF REPORT TERMS

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

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

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information.

Quality Control Report

Workorder: L2005624 Report Date: 26-OCT-17

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R3855596								
WG2637317-4 DUP		**WG2637317-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	16-OCT-17
WG2637317-2 LCS								
F1 (C6-C10)			100.5		%		80-120	16-OCT-17
WG2637317-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	16-OCT-17
Surrogate: 3,4-Dichlorotoluene			95.4		%		60-140	16-OCT-17
WG2637317-7 MS		**WG2637317-6**						
F1 (C6-C10)			97.7		%		60-140	16-OCT-17
F2-F4-511-WT	**Soil**							
Batch R3857662								
WG2638209-3 CRM		**ALS PHC2 IRM**						
F2 (C10-C16)			92.7		%		70-130	17-OCT-17
F3 (C16-C34)			91.6		%		70-130	17-OCT-17
F4 (C34-C50)			89.5		%		70-130	17-OCT-17
WG2638209-7 DUP		**WG2638209-6**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	18-OCT-17
F3 (C16-C34)		<50	60	RPD-NA	ug/g	N/A	30	18-OCT-17
F4 (C34-C50)		68	92		ug/g	29	30	18-OCT-17
WG2638209-2 LCS								
F2 (C10-C16)			99.4		%		80-120	17-OCT-17
F3 (C16-C34)			96.2		%		80-120	17-OCT-17
F4 (C34-C50)			89.9		%		80-120	17-OCT-17
WG2638209-1 MB								
F2 (C10-C16)			<10		ug/g		10	17-OCT-17
F3 (C16-C34)			<50		ug/g		50	17-OCT-17
F4 (C34-C50)			<50		ug/g		50	17-OCT-17
Surrogate: 2-Bromobenzotrifluoride			55.4	MBS	%		60-140	17-OCT-17
MET-200.2-CCMS-WT	**Soil**							
Batch R3857482								
WG2639998-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			101.2		%		70-130	16-OCT-17
Arsenic (As)			107.4		%		70-130	16-OCT-17
Barium (Ba)			112.2		%		70-130	16-OCT-17
Beryllium (Be)			98.3		%		70-130	16-OCT-17
Boron (B)			2.8		mg/kg		0-8.2	16-OCT-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R3857482								
WG2639998-2 CRM		**WT-CANMET-TILL1**						
Cadmium (Cd)			107.8		%		70-130	16-OCT-17
Chromium (Cr)			103.7		%		70-130	16-OCT-17
Cobalt (Co)			103.9		%		70-130	16-OCT-17
Copper (Cu)			102.5		%		70-130	16-OCT-17
Lead (Pb)			102.5		%		70-130	16-OCT-17
Molybdenum (Mo)			96.9		%		70-130	16-OCT-17
Nickel (Ni)			101.6		%		70-130	16-OCT-17
Selenium (Se)			0.30		mg/kg		0.11-0.51	16-OCT-17
Silver (Ag)			0.22		mg/kg		0.13-0.33	16-OCT-17
Thallium (Tl)			0.120		mg/kg		0.077-0.18	16-OCT-17
Uranium (U)			97.6		%		70-130	16-OCT-17
Vanadium (V)			104.2		%		70-130	16-OCT-17
Zinc (Zn)			99.3		%		70-130	16-OCT-17
WG2639998-6 DUP		**WG2639998-5**						
Antimony (Sb)		0.11	0.11		ug/g	3.5	30	16-OCT-17
Arsenic (As)		5.17	4.99		ug/g	3.6	30	16-OCT-17
Barium (Ba)		60.5	58.6		ug/g	3.2	40	16-OCT-17
Beryllium (Be)		0.64	0.62		ug/g	3.5	30	16-OCT-17
Boron (B)		9.5	13.1	J	ug/g	3.6	10	16-OCT-17
Cadmium (Cd)		0.067	0.060		ug/g	12	30	16-OCT-17
Chromium (Cr)		20.3	20.2		ug/g	0.5	30	16-OCT-17
Cobalt (Co)		11.0	10.9		ug/g	0.7	30	16-OCT-17
Copper (Cu)		24.1	24.9		ug/g	3.4	30	16-OCT-17
Lead (Pb)		7.31	7.82		ug/g	6.8	40	16-OCT-17
Molybdenum (Mo)		0.26	0.27		ug/g	4.9	40	16-OCT-17
Nickel (Ni)		23.5	23.4		ug/g	0.6	30	16-OCT-17
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	16-OCT-17
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	16-OCT-17
Thallium (Tl)		0.092	0.085		ug/g	7.4	30	16-OCT-17
Uranium (U)		0.491	0.474		ug/g	3.6	30	16-OCT-17
Vanadium (V)		29.1	28.1		ug/g	3.6	30	16-OCT-17
Zinc (Zn)		52.0	50.4		ug/g	3.1	30	16-OCT-17
WG2639998-4 LCS								

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R3857482								
WG2639998-4 LCS								
Antimony (Sb)			101.7		%		80-120	16-OCT-17
Arsenic (As)			96.1		%		80-120	16-OCT-17
Barium (Ba)			102.0		%		80-120	16-OCT-17
Beryllium (Be)			90.7		%		80-120	16-OCT-17
Boron (B)			81.3		%		80-120	16-OCT-17
Cadmium (Cd)			92.6		%		80-120	16-OCT-17
Chromium (Cr)			94.7		%		80-120	16-OCT-17
Cobalt (Co)			93.8		%		80-120	16-OCT-17
Copper (Cu)			89.1		%		80-120	16-OCT-17
Lead (Pb)			96.8		%		80-120	16-OCT-17
Molybdenum (Mo)			93.0		%		80-120	16-OCT-17
Nickel (Ni)			92.5		%		80-120	16-OCT-17
Selenium (Se)			98.1		%		80-120	16-OCT-17
Silver (Ag)			94.0		%		80-120	16-OCT-17
Thallium (Tl)			96.6		%		80-120	16-OCT-17
Uranium (U)			92.5		%		80-120	16-OCT-17
Vanadium (V)			98.0		%		80-120	16-OCT-17
Zinc (Zn)			84.1		%		80-120	16-OCT-17
WG2639998-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	16-OCT-17
Arsenic (As)			<0.10		mg/kg		0.1	16-OCT-17
Barium (Ba)			<0.50		mg/kg		0.5	16-OCT-17
Beryllium (Be)			<0.10		mg/kg		0.1	16-OCT-17
Boron (B)			<5.0		mg/kg		5	16-OCT-17
Cadmium (Cd)			<0.020		mg/kg		0.02	16-OCT-17
Chromium (Cr)			<0.50		mg/kg		0.5	16-OCT-17
Cobalt (Co)			<0.10		mg/kg		0.1	16-OCT-17
Copper (Cu)			<0.50		mg/kg		0.5	16-OCT-17
Lead (Pb)			<0.50		mg/kg		0.5	16-OCT-17
Molybdenum (Mo)			<0.10		mg/kg		0.1	16-OCT-17
Nickel (Ni)			<0.50		mg/kg		0.5	16-OCT-17
Selenium (Se)			<0.20		mg/kg		0.2	16-OCT-17
Silver (Ag)			<0.10		mg/kg		0.1	16-OCT-17
Thallium (Tl)			<0.050		mg/kg		0.05	16-OCT-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R3857482								
WG2639998-1 MB								
Uranium (U)			<0.050		mg/kg		0.05	16-OCT-17
Vanadium (V)			<0.20		mg/kg		0.2	16-OCT-17
Zinc (Zn)			<2.0		mg/kg		2	16-OCT-17
MOISTURE-WT	**Soil**							
Batch R3853453								
WG2637597-3 DUP		**L2004500-1**						
% Moisture		4.69	4.70		%	0.2	20	12-OCT-17
WG2637597-2 LCS								
% Moisture			100.2		%		90-110	12-OCT-17
WG2637597-1 MB								
% Moisture			<0.10		%		0.1	12-OCT-17
PAH-511-WT	**Soil**							
Batch R3858012								
WG2637272-4 DUP		**WG2637272-3**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	17-OCT-17
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	17-OCT-17
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-OCT-17
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-OCT-17
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-OCT-17
Benzo(a)anthracene		0.096	<0.050	RPD-NA	ug/g	N/A	40	17-OCT-17
Benzo(a)pyrene		0.113	<0.050	DUP-H	ug/g	N/A	40	17-OCT-17
Benzo(b)fluoranthene		0.157	<0.050	DUP-H	ug/g	N/A	40	17-OCT-17
Benzo(g,h,i)perylene		0.071	<0.050	RPD-NA	ug/g	N/A	40	17-OCT-17
Benzo(k)fluoranthene		0.057	<0.050	RPD-NA	ug/g	N/A	40	17-OCT-17
Chrysene		0.110	<0.050	DUP-H	ug/g	N/A	40	17-OCT-17
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-OCT-17
Fluoranthene		0.103	<0.050	DUP-H	ug/g	N/A	40	17-OCT-17
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-OCT-17
Indeno(1,2,3-cd)pyrene		0.077	<0.050	RPD-NA	ug/g	N/A	40	17-OCT-17
Naphthalene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-OCT-17
Phenanthrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	17-OCT-17
Pyrene		0.087	<0.050	RPD-NA	ug/g	N/A	40	17-OCT-17
WG2637272-2 LCS								
1-Methylnaphthalene			91.9		%		50-140	17-OCT-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R3858012								
WG2637272-2 LCS								
2-Methylnaphthalene			90.7		%		50-140	17-OCT-17
Acenaphthene			97.2		%		50-140	17-OCT-17
Acenaphthylene			100.1		%		50-140	17-OCT-17
Anthracene			88.6		%		50-140	17-OCT-17
Benzo(a)anthracene			87.9		%		50-140	17-OCT-17
Benzo(a)pyrene			87.3		%		50-140	17-OCT-17
Benzo(b)fluoranthene			82.9		%		50-140	17-OCT-17
Benzo(g,h,i)perylene			83.5		%		50-140	17-OCT-17
Benzo(k)fluoranthene			95.1		%		50-140	17-OCT-17
Chrysene			101.6		%		50-140	17-OCT-17
Dibenzo(ah)anthracene			83.2		%		50-140	17-OCT-17
Fluoranthene			87.5		%		50-140	17-OCT-17
Fluorene			70.7		%		50-140	17-OCT-17
Indeno(1,2,3-cd)pyrene			82.3		%		50-140	17-OCT-17
Naphthalene			97.3		%		50-140	17-OCT-17
Phenanthrene			93.0		%		50-140	17-OCT-17
Pyrene			88.7		%		50-140	17-OCT-17
WG2637272-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	17-OCT-17
2-Methylnaphthalene			<0.030		ug/g		0.03	17-OCT-17
Acenaphthene			<0.050		ug/g		0.05	17-OCT-17
Acenaphthylene			<0.050		ug/g		0.05	17-OCT-17
Anthracene			<0.050		ug/g		0.05	17-OCT-17
Benzo(a)anthracene			<0.050		ug/g		0.05	17-OCT-17
Benzo(a)pyrene			<0.050		ug/g		0.05	17-OCT-17
Benzo(b)fluoranthene			<0.050		ug/g		0.05	17-OCT-17
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	17-OCT-17
Benzo(k)fluoranthene			<0.050		ug/g		0.05	17-OCT-17
Chrysene			<0.050		ug/g		0.05	17-OCT-17
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	17-OCT-17
Fluoranthene			<0.050		ug/g		0.05	17-OCT-17
Fluorene			<0.050		ug/g		0.05	17-OCT-17
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	17-OCT-17
Naphthalene			<0.050		ug/g		0.05	17-OCT-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R3858012								
WG2637272-1 MB								
Phenanthrene			<0.050		ug/g		0.05	17-OCT-17
Pyrene			<0.050		ug/g		0.05	17-OCT-17
Surrogate: 2-Fluorobiphenyl			96.3		%		50-140	17-OCT-17
Surrogate: p-Terphenyl d14			106.6		%		50-140	17-OCT-17
WG2637272-5 MS		**WG2637272-3**						
1-Methylnaphthalene			92.0		%		50-140	17-OCT-17
2-Methylnaphthalene			91.2		%		50-140	17-OCT-17
Acenaphthene			84.5		%		50-140	17-OCT-17
Acenaphthylene			107.3		%		50-140	17-OCT-17
Anthracene			89.1		%		50-140	17-OCT-17
Benzo(a)anthracene			96.1		%		50-140	17-OCT-17
Benzo(a)pyrene			93.2		%		50-140	17-OCT-17
Benzo(b)fluoranthene			93.6		%		50-140	17-OCT-17
Benzo(g,h,i)perylene			85.9		%		50-140	17-OCT-17
Benzo(k)fluoranthene			91.0		%		50-140	17-OCT-17
Chrysene			101.9		%		50-140	17-OCT-17
Dibenzo(ah)anthracene			84.2		%		50-140	17-OCT-17
Fluoranthene			99.98		%		50-140	17-OCT-17
Fluorene			83.1		%		50-140	17-OCT-17
Indeno(1,2,3-cd)pyrene			86.4		%		50-140	17-OCT-17
Naphthalene			97.1		%		50-140	17-OCT-17
Phenanthrene			96.6		%		50-140	17-OCT-17
Pyrene			99.2		%		50-140	17-OCT-17
PH-WT	**Soil**							
Batch R3854211								
WG2637281-1 DUP		**L2005015-1**						
pH		7.66	7.66	J	pH units	0.00	0.3	13-OCT-17
WG2638679-1 LCS								
pH			7.00		pH units		6.9-7.1	13-OCT-17
VOC-511-HS-WT	**Soil**							
Batch R3855596								
WG2637317-4 DUP		**WG2637317-3**						
1,1,1,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
1,1,2,2-Tetrachloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R3855596								
WG2637317-4 DUP		**WG2637317-3**						
1,1,1-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
1,1,2-Trichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
1,1-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
1,1-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
1,2-Dibromoethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
1,2-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
1,2-Dichloroethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
1,2-Dichloropropane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
1,3-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
1,4-Dichlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
Acetone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	16-OCT-17
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	16-OCT-17
Bromodichloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
Bromoform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
Bromomethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
Carbon tetrachloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
Chlorobenzene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
Chloroform		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
cis-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
cis-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	16-OCT-17
Dibromochloromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
Dichlorodifluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	16-OCT-17
n-Hexane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
Methylene Chloride		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
MTBE		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	16-OCT-17
Methyl Ethyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	16-OCT-17
Methyl Isobutyl Ketone		<0.50	<0.50	RPD-NA	ug/g	N/A	40	16-OCT-17
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	16-OCT-17
Styrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
Tetrachloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
Toluene		<0.080	<0.080		ug/g			16-OCT-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R3855596								
WG2637317-4 DUP		**WG2637317-3**						
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	16-OCT-17
trans-1,2-Dichloroethylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
trans-1,3-Dichloropropene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	16-OCT-17
Trichloroethylene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	16-OCT-17
Trichlorofluoromethane		<0.050	<0.050	RPD-NA	ug/g	N/A	40	16-OCT-17
Vinyl chloride		<0.020	<0.020	RPD-NA	ug/g	N/A	40	16-OCT-17
WG2637317-2 LCS								
1,1,1,2-Tetrachloroethane			93.8		%		60-130	16-OCT-17
1,1,2,2-Tetrachloroethane			88.7		%		60-130	16-OCT-17
1,1,1-Trichloroethane			97.2		%		60-130	16-OCT-17
1,1,2-Trichloroethane			96.1		%		60-130	16-OCT-17
1,1-Dichloroethane			96.2		%		60-130	16-OCT-17
1,1-Dichloroethylene			87.5		%		60-130	16-OCT-17
1,2-Dibromoethane			93.5		%		70-130	16-OCT-17
1,2-Dichlorobenzene			98.4		%		70-130	16-OCT-17
1,2-Dichloroethane			96.1		%		60-130	16-OCT-17
1,2-Dichloropropane			100.4		%		70-130	16-OCT-17
1,3-Dichlorobenzene			98.6		%		70-130	16-OCT-17
1,4-Dichlorobenzene			100.9		%		70-130	16-OCT-17
Acetone			107.8		%		60-140	16-OCT-17
Benzene			101.9		%		70-130	16-OCT-17
Bromodichloromethane			96.9		%		50-140	16-OCT-17
Bromoform			87.3		%		70-130	16-OCT-17
Bromomethane			94.9		%		50-140	16-OCT-17
Carbon tetrachloride			96.2		%		70-130	16-OCT-17
Chlorobenzene			97.8		%		70-130	16-OCT-17
Chloroform			100.4		%		70-130	16-OCT-17
cis-1,2-Dichloroethylene			98.7		%		70-130	16-OCT-17
cis-1,3-Dichloropropene			106.3		%		70-130	16-OCT-17
Dibromochloromethane			97.1		%		60-130	16-OCT-17
Dichlorodifluoromethane			43.4	MES	%		50-140	16-OCT-17
Ethylbenzene			92.1		%		70-130	16-OCT-17
n-Hexane			100.9		%		70-130	16-OCT-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R3855596								
WG2637317-2 LCS								
Methylene Chloride			100.7		%		70-130	16-OCT-17
MTBE			94.8		%		70-130	16-OCT-17
m+p-Xylenes			96.5		%		70-130	16-OCT-17
Methyl Ethyl Ketone			109.2		%		60-140	16-OCT-17
Methyl Isobutyl Ketone			96.4		%		60-140	16-OCT-17
o-Xylene			92.5		%		70-130	16-OCT-17
Styrene			93.1		%		70-130	16-OCT-17
Tetrachloroethylene			97.2		%		60-130	16-OCT-17
Toluene			96.2		%		70-130	16-OCT-17
trans-1,2-Dichloroethylene			98.3		%		60-130	16-OCT-17
trans-1,3-Dichloropropene			98.7		%		70-130	16-OCT-17
Trichloroethylene			98.1		%		60-130	16-OCT-17
Trichlorofluoromethane			94.4		%		50-140	16-OCT-17
Vinyl chloride			83.0		%		60-140	16-OCT-17
WG2637317-1 MB								
1,1,1,2-Tetrachloroethane			<0.050		ug/g		0.05	16-OCT-17
1,1,2,2-Tetrachloroethane			<0.050		ug/g		0.05	16-OCT-17
1,1,1-Trichloroethane			<0.050		ug/g		0.05	16-OCT-17
1,1,2-Trichloroethane			<0.050		ug/g		0.05	16-OCT-17
1,1-Dichloroethane			<0.050		ug/g		0.05	16-OCT-17
1,1-Dichloroethylene			<0.050		ug/g		0.05	16-OCT-17
1,2-Dibromoethane			<0.050		ug/g		0.05	16-OCT-17
1,2-Dichlorobenzene			<0.050		ug/g		0.05	16-OCT-17
1,2-Dichloroethane			<0.050		ug/g		0.05	16-OCT-17
1,2-Dichloropropane			<0.050		ug/g		0.05	16-OCT-17
1,3-Dichlorobenzene			<0.050		ug/g		0.05	16-OCT-17
1,4-Dichlorobenzene			<0.050		ug/g		0.05	16-OCT-17
Acetone			<0.50		ug/g		0.5	16-OCT-17
Benzene			<0.0068		ug/g		0.0068	16-OCT-17
Bromodichloromethane			<0.050		ug/g		0.05	16-OCT-17
Bromoform			<0.050		ug/g		0.05	16-OCT-17
Bromomethane			<0.050		ug/g		0.05	16-OCT-17
Carbon tetrachloride			<0.050		ug/g		0.05	16-OCT-17
Chlorobenzene			<0.050		ug/g		0.05	16-OCT-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R3855596								
WG2637317-1 MB								
Chloroform			<0.050		ug/g		0.05	16-OCT-17
cis-1,2-Dichloroethylene			<0.050		ug/g		0.05	16-OCT-17
cis-1,3-Dichloropropene			<0.030		ug/g		0.03	16-OCT-17
Dibromochloromethane			<0.050		ug/g		0.05	16-OCT-17
Dichlorodifluoromethane			<0.050		ug/g		0.05	16-OCT-17
Ethylbenzene			<0.018		ug/g		0.018	16-OCT-17
n-Hexane			<0.050		ug/g		0.05	16-OCT-17
Methylene Chloride			<0.050		ug/g		0.05	16-OCT-17
MTBE			<0.050		ug/g		0.05	16-OCT-17
m+p-Xylenes			<0.030		ug/g		0.03	16-OCT-17
Methyl Ethyl Ketone			<0.50		ug/g		0.5	16-OCT-17
Methyl Isobutyl Ketone			<0.50		ug/g		0.5	16-OCT-17
o-Xylene			<0.020		ug/g		0.02	16-OCT-17
Styrene			<0.050		ug/g		0.05	16-OCT-17
Tetrachloroethylene			<0.050		ug/g		0.05	16-OCT-17
Toluene			<0.080		ug/g		0.08	16-OCT-17
trans-1,2-Dichloroethylene			<0.050		ug/g		0.05	16-OCT-17
trans-1,3-Dichloropropene			<0.030		ug/g		0.03	16-OCT-17
Trichloroethylene			<0.010		ug/g		0.01	16-OCT-17
Trichlorofluoromethane			<0.050		ug/g		0.05	16-OCT-17
Vinyl chloride			<0.020		ug/g		0.02	16-OCT-17
Surrogate: 1,4-Difluorobenzene			101.7		%		50-140	16-OCT-17
Surrogate: 4-Bromofluorobenzene			95.1		%		50-140	16-OCT-17
WG2637317-5 MS		**WG2637317-3**						
1,1,1,2-Tetrachloroethane			97.4		%		50-140	16-OCT-17
1,1,2,2-Tetrachloroethane			102.8		%		50-140	16-OCT-17
1,1,1-Trichloroethane			95.9		%		50-140	16-OCT-17
1,1,2-Trichloroethane			106.1		%		50-140	16-OCT-17
1,1-Dichloroethane			97.4		%		50-140	16-OCT-17
1,1-Dichloroethylene			86.3		%		50-140	16-OCT-17
1,2-Dibromoethane			105.2		%		50-140	16-OCT-17
1,2-Dichlorobenzene			100.9		%		50-140	16-OCT-17
1,2-Dichloroethane			104.6		%		50-140	16-OCT-17
1,2-Dichloropropane			105.9		%		50-140	16-OCT-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Soil**							
Batch R3855596								
WG2637317-5 MS		**WG2637317-3**						
1,3-Dichlorobenzene			97.8		%		50-140	16-OCT-17
1,4-Dichlorobenzene			100.7		%		50-140	16-OCT-17
Acetone			124.8		%		50-140	16-OCT-17
Benzene			104.1		%		50-140	16-OCT-17
Bromodichloromethane			101.9		%		50-140	16-OCT-17
Bromoform			98.4		%		50-140	16-OCT-17
Bromomethane			95.2		%		50-140	16-OCT-17
Carbon tetrachloride			93.7		%		50-140	16-OCT-17
Chlorobenzene			99.99		%		50-140	16-OCT-17
Chloroform			102.7		%		50-140	16-OCT-17
cis-1,2-Dichloroethylene			101.4		%		50-140	16-OCT-17
cis-1,3-Dichloropropene			112.8		%		50-140	16-OCT-17
Dibromochloromethane			105.1		%		50-140	16-OCT-17
Dichlorodifluoromethane			42.1	MES	%		50-140	16-OCT-17
Ethylbenzene			92.6		%		50-140	16-OCT-17
n-Hexane			99.8		%		50-140	16-OCT-17
Methylene Chloride			105.0		%		50-140	16-OCT-17
MTBE			96.5		%		50-140	16-OCT-17
m+p-Xylenes			95.8		%		50-140	16-OCT-17
Methyl Ethyl Ketone			132.2		%		50-140	16-OCT-17
Methyl Isobutyl Ketone			120.6		%		50-140	16-OCT-17
o-Xylene			93.9		%		50-140	16-OCT-17
Styrene			96.7		%		50-140	16-OCT-17
Tetrachloroethylene			94.9		%		50-140	16-OCT-17
Toluene			97.3		%		50-140	16-OCT-17
trans-1,2-Dichloroethylene			98.2		%		50-140	16-OCT-17
trans-1,3-Dichloropropene			107.4		%		50-140	16-OCT-17
Trichloroethylene			97.7		%		50-140	16-OCT-17
Trichlorofluoromethane			92.2		%		50-140	16-OCT-17
Vinyl chloride			81.9		%		50-140	16-OCT-17

Quality Control Report

Workorder: L2005624 Report Date: 26-OCT-17

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
J	Duplicate results and limits are expressed in terms of absolute difference.
MBS	Surrogate recovery in Method Blank was outside ALS DQO. Moderately low-biased results in the MB do not significantly affect its purpose.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

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

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

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

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

GRAIN SIZE DETERMINATIONS

Client:	RUBIDIUM ENVIRONMENTAL INC.	Sample Location:	
Project Number:	24893	Sample ID:	01-Aug
Sampler:		Sample Depth:	
Technician:	CB6	Date Sampled:	10-10-17
Lab ID Number:	L2005624-3	Date Submitted:	11-10-17
		Date Completed:	25-10-17

Total Sample Weight	266	grams	Specific Gravity:	2.650
Hydro. Sample Weight	50.000	grams	Liquid Specific Gravity:	1.000
% Past #10	0.500	* 100	Grav Factor:	1.606
Sub Factor	2.660			

Sieve Size	Weight Retained (grams)	Percent Retained	Diameter (mm)	Cum. % Retained	Cum. % Passing
38.1 mm. DIA.:	0.000	0.000	38.100	0.000	100.000
25.4 mm. DIA.:	0.000	0.000	25.400	0.000	100.000
19.0 mm. DIA.:	0.000	0.000	19.000	0.000	100.000
9.5 mm. DIA.:	24.000	9.023	9.500	9.023	90.977
NO. 4 SIEVE :	51.000	19.173	4.500	28.195	71.805
NO. 10 SIEVE :	58.000	21.805	2.000	50.000	50.000
NO. 20 SIEVE :	15.000	15.000	0.850	65.000	35.000
NO. 40 SIEVE :	10.000	10.000	0.425	75.000	25.000
NO. 60 SIEVE :	10.000	10.000	0.250	85.000	15.000
NO. 100 SIEVE:	4.000	4.000	0.150	89.000	11.000
NO. 200 SIEVE:	4.000	4.000	0.075	93.000	7.000

Time (min)	Hydrometer Reading	Temperature (C)	Diameter (mm)	% Suspended (Subsample)	% Suspended (Total Sample)
1.00	8.0	19.1	0.052	15.818	7.909
2.00	7.0	19.1	0.037	12.606	6.303
4.00	7.0	19.1	0.026	12.606	6.303
8.00	6.0	19.1	0.019	9.394	4.697
15.00	6.0	19.0	0.014	9.331	4.666
30.00	6.0	18.9	0.010	9.269	4.634
60.00	6.0	19.4	0.007	9.582	4.791
120.00	6.0	20.0	0.005	9.958	4.979
240.00	5.0	20.5	0.003	7.059	3.529
480.00	5.0	20.6	0.002	7.121	3.561
1440.00	5.0	19.1	0.001	6.182	3.091

GRAIN SIZE	% BY WT.	DIA. RANGE (mm)
% GRAVEL :	28.20	> 4.5
% COARSE SAND :	21.80	2.0 - 4.5
% MEDIUM SAND :	25.00	0.425 - 2.0
% FINE SAND :	18.00	0.075 - 0.425
% SILT :	3.60	0.075 - 0.002
% CLAY :	3.40	< 0.002
% CLAY :	4.96	< 0.005

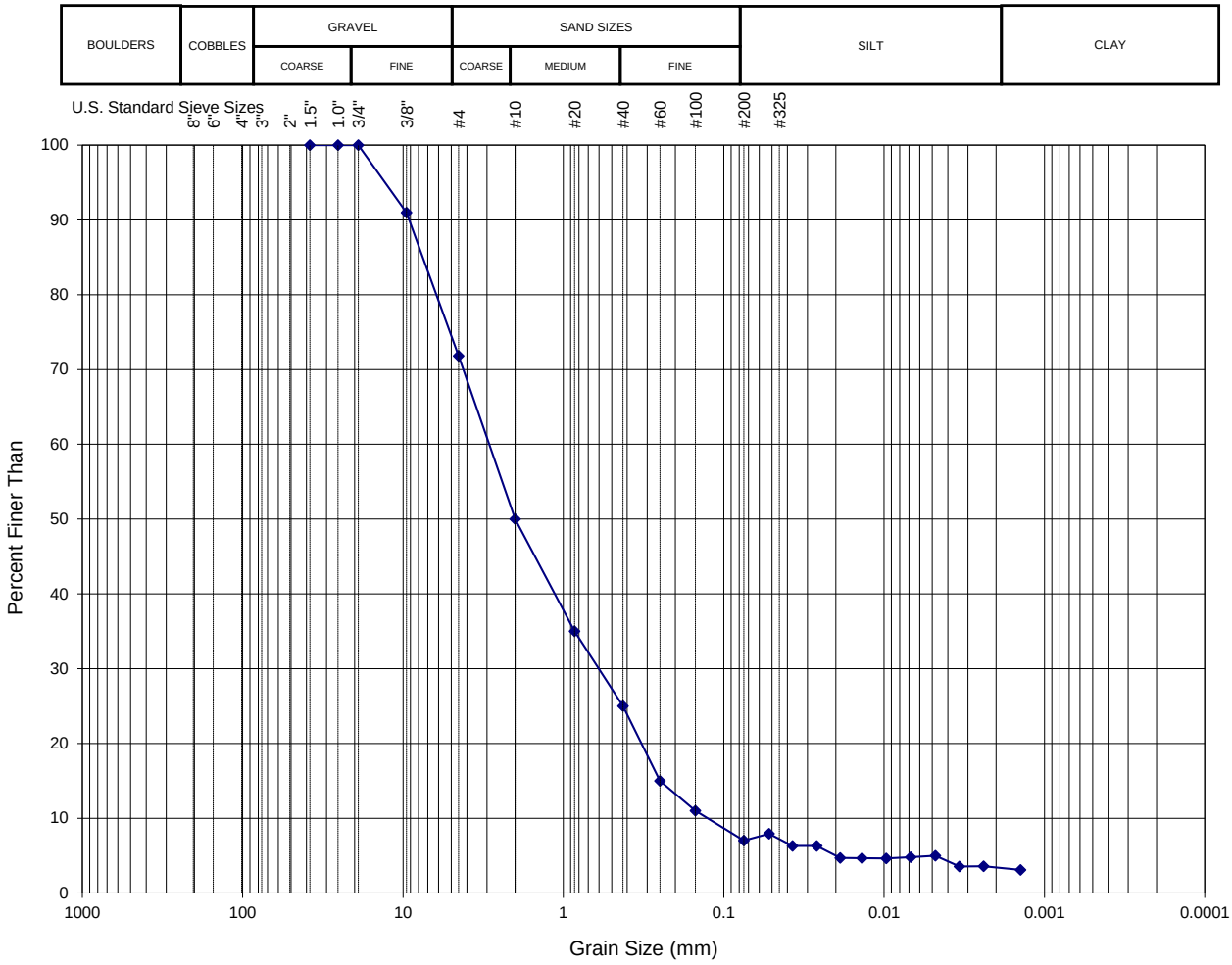
ALS Environmental

WATERLOO

PARTICLE SIZE DISTRIBUTION CURVE

ASTM METHOD D422-63

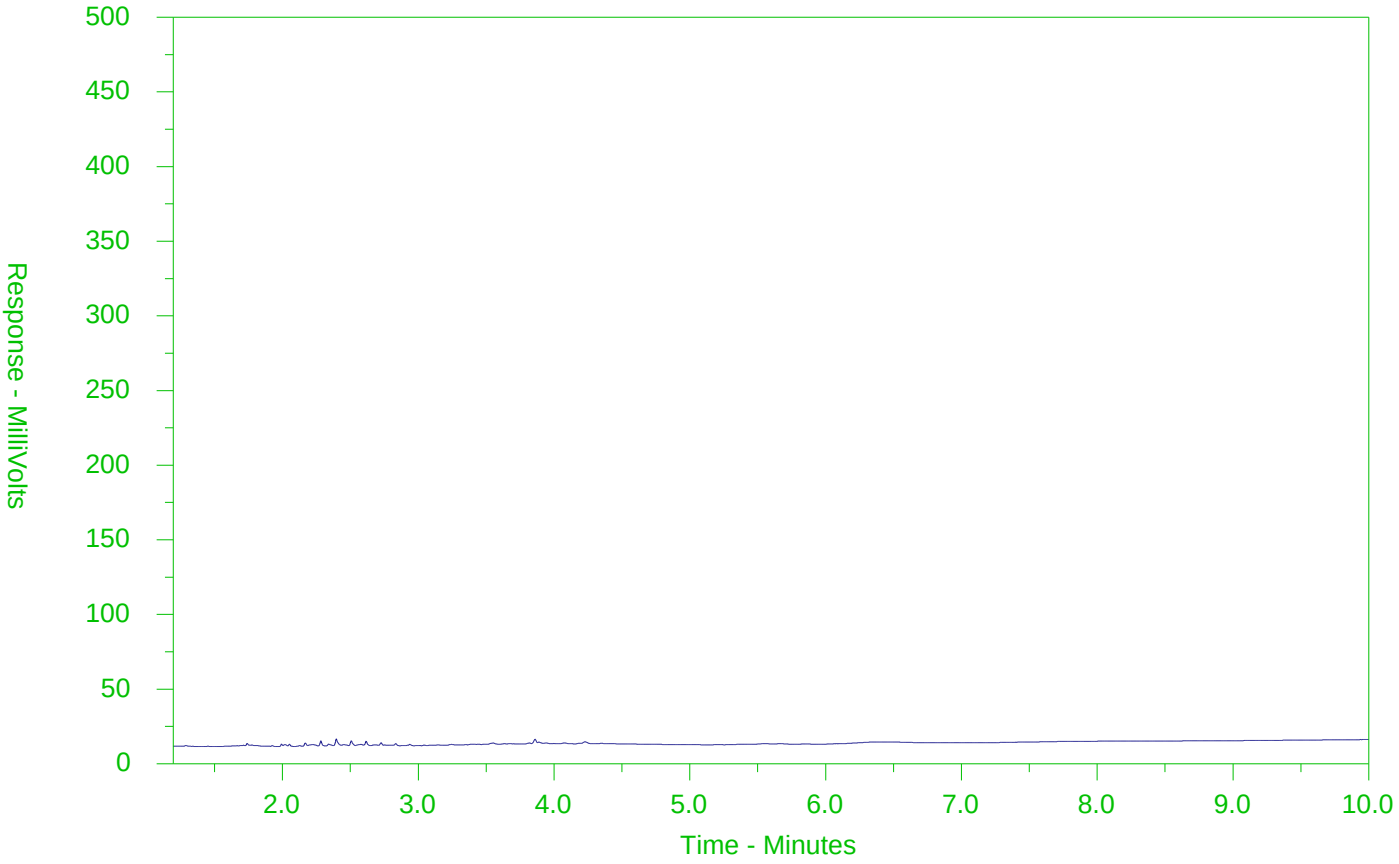
Project Name:	RUBIDIUM ENVIRONMENTAL INC.
Project Number:	24893
Sample Location:	
Sample Number:	42948
Sample Depth:	
Lab ID Number:	L2005624-3
Technician:	CB6
Sampler:	
Dates:	
Collected On:	10-10-17
Analyzed:	25-10-17



DESCRIPTION	SOIL CLASSIFICATION DESCRIPTIVE MODIFIERS		SUMMARY		
GRAVELLY SAND, TRACE SILT, TRACE CLAY	AND	36 - 50 %	GRAVEL	28	%
COARSE GRAINED	ADJECTIVE (e.g. sandy)	21 - 35 %	SAND	65	%
ESTIMATED HAZEN NUMBER: 1.74E-02 cm/s	WITH	11 - 20 %	SILT + CLAY	7	%
NOTE: UNIFIED SOIL CLASSIFICATION SYSTEM	TRACE	1 - 10 %			

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2005624-2
Client Sample ID: 1-2



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

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

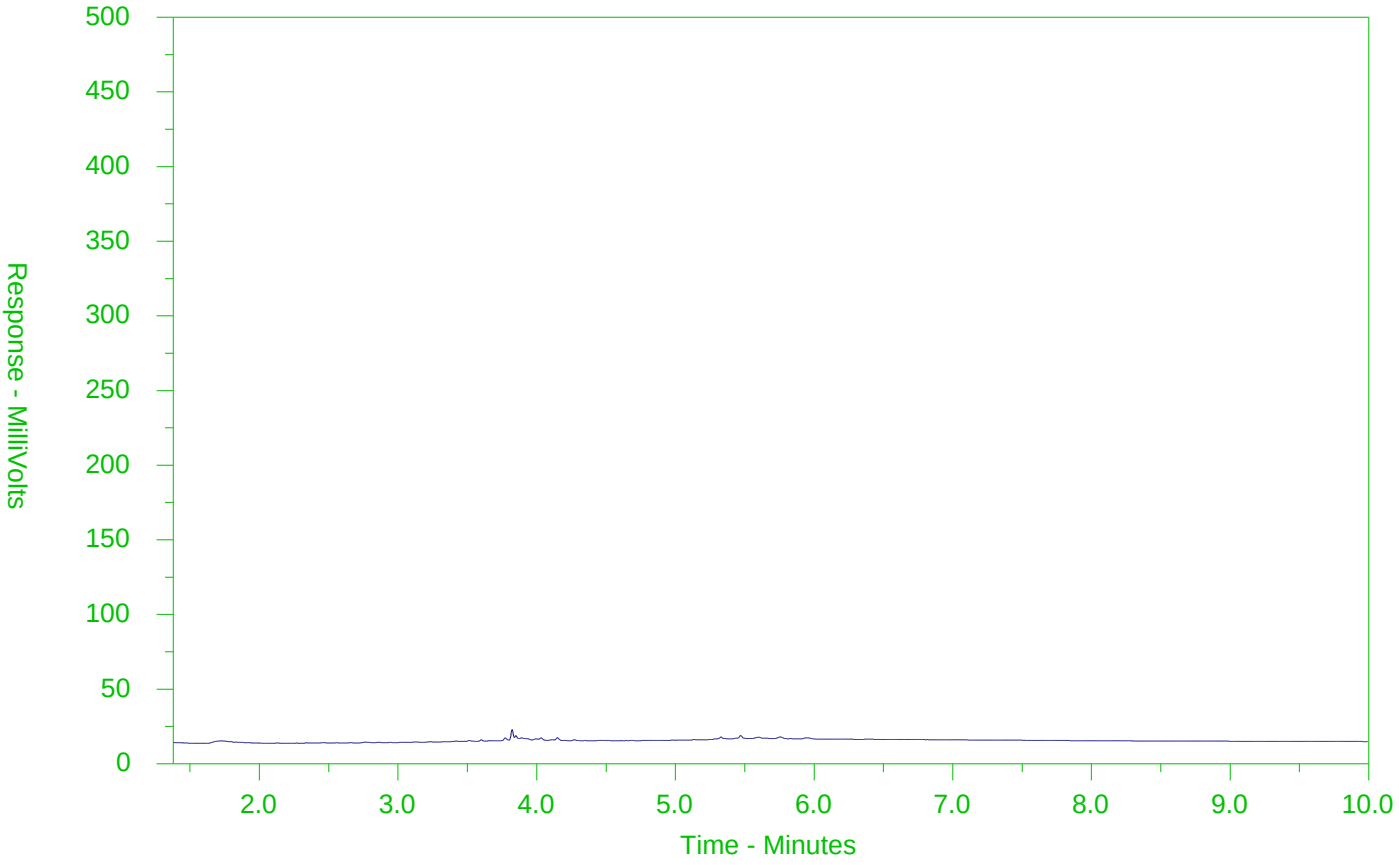
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2005624-4
Client Sample ID: 2-1



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

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

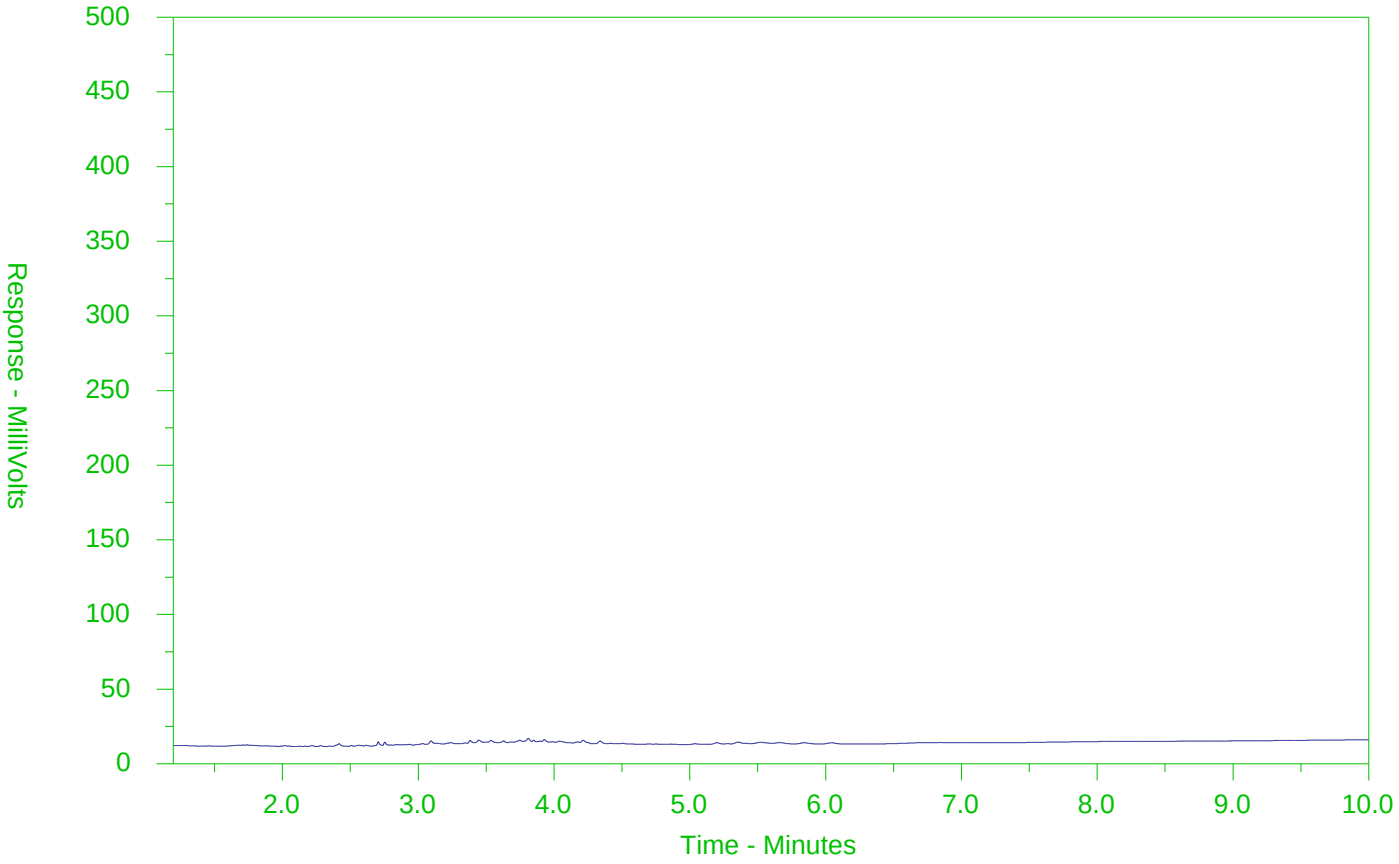
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2005624-8
Client Sample ID: 3-1



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

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

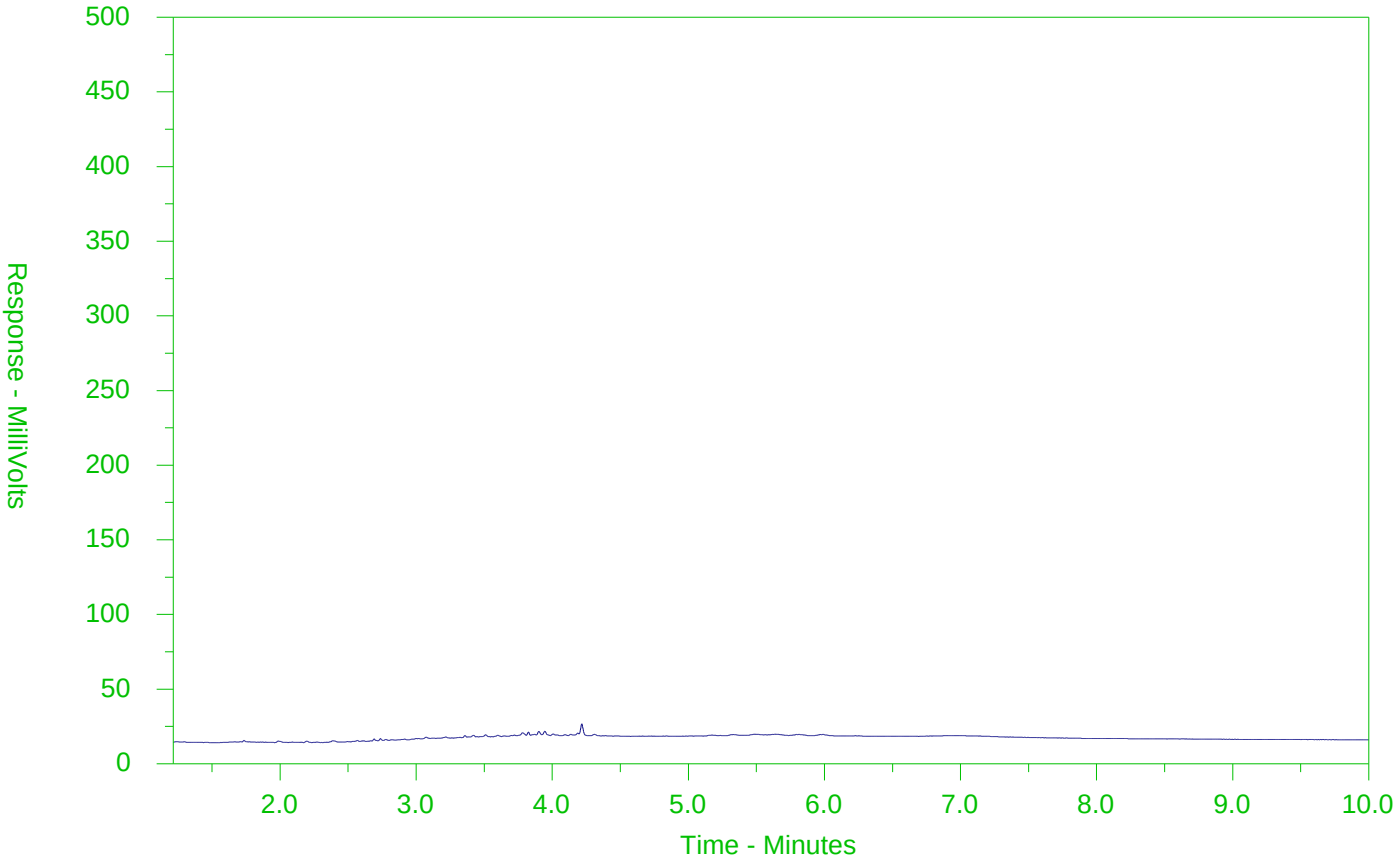
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2005624-9
Client Sample ID: 3-1D



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

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

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

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

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

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2005624-COFC

COC Number: 15 - 610695

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply
Company:	Rubidium Environmental	Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Sarah Sipak	Quality Control (QC) Report with Report ☒ YES ☐ NO	PRIORITY (Business Days): 4 day [P4] ☐ / 3 day [P3] ☐ / 2 day [P2] ☐ — EMERGENCY: 1 Business day [E1] ☐ / Same Day, Weekend or Statutory holiday [E0] ☐
Phone:	905 - 635 - 4063 x 3708	☒ Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: 19-Oct-17 5:00pm
Street:	3228 South Service Rd Suite 208	Email 1 or Fax SSipak@rb-enviro.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Burlington, ON	Email 2 abeck@rb-enviro.com	
Postal Code:	L7N 3H8	Email 3	

Invoice To		Invoice Distribution	Analysis Request
	Same as Report To ☒ YES ☐ NO	Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report ☒ YES ☐ NO	Email 1 or Fax SSipak@rb-enviro.com	
Company:	Same as above	Email 2	
Contact:	Same as above		

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	24893 / Q58212	AFE/Cost Center:	PO#:
Job #:	Rb 7671	Major/Minor Code:	Routing Code:
PO / AFE:	Rb 7671	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)	L2005624	ALS Contact: AF	Sampler: AB

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals (TCMS)	pH	BTEX/VOC	PAH	GS-Texture	TCLP-PCB, VOC, MST	Number of Containers
1	1-1	10-Oct-17	14:00	S	X	X					
2	1-2		14:10	S			X	X			
3	1-8		14:15	S					X		
4	2-1		14:20	S			X	X			
5	2-3		14:25	S	X						
6	2-3D		14:25	S	X						
7	2-7		14:35	S						X	
8	3-1		14:40	S	X		X	X			
9	3-1D		14:40	S			X	X			
10	3-8		14:55	S		X					
11	3-8D	↓	14:55	S		X					

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☒ NO	Table 3 - Residential and Commercial
Are samples for human drinking water use? ☐ YES ☒ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice Packs	☒	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
9.4°C			15.6		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Andrew Beck	Oct 10, 17	9:30	L. Wrona	11-Oct-17	8:30		Oct-11, 2017	7:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

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

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

RUBIDIUM ENVIRONMENTAL INC.
ATTN: Sarah Sipak
3228 South Service Road
Suite 208
Burlington ON L7N 3H8

Date Received: 27-OCT-17
Report Date: 03-NOV-17 07:47 (MT)
Version: FINAL

Client Phone: 905-635-4063

Certificate of Analysis

Lab Work Order #: L2015395

Project P.O. #: RB2671
Job Reference: RB2671
C of C Numbers:
Legal Site Desc:

Amanda Fazekas
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ANALYTICAL REPORT

Summary of Guideline Exceedances

ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
Guideline						
Ontario Regulation 153/04 - April 15, 2011 Standards - T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)						
(No parameter exceedances)						
Ontario Regulation 153/04 - April 15, 2011 Standards - T3-Non-Potable Ground Water-All Types of Property Uses (Fine)						
(No parameter exceedances)						

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Dissolved Metals - WATER

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2015395-1	L2015395-3	L2015395-5	L2015395-6
				Sample Date	27-OCT-17	27-OCT-17	27-OCT-17	27-OCT-17
				Sample ID	MW1	MW3	MW2	MW2D
Dissolved Metals Filtration Location		-	-		FIELD	FIELD	FIELD	FIELD
Antimony (Sb)-Dissolved	ug/L	20000	20000		<1.0 DLHC	<0.10	<1.0 DLHC	<1.0 DLHC
Arsenic (As)-Dissolved	ug/L	1900	1900		<1.0 DLHC	0.23	<1.0 DLHC	<1.0 DLHC
Barium (Ba)-Dissolved	ug/L	29000	29000		290 DLHC	258	186 DLHC	188 DLHC
Beryllium (Be)-Dissolved	ug/L	67	67		<1.0 DLHC	<0.10	<1.0 DLHC	<1.0 DLHC
Boron (B)-Dissolved	ug/L	45000	45000		<100 DLHC	104	<100 DLHC	<100 DLHC
Cadmium (Cd)-Dissolved	ug/L	2.7	2.7		<0.10 DLHC	0.014	<0.10 DLHC	<0.10 DLHC
Chromium (Cr)-Dissolved	ug/L	810	810		<5.0 DLHC	<0.50	<5.0 DLHC	<5.0 DLHC
Cobalt (Co)-Dissolved	ug/L	66	66		<1.0 DLHC	0.77	<1.0 DLHC	<1.0 DLHC
Copper (Cu)-Dissolved	ug/L	87	87		5.0 DLHC	5.08	2.1 DLHC	2.6 DLHC
Lead (Pb)-Dissolved	ug/L	25	25		<0.50 DLHC	0.082	<0.50 DLHC	<0.50 DLHC
Molybdenum (Mo)-Dissolved	ug/L	9200	9200		2.90 DLHC	2.01	4.24 DLHC	4.28 DLHC
Nickel (Ni)-Dissolved	ug/L	490	490		<5.0 DLHC	2.21	<5.0 DLHC	<5.0 DLHC
Selenium (Se)-Dissolved	ug/L	63	63		0.84 DLHC	0.985	1.57 DLHC	1.58 DLHC
Silver (Ag)-Dissolved	ug/L	1.5	1.5		<0.50 DLHC	<0.050	<0.50 DLHC	<0.50 DLHC
Sodium (Na)-Dissolved	ug/L	230000	2300000		377000 DLHC	203000 DLHC	412000 DLHC	417000 DLHC
Thallium (Tl)-Dissolved	ug/L	510	510		<0.10 DLHC	0.020	<0.10 DLHC	<0.10 DLHC
Uranium (U)-Dissolved	ug/L	420	420		1.08 DLHC	1.06	1.02 DLHC	1.04 DLHC
Vanadium (V)-Dissolved	ug/L	250	250		<5.0 DLHC	<0.50	<5.0 DLHC	<5.0 DLHC
Zinc (Zn)-Dissolved	ug/L	1100	1100		<10 DLHC	1.9	<10 DLHC	<10 DLHC

Guide Limit #1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)
Guide Limit #2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Volatile Organic Compounds - WATER

				Lab ID	L2015395-1	L2015395-2	L2015395-3	L2015395-5	L2015395-7
				Sample Date	27-OCT-17	27-OCT-17	27-OCT-17	27-OCT-17	27-OCT-17
				Sample ID	MW1	MW1D	MW3	MW2	TRIP
		Guide Limits							
Analyte	Unit	#1	#2						
Acetone	ug/L	130000	130000	<30	<30	<30	<30	<30
Benzene	ug/L	44	430	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	ug/L	85000	85000	<2.0	<2.0	<2.0	<2.0	<2.0
Bromoform	ug/L	380	770	<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane	ug/L	5.6	56	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	ug/L	0.79	8.4	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	ug/L	630	630	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	ug/L	82000	82000	<2.0	<2.0	<2.0	<2.0	<2.0
Chloroform	ug/L	2.4	22	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane	ug/L	0.25	0.83	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	ug/L	4600	9600	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	ug/L	9600	9600	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	ug/L	8	67	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	ug/L	4400	4400	<2.0	<2.0	<2.0	<2.0	<2.0
1,1-Dichloroethane	ug/L	320	3100	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	ug/L	1.6	12	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/L	1.6	17	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	ug/L	1.6	17	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethylene	ug/L	1.6	17	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	ug/L	610	5500	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane	ug/L	16	140	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	ug/L	-	-	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	ug/L	-	-	<0.30	<0.30	<0.30	<0.30	<0.30
1,3-Dichloropropene (cis & trans)	ug/L	5.2	45	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	ug/L	2300	2300	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	ug/L	51	520	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Ethyl Ketone	ug/L	470000	1500000	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	ug/L	140000	580000	<20	<20	<20	<20	<20
MTBE	ug/L	190	1400	<2.0	<2.0	<2.0	<2.0	<2.0
Styrene	ug/L	1300	9100	<0.50	<0.50	<0.50	<0.50	<0.50

Guide Limit #1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)
Guide Limit #2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Volatile Organic Compounds - WATER

				Lab ID	L2015395-1	L2015395-2	L2015395-3	L2015395-5	L2015395-7
				Sample Date	27-OCT-17	27-OCT-17	27-OCT-17	27-OCT-17	27-OCT-17
				Sample ID	MW1	MW1D	MW3	MW2	TRIP
		Guide Limits							
Analyte	Unit	#1	#2						
1,1,1,2-Tetrachloroethane	ug/L	3.3	28		<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	ug/L	3.2	15		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	ug/L	1.6	17		<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	ug/L	18000	18000		<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	ug/L	640	6700		<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/L	4.7	30		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	ug/L	1.6	17		<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	ug/L	2500	2500		<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl chloride	ug/L	0.5	1.7		<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	ug/L	-	-		<0.30	<0.30	<0.30	<0.30	<0.30
m+p-Xylenes	ug/L	-	-		<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	ug/L	4200	4200		<0.50	<0.50	<0.50	<0.50	<0.50
Surrogate: 4-Bromofluorobenzene	%	-	-		106.2	106.9	105.8	106.5	106.2
Surrogate: 1,4-Difluorobenzene	%	-	-		106.9	107.4	107.4	106.9	107.5

Guide Limit #1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)
Guide Limit #2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Hydrocarbons - WATER

			Lab ID	L2015395-1	L2015395-2	L2015395-3	L2015395-5
			Sample Date	27-OCT-17	27-OCT-17	27-OCT-17	27-OCT-17
			Sample ID	MW1	MW1D	MW3	MW2
		Guide Limits					
Analyte	Unit	#1	#2				
F1 (C6-C10)	ug/L	750	750	<25	<25	<25	<25
F1-BTEX	ug/L	750	750	<25	<25	<25	<25
F2 (C10-C16)	ug/L	150	150	<100	<100	<100	<100
F2-Naphth	ug/L	-	-	<100		<100	<100
F3 (C16-C34)	ug/L	500	500	<250	<250	<250	<250
F3-PAH	ug/L	-	-	<250		<250	<250
F4 (C34-C50)	ug/L	500	500	<250	<250	<250	<250
Total Hydrocarbons (C6-C50)	ug/L	-	-	<370	<370	<370	<370
Chrom. to baseline at nC50		-	-	YES	YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	96.3	100.7	98.9	98.5
Surrogate: 3,4-Dichlorotoluene	%	-	-	87.0	82.8	85.6	86.6

Guide Limit #1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)
Guide Limit #2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Polycyclic Aromatic Hydrocarbons - WATER

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID: L2015395-1 / Sample Date: 27-OCT-17 / Sample ID: MW1	Lab ID: L2015395-3 / Sample Date: 27-OCT-17 / Sample ID: MW3	Lab ID: L2015395-4 / Sample Date: 27-OCT-17 / Sample ID: MW3D	Lab ID: L2015395-5 / Sample Date: 27-OCT-17 / Sample ID: MW2
Acenaphthene	ug/L	600	1700	<0.020	<0.020	<0.020	<0.020
Acenaphthylene	ug/L	1.8	1.8	<0.020	<0.020	<0.020	<0.020
Anthracene	ug/L	2.4	2.4	<0.020	<0.020	<0.020	<0.020
Benzo(a)anthracene	ug/L	4.7	4.7	<0.020	<0.020	<0.020	<0.020
Benzo(a)pyrene	ug/L	0.81	0.81	<0.010	<0.010	<0.010	<0.010
Benzo(b)fluoranthene	ug/L	0.75	0.75	<0.020	<0.020	<0.020	<0.020
Benzo(g,h,i)perylene	ug/L	0.2	0.2	<0.020	<0.020	<0.020	<0.020
Benzo(k)fluoranthene	ug/L	0.4	0.4	<0.020	<0.020	<0.020	<0.020
Chrysene	ug/L	1	1	<0.020	<0.020	<0.020	<0.020
Dibenzo(ah)anthracene	ug/L	0.52	0.52	<0.020	<0.020	<0.020	<0.020
Fluoranthene	ug/L	130	130	<0.020	<0.020	<0.020	<0.020
Fluorene	ug/L	400	400	<0.020	<0.020	<0.020	<0.020
Indeno(1,2,3-cd)pyrene	ug/L	0.2	0.2	<0.020	<0.020	<0.020	<0.020
1+2-Methylnaphthalenes	ug/L	1800	1800	<0.028	<0.028	<0.028	<0.028
1-Methylnaphthalene	ug/L	1800	1800	<0.020	<0.020	<0.020	<0.020
2-Methylnaphthalene	ug/L	1800	1800	<0.020	<0.020	<0.020	<0.020
Naphthalene	ug/L	1400	6400	<0.050	<0.050	<0.050	<0.050
Phenanthrene	ug/L	580	580	<0.020	<0.020	<0.020	<0.020
Pyrene	ug/L	68	68	<0.020	<0.020	<0.020	<0.020
Surrogate: d10-Acenaphthene	%	-	-	88.8	87.4	86.8	88.4
Surrogate: d12-Chrysene	%	-	-	111.0	81.6	93.1	92.2
Surrogate: d8-Naphthalene	%	-	-	96.0	109.2	110.7	100.5
Surrogate: d10-Phenanthrene	%	-	-	119.0	112.2	112.2	116.4

Guide Limit #1: T3-Non-Potable Ground Water-All Types of Property Uses (Coarse)
Guide Limit #2: T3-Non-Potable Ground Water-All Types of Property Uses (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
F1-F4-511-CALC-WT	Water	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-L

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

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

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

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

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

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

Fraction F1 is determined by analyzing by headspace-GC/FID.

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

F2-F4-511-WT	Water	F2-F4-O.Reg 153/04 (July 2011)	EPA 3511/CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from water using a hexane micro-extraction technique. Instrumental analysis is by GC-FID, as per the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Tier 1 Method, CCME, 2001.

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

MET-D-UG/L-MS-WT	Water	Diss. Metals in Water by ICPMS (ug/L)	EPA 200.8

The metal constituents of a non-acidified sample that pass through a membrane filter prior to ICP/MS analysis.

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

METHYLNAPS-CALC-WT	Water	PAH-Calculated Parameters	SW846 8270
PAH-511-WT	Water	PAH-O. Reg 153/04 (July 2011)	SW846 3510/8270

Aqueous samples, fortified with surrogates, are extracted using liquid/liquid extraction technique. The sample extracts are concentrated and then analyzed using GC/MS. Depending on the analytical

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

GC/MS column used benzo(j)fluoranthene may chromatographically co-elute with benzo(b)fluoranthene or benzo(k)fluoranthene.

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

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

Liquid samples are analyzed by headspace GC/MSD.

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

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

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

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

Chain of Custody Numbers:

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

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

GLOSSARY OF REPORT TERMS

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

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

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information.

Quality Control Report

Workorder: L2015395 Report Date: 03-NOV-17

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Water**							
Batch R3871535								
WG2649296-4 DUP		**WG2649296-3**						
F1 (C6-C10)		1300	1380		ug/L	5.9	30	01-NOV-17
WG2649296-1 LCS								
F1 (C6-C10)			115.2		%		80-120	01-NOV-17
WG2649296-2 MB								
F1 (C6-C10)			<25		ug/L		25	01-NOV-17
Surrogate: 3,4-Dichlorotoluene			90.6		%		60-140	01-NOV-17
WG2649296-5 MS		**WG2649296-3**						
F1 (C6-C10)			78.7		%		60-140	01-NOV-17
F2-F4-511-WT	**Water**							
Batch R3872854								
WG2653801-2 LCS								
F2 (C10-C16)			105.4		%		70-130	01-NOV-17
F3 (C16-C34)			110.1		%		70-130	01-NOV-17
F4 (C34-C50)			111.2		%		70-130	01-NOV-17
WG2653801-3 LCSD		**WG2653801-2**						
F2 (C10-C16)		105.4	102.6		%	2.7	50	01-NOV-17
F3 (C16-C34)		110.1	110.1		%	0.0	50	01-NOV-17
F4 (C34-C50)		111.2	114.2		%	2.6	50	01-NOV-17
WG2653801-1 MB								
F2 (C10-C16)			<100		ug/L		100	01-NOV-17
F3 (C16-C34)			<250		ug/L		250	01-NOV-17
F4 (C34-C50)			<250		ug/L		250	01-NOV-17
Surrogate: 2-Bromobenzotrifluoride			97.5		%		60-140	01-NOV-17
MET-D-UG/L-MS-WT	**Water**							
Batch R3871620								
WG2652590-4 DUP		**WG2652590-3**						
Antimony (Sb)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	31-OCT-17
Arsenic (As)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	31-OCT-17
Barium (Ba)-Dissolved		290	292		ug/L	0.7	20	31-OCT-17
Beryllium (Be)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	31-OCT-17
Boron (B)-Dissolved		<100	<100	RPD-NA	ug/L	N/A	20	31-OCT-17
Cadmium (Cd)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	31-OCT-17
Chromium (Cr)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	31-OCT-17
Cobalt (Co)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	31-OCT-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R3871620								
WG2652590-4 DUP		**WG2652590-3**						
Copper (Cu)-Dissolved		5.0	2.9	J	ug/L	2.2	4	31-OCT-17
Lead (Pb)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	31-OCT-17
Molybdenum (Mo)-Dissolved		2.90	2.96		ug/L	1.9	20	31-OCT-17
Nickel (Ni)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	31-OCT-17
Selenium (Se)-Dissolved		0.84	0.80		ug/L	4.0	20	31-OCT-17
Silver (Ag)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	31-OCT-17
Sodium (Na)-Dissolved		377000	379000		ug/L	0.5	20	31-OCT-17
Thallium (Tl)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	31-OCT-17
Uranium (U)-Dissolved		1.08	1.05		ug/L	3.0	20	31-OCT-17
Vanadium (V)-Dissolved		<5.0	<5.0	RPD-NA	ug/L	N/A	20	31-OCT-17
Zinc (Zn)-Dissolved		<10	<10	RPD-NA	ug/L	N/A	20	31-OCT-17
WG2652590-2 LCS								
Antimony (Sb)-Dissolved			97.4		%		80-120	31-OCT-17
Arsenic (As)-Dissolved			98.7		%		80-120	31-OCT-17
Barium (Ba)-Dissolved			99.7		%		80-120	31-OCT-17
Beryllium (Be)-Dissolved			94.2		%		80-120	31-OCT-17
Boron (B)-Dissolved			89.0		%		80-120	31-OCT-17
Cadmium (Cd)-Dissolved			97.1		%		80-120	31-OCT-17
Chromium (Cr)-Dissolved			95.4		%		80-120	31-OCT-17
Cobalt (Co)-Dissolved			95.5		%		80-120	31-OCT-17
Copper (Cu)-Dissolved			94.4		%		80-120	31-OCT-17
Lead (Pb)-Dissolved			94.9		%		80-120	31-OCT-17
Molybdenum (Mo)-Dissolved			95.6		%		80-120	31-OCT-17
Nickel (Ni)-Dissolved			95.9		%		80-120	31-OCT-17
Selenium (Se)-Dissolved			94.8		%		80-120	31-OCT-17
Silver (Ag)-Dissolved			99.1		%		80-120	31-OCT-17
Sodium (Na)-Dissolved			95.8		%		80-120	31-OCT-17
Thallium (Tl)-Dissolved			92.6		%		80-120	31-OCT-17
Uranium (U)-Dissolved			97.3		%		80-120	31-OCT-17
Vanadium (V)-Dissolved			98.1		%		80-120	31-OCT-17
Zinc (Zn)-Dissolved			95.1		%		80-120	31-OCT-17
WG2652590-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	31-OCT-17
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R3871620								
WG2652590-1 MB								
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	31-OCT-17
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	31-OCT-17
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	31-OCT-17
Boron (B)-Dissolved			<10		ug/L		10	31-OCT-17
Cadmium (Cd)-Dissolved			<0.010		ug/L		0.01	31-OCT-17
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	31-OCT-17
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	31-OCT-17
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	31-OCT-17
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	31-OCT-17
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	31-OCT-17
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	31-OCT-17
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	31-OCT-17
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	31-OCT-17
Sodium (Na)-Dissolved			<500		ug/L		500	31-OCT-17
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	31-OCT-17
Uranium (U)-Dissolved			<0.010		ug/L		0.01	31-OCT-17
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	31-OCT-17
Zinc (Zn)-Dissolved			<1.0		ug/L		1	31-OCT-17
WG2652590-5 MS		**WG2652590-3**						
Antimony (Sb)-Dissolved			91.9		%		70-130	31-OCT-17
Arsenic (As)-Dissolved			104.3		%		70-130	31-OCT-17
Barium (Ba)-Dissolved			N/A	MS-B	%		-	31-OCT-17
Beryllium (Be)-Dissolved			95.5		%		70-130	31-OCT-17
Boron (B)-Dissolved			N/A	MS-B	%		-	31-OCT-17
Cadmium (Cd)-Dissolved			91.3		%		70-130	31-OCT-17
Chromium (Cr)-Dissolved			96.7		%		70-130	31-OCT-17
Cobalt (Co)-Dissolved			93.1		%		70-130	31-OCT-17
Lead (Pb)-Dissolved			86.0		%		70-130	31-OCT-17
Molybdenum (Mo)-Dissolved			93.1		%		70-130	31-OCT-17
Nickel (Ni)-Dissolved			90.6		%		70-130	31-OCT-17
Selenium (Se)-Dissolved			98.2		%		70-130	31-OCT-17
Silver (Ag)-Dissolved			91.3		%		70-130	31-OCT-17
Sodium (Na)-Dissolved			N/A	MS-B	%		-	31-OCT-17
Thallium (Tl)-Dissolved			87.0		%		70-130	31-OCT-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R3871620								
WG2652590-5 MS		**WG2652590-3**						
Uranium (U)-Dissolved			N/A	MS-B	%		-	31-OCT-17
Vanadium (V)-Dissolved			104.3		%		70-130	31-OCT-17
PAH-511-WT	**Water**							
Batch R3872872								
WG2653801-2 LCS								
1-Methylnaphthalene			73.9		%		50-140	02-NOV-17
2-Methylnaphthalene			74.1		%		50-140	02-NOV-17
Acenaphthene			75.7		%		50-140	02-NOV-17
Acenaphthylene			93.5		%		50-140	02-NOV-17
Anthracene			112.1		%		50-140	02-NOV-17
Benzo(a)anthracene			124.7		%		50-140	02-NOV-17
Benzo(a)pyrene			96.4		%		50-140	02-NOV-17
Benzo(b)fluoranthene			91.7		%		50-140	02-NOV-17
Benzo(g,h,i)perylene			111.3		%		50-140	02-NOV-17
Benzo(k)fluoranthene			84.5		%		50-140	02-NOV-17
Chrysene			104.3		%		50-140	02-NOV-17
Dibenzo(ah)anthracene			105.1		%		50-140	02-NOV-17
Fluoranthene			91.8		%		50-140	02-NOV-17
Fluorene			97.7		%		50-140	02-NOV-17
Indeno(1,2,3-cd)pyrene			130.4		%		50-140	02-NOV-17
Naphthalene			85.3		%		50-140	02-NOV-17
Phenanthrene			104.7		%		50-140	02-NOV-17
Pyrene			101.3		%		50-140	02-NOV-17
WG2653801-3 LCSD		**WG2653801-2**						
1-Methylnaphthalene		73.9	74.2		%	0.4	50	02-NOV-17
2-Methylnaphthalene		74.1	75.0		%	1.3	50	02-NOV-17
Acenaphthene		75.7	76.2		%	0.7	50	02-NOV-17
Acenaphthylene		93.5	93.8		%	0.3	50	02-NOV-17
Anthracene		112.1	111.9		%	0.1	50	02-NOV-17
Benzo(a)anthracene		124.7	127.8		%	2.5	50	02-NOV-17
Benzo(a)pyrene		96.4	99.1		%	2.8	50	02-NOV-17
Benzo(b)fluoranthene		91.7	96.2		%	4.9	50	02-NOV-17
Benzo(g,h,i)perylene		111.3	115.8		%	3.9	50	02-NOV-17
Benzo(k)fluoranthene		84.5	86.9					

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R3872872								
WG2653801-3 LCSD		**WG2653801-2**						
Benzo(k)fluoranthene		84.5	86.9		%	2.8	50	02-NOV-17
Chrysene		104.3	106.9		%	2.4	50	02-NOV-17
Dibenzo(ah)anthracene		105.1	100.3		%	4.7	50	02-NOV-17
Fluoranthene		91.8	92.3		%	0.5	50	02-NOV-17
Fluorene		97.7	98.5		%	0.8	50	02-NOV-17
Indeno(1,2,3-cd)pyrene		130.4	131.3		%	0.7	50	02-NOV-17
Naphthalene		85.3	84.6		%	0.8	50	02-NOV-17
Phenanthrene		104.7	105.9		%	1.1	50	02-NOV-17
Pyrene		101.3	102.0		%	0.7	50	02-NOV-17
WG2653801-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	02-NOV-17
2-Methylnaphthalene			<0.020		ug/L		0.02	02-NOV-17
Acenaphthene			<0.020		ug/L		0.02	02-NOV-17
Acenaphthylene			<0.020		ug/L		0.02	02-NOV-17
Anthracene			<0.020		ug/L		0.02	02-NOV-17
Benzo(a)anthracene			<0.020		ug/L		0.02	02-NOV-17
Benzo(a)pyrene			<0.010		ug/L		0.01	02-NOV-17
Benzo(b)fluoranthene			<0.020		ug/L		0.02	02-NOV-17
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	02-NOV-17
Benzo(k)fluoranthene			<0.020		ug/L		0.02	02-NOV-17
Chrysene			<0.020		ug/L		0.02	02-NOV-17
Dibenzo(ah)anthracene			<0.020		ug/L		0.02	02-NOV-17
Fluoranthene			<0.020		ug/L		0.02	02-NOV-17
Fluorene			<0.020		ug/L		0.02	02-NOV-17
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	02-NOV-17
Naphthalene			<0.050		ug/L		0.05	02-NOV-17
Phenanthrene			<0.020		ug/L		0.02	02-NOV-17
Pyrene			<0.020		ug/L		0.02	02-NOV-17
Surrogate: d8-Naphthalene			89.2		%		60-140	02-NOV-17
Surrogate: d10-Phenanthrene			118.2		%		60-140	02-NOV-17
Surrogate: d12-Chrysene			117.9		%		60-140	02-NOV-17
Surrogate: d10-Acenaphthene			85.3		%		60-140	02-NOV-17
VOC-511-HS-WT	**Water**							

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R3871535								
WG2649296-4 DUP		**WG2649296-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
1,1,2,2-Tetrachloroethane		<1.9	<1.5	RPD-NA	ug/L	N/A	30	01-NOV-17
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
1,2-Dibromoethane		<0.20	<0.30	RPD-NA	ug/L	N/A	30	01-NOV-17
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	01-NOV-17
Benzene		356	361		ug/L	1.4	30	01-NOV-17
Bromodichloromethane		<6.0	<6.4	RPD-NA	ug/L	N/A	30	01-NOV-17
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	01-NOV-17
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	01-NOV-17
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
Chloroform		<6.0	<6.6	RPD-NA	ug/L	N/A	30	01-NOV-17
cis-1,2-Dichloroethylene		<2.8	<2.8	RPD-NA	ug/L	N/A	30	01-NOV-17
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	01-NOV-17
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	01-NOV-17
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	01-NOV-17
Ethylbenzene		28.8	29.5		ug/L	2.3	30	01-NOV-17
n-Hexane		6.19	6.47		ug/L	4.4	30	01-NOV-17
m+p-Xylenes		21.7	22.0		ug/L	1.3	30	01-NOV-17
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	01-NOV-17
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	01-NOV-17
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	01-NOV-17
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	01-NOV-17
o-Xylene		13.0	13.4		ug/L	3.1	30	01-NOV-17
Styrene		<0.50	<0.50		ug/L			01-NOV-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R3871535								
WG2649296-4 DUP		**WG2649296-3**						
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
Toluene		16.3	16.6		ug/L	1.8	30	01-NOV-17
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	01-NOV-17
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	01-NOV-17
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	01-NOV-17
WG2649296-1 LCS								
1,1,1,2-Tetrachloroethane			99.2		%		70-130	01-NOV-17
1,1,2,2-Tetrachloroethane			84.6		%		70-130	01-NOV-17
1,1,1-Trichloroethane			105.2		%		70-130	01-NOV-17
1,1,2-Trichloroethane			90.8		%		70-130	01-NOV-17
1,1-Dichloroethane			92.2		%		70-130	01-NOV-17
1,1-Dichloroethylene			90.2		%		70-130	01-NOV-17
1,2-Dibromoethane			91.3		%		70-130	01-NOV-17
1,2-Dichlorobenzene			102.9		%		70-130	01-NOV-17
1,2-Dichloroethane			89.5		%		70-130	01-NOV-17
1,2-Dichloropropane			94.2		%		70-130	01-NOV-17
1,3-Dichlorobenzene			104.5		%		70-130	01-NOV-17
1,4-Dichlorobenzene			107.0		%		70-130	01-NOV-17
Acetone			79.8		%		60-140	01-NOV-17
Benzene			97.7		%		70-130	01-NOV-17
Bromodichloromethane			93.7		%		70-130	01-NOV-17
Bromoform			95.5		%		70-130	01-NOV-17
Bromomethane			99.2		%		60-140	01-NOV-17
Carbon tetrachloride			105.5		%		70-130	01-NOV-17
Chlorobenzene			101.6		%		70-130	01-NOV-17
Chloroform			99.9		%		70-130	01-NOV-17
cis-1,2-Dichloroethylene			92.7		%		70-130	01-NOV-17
cis-1,3-Dichloropropene			100.4		%		70-130	01-NOV-17
Dibromochloromethane			97.9		%		70-130	01-NOV-17
Dichlorodifluoromethane			70.7		%		50-140	01-NOV-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R3871535								
WG2649296-1 LCS								
Ethylbenzene			97.4		%		70-130	01-NOV-17
n-Hexane			107.7		%		70-130	01-NOV-17
m+p-Xylenes			99.3		%		70-130	01-NOV-17
Methyl Ethyl Ketone			82.4		%		60-140	01-NOV-17
Methyl Isobutyl Ketone			77.5		%		60-140	01-NOV-17
Methylene Chloride			96.6		%		70-130	01-NOV-17
MTBE			99.3		%		70-130	01-NOV-17
o-Xylene			95.8		%		70-130	01-NOV-17
Styrene			95.2		%		70-130	01-NOV-17
Tetrachloroethylene			106.9		%		70-130	01-NOV-17
Toluene			95.3		%		70-130	01-NOV-17
trans-1,2-Dichloroethylene			97.3		%		70-130	01-NOV-17
trans-1,3-Dichloropropene			94.5		%		70-130	01-NOV-17
Trichloroethylene			108.5		%		70-130	01-NOV-17
Trichlorofluoromethane			103.7		%		60-140	01-NOV-17
Vinyl chloride			90.0		%		60-140	01-NOV-17
WG2649296-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	01-NOV-17
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	01-NOV-17
1,1,1-Trichloroethane			<0.50		ug/L		0.5	01-NOV-17
1,1,2-Trichloroethane			<0.50		ug/L		0.5	01-NOV-17
1,1-Dichloroethane			<0.50		ug/L		0.5	01-NOV-17
1,1-Dichloroethylene			<0.50		ug/L		0.5	01-NOV-17
1,2-Dibromoethane			<0.20		ug/L		0.2	01-NOV-17
1,2-Dichlorobenzene			<0.50		ug/L		0.5	01-NOV-17
1,2-Dichloroethane			<0.50		ug/L		0.5	01-NOV-17
1,2-Dichloropropane			<0.50		ug/L		0.5	01-NOV-17
1,3-Dichlorobenzene			<0.50		ug/L		0.5	01-NOV-17
1,4-Dichlorobenzene			<0.50		ug/L		0.5	01-NOV-17
Acetone			<30		ug/L		30	01-NOV-17
Benzene			<0.50		ug/L		0.5	01-NOV-17
Bromodichloromethane			<2.0		ug/L		2	01-NOV-17
Bromoform			<5.0		ug/L		5	01-NOV-17
Bromomethane			<0.50		ug/L		0.5	01-NOV-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R3871535								
WG2649296-2 MB								
Carbon tetrachloride			<0.20		ug/L		0.2	01-NOV-17
Chlorobenzene			<0.50		ug/L		0.5	01-NOV-17
Chloroform			<1.0		ug/L		1	01-NOV-17
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	01-NOV-17
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	01-NOV-17
Dibromochloromethane			<2.0		ug/L		2	01-NOV-17
Dichlorodifluoromethane			<2.0		ug/L		2	01-NOV-17
Ethylbenzene			<0.50		ug/L		0.5	01-NOV-17
n-Hexane			<0.50		ug/L		0.5	01-NOV-17
m+p-Xylenes			<0.40		ug/L		0.4	01-NOV-17
Methyl Ethyl Ketone			<20		ug/L		20	01-NOV-17
Methyl Isobutyl Ketone			<20		ug/L		20	01-NOV-17
Methylene Chloride			<5.0		ug/L		5	01-NOV-17
MTBE			<2.0		ug/L		2	01-NOV-17
o-Xylene			<0.30		ug/L		0.3	01-NOV-17
Styrene			<0.50		ug/L		0.5	01-NOV-17
Tetrachloroethylene			<0.50		ug/L		0.5	01-NOV-17
Toluene			<0.50		ug/L		0.5	01-NOV-17
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	01-NOV-17
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	01-NOV-17
Trichloroethylene			<0.50		ug/L		0.5	01-NOV-17
Trichlorofluoromethane			<5.0		ug/L		5	01-NOV-17
Vinyl chloride			<0.50		ug/L		0.5	01-NOV-17
Surrogate: 1,4-Difluorobenzene			107.0		%		70-130	01-NOV-17
Surrogate: 4-Bromofluorobenzene			104.3		%		70-130	01-NOV-17
WG2649296-5 MS		**WG2649296-3**						
1,1,1,2-Tetrachloroethane			98.9		%		50-140	01-NOV-17
1,1,2,2-Tetrachloroethane			84.9		%		50-140	01-NOV-17
1,1,1-Trichloroethane			84.0		%		50-140	01-NOV-17
1,1,2-Trichloroethane			90.9		%		50-140	01-NOV-17
1,1-Dichloroethane			81.0		%		50-140	01-NOV-17
1,1-Dichloroethylene			70.0		%		50-140	01-NOV-17
1,2-Dibromoethane			93.5		%		50-140	01-NOV-17
1,2-Dichlorobenzene			97.0		%		50-140	01-NOV-17

Quality Control Report

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R3871535								
WG2649296-5 MS		**WG2649296-3**						
1,2-Dichloroethane			78.6		%		50-140	01-NOV-17
1,2-Dichloropropane			78.6		%		50-140	01-NOV-17
1,3-Dichlorobenzene			98.3		%		50-140	01-NOV-17
1,4-Dichlorobenzene			99.8		%		50-140	01-NOV-17
Acetone			60.6		%		50-140	01-NOV-17
Benzene			N/A	MS-B	%		-	01-NOV-17
Bromodichloromethane			81.5		%		50-140	01-NOV-17
Bromoform			93.7		%		50-140	01-NOV-17
Bromomethane			76.2		%		50-140	01-NOV-17
Carbon tetrachloride			83.2		%		50-140	01-NOV-17
Chlorobenzene			101.1		%		50-140	01-NOV-17
Chloroform			88.1		%		50-140	01-NOV-17
cis-1,2-Dichloroethylene			76.5		%		50-140	01-NOV-17
cis-1,3-Dichloropropene			81.7		%		50-140	01-NOV-17
Dibromochloromethane			98.1		%		50-140	01-NOV-17
Dichlorodifluoromethane			47.9	MES	%		50-140	01-NOV-17
Ethylbenzene			96.2		%		50-140	01-NOV-17
n-Hexane			79.8		%		50-140	01-NOV-17
m+p-Xylenes			97.5		%		50-140	01-NOV-17
Methyl Ethyl Ketone			68.7		%		50-140	01-NOV-17
Methyl Isobutyl Ketone			65.1		%		50-140	01-NOV-17
Methylene Chloride			77.3		%		50-140	01-NOV-17
MTBE			99.7		%		50-140	01-NOV-17
o-Xylene			95.5		%		50-140	01-NOV-17
Styrene			94.3		%		50-140	01-NOV-17
Tetrachloroethylene			102.9		%		50-140	01-NOV-17
Toluene			94.9		%		50-140	01-NOV-17
trans-1,2-Dichloroethylene			77.7		%		50-140	01-NOV-17
trans-1,3-Dichloropropene			91.9		%		50-140	01-NOV-17
Trichloroethylene			88.7		%		50-140	01-NOV-17
Trichlorofluoromethane			77.4		%		50-140	01-NOV-17
Vinyl chloride			67.0		%		50-140	01-NOV-17

Quality Control Report

Workorder: L2015395 Report Date: 03-NOV-17

Client: RUBIDIUM ENVIRONMENTAL INC.
3228 South Service Road Suite 208
Burlington ON L7N 3H8
Contact: Sarah Sipak

Legend:

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

Sample Parameter Qualifier Definitions:

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

Hold Time Exceedances:

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

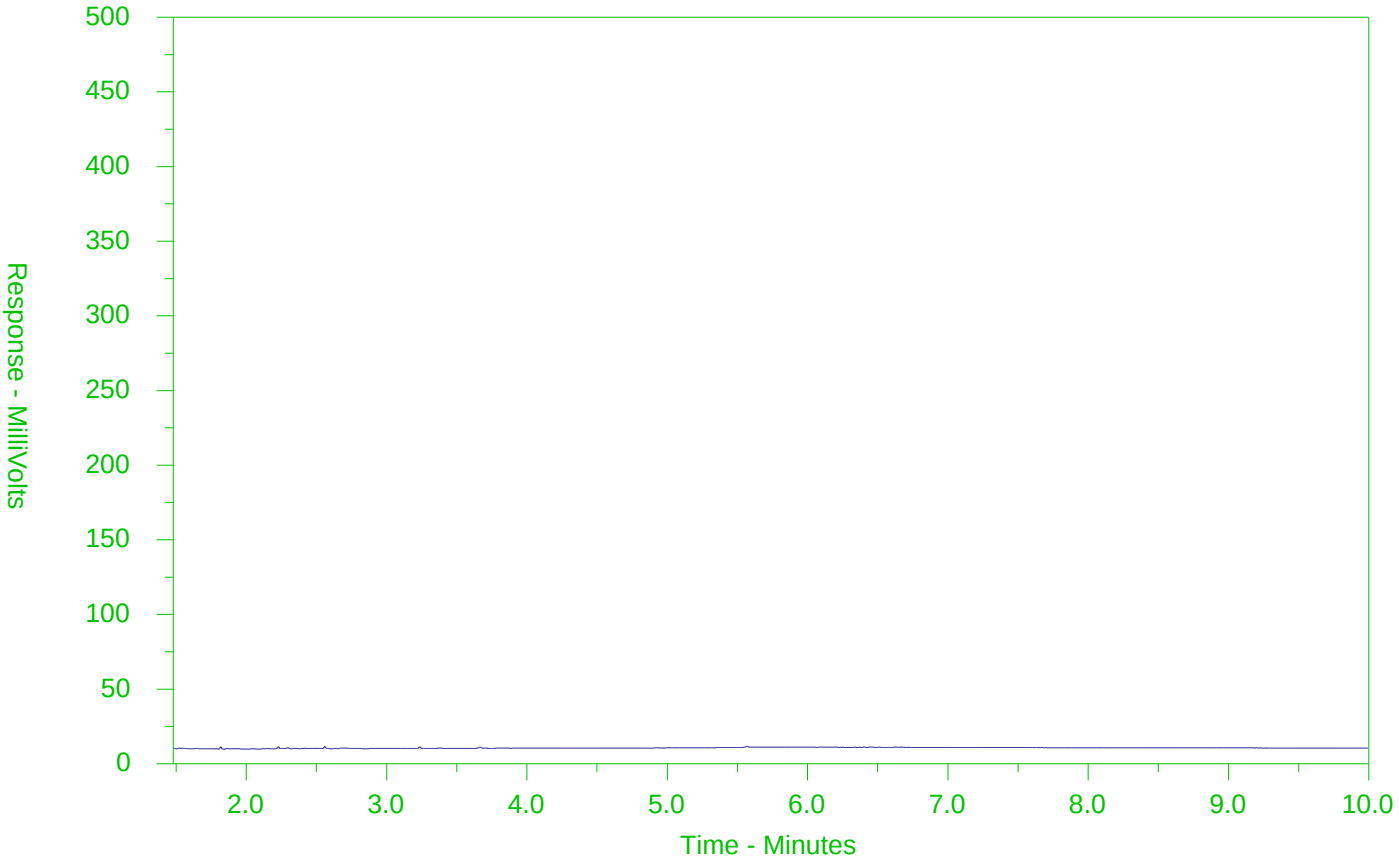
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2015395-1
Client Sample ID: MW1



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

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

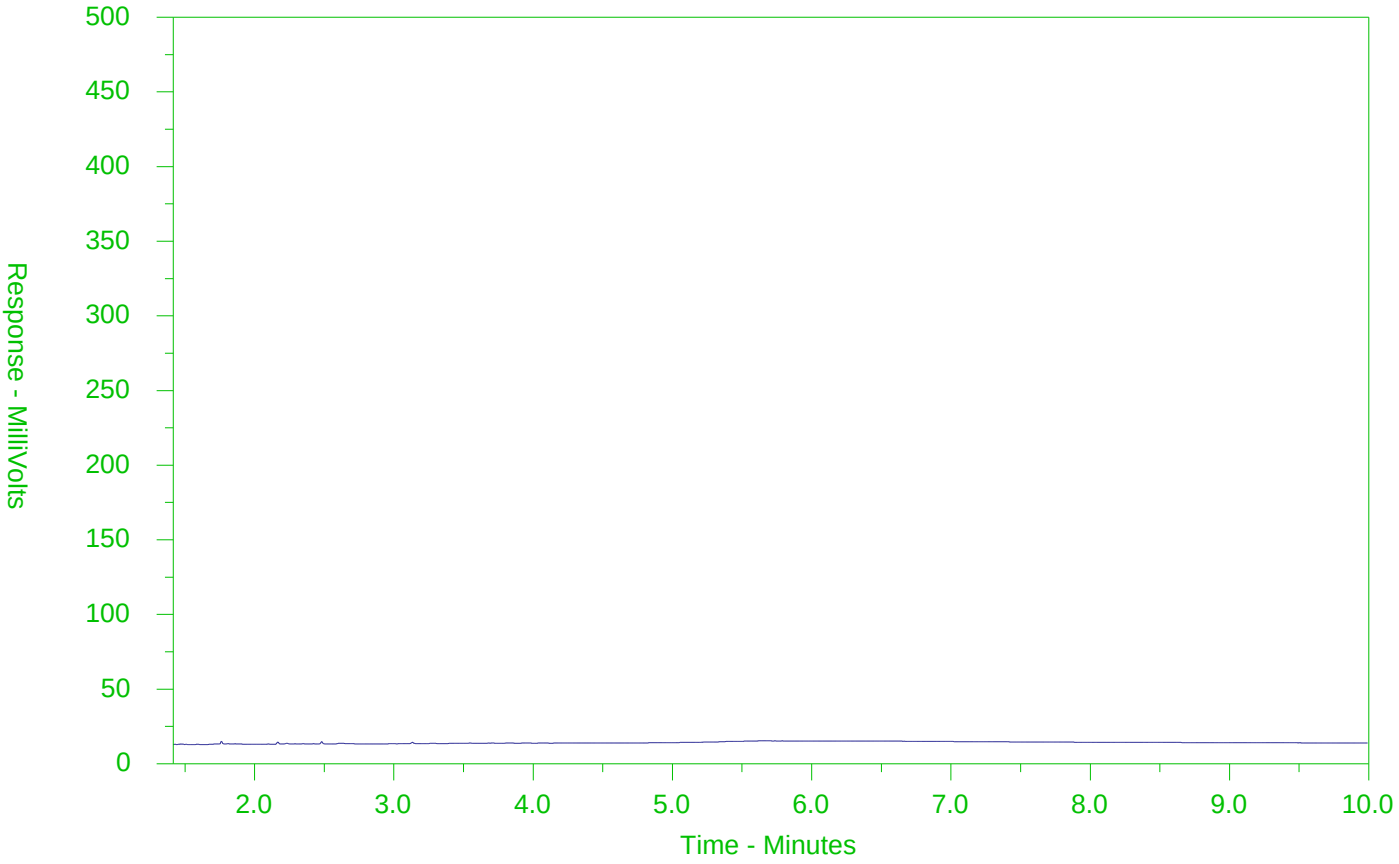
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2015395-2
Client Sample ID: MW1D



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

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

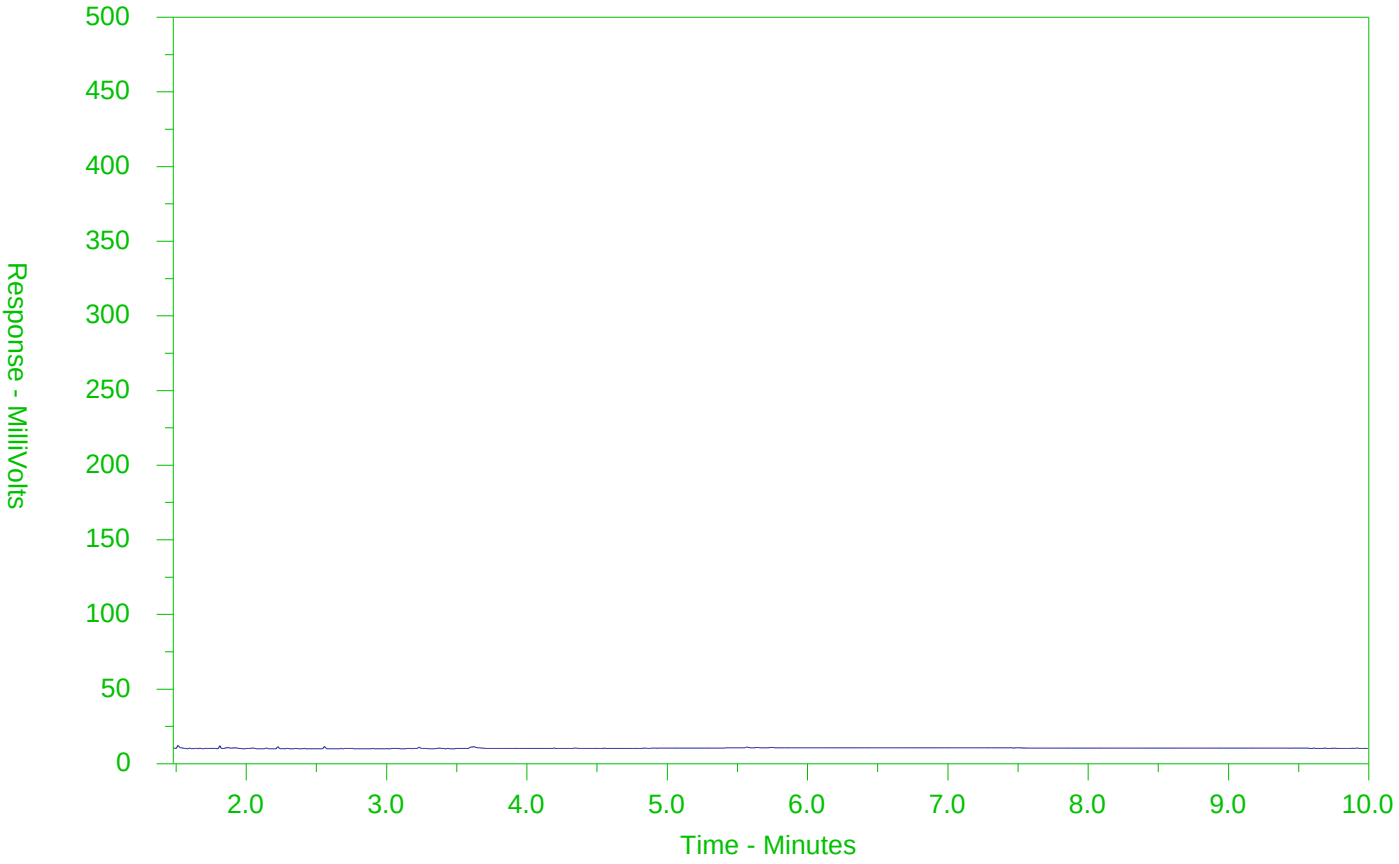
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2015395-3
Client Sample ID: MW3



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

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

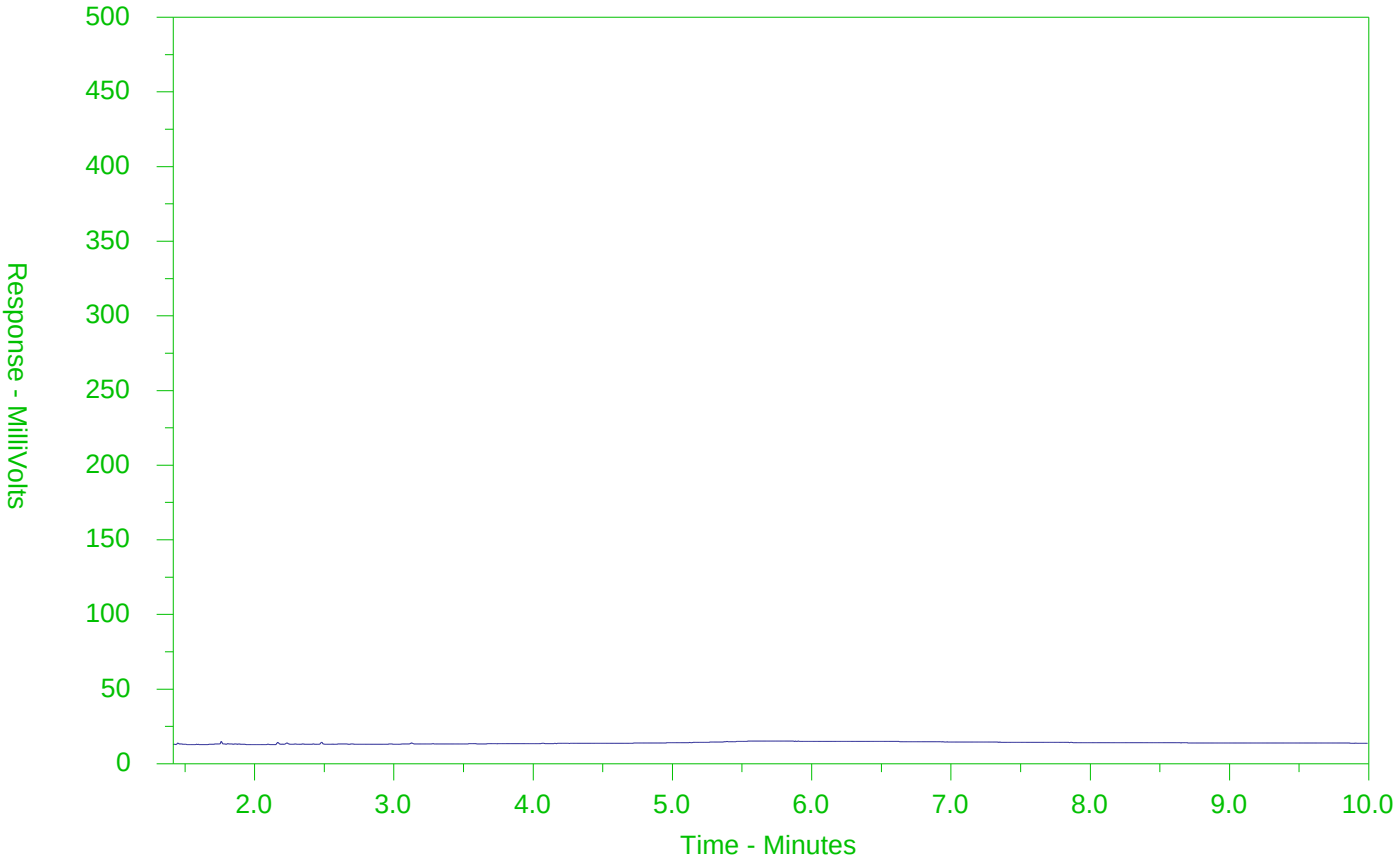
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

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

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2015395-5
Client Sample ID: MW2



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

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

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

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

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

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2015395-COFC

COC Number: 15 - 558782

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution		Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply	
Company:	Rubidium Environmental	Select Report Format:	PDF EXCEL EDD (DIGITAL)	Regular [R]	Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Sarah Sipak	Quality Control (QC) Report with Report	YES NO	PRIORITY (Business Days): 4 day [P4]	EMERGENCY: 1 Business day [E1]
Phone:	905-635-4063 x 3708	Compare Results to Criteria on Report - provide details below if box checked		3 day [P3]	Same Day, Weekend or Statutory holiday [E0]
	Company address below will appear on the final report	Select Distribution:	EMAIL MAIL FAX	2 day [P2]	
Street:	208 - 3278 S Service Rd	Email 1 or Fax	SSipak@rb-enviro.com	Date and Time Required for all E&P TATs:	3-Nov-17 5:00 pm
City/Province:	Burlington / ON	Email 2	abeck@rb-enviro.com	For tests that can not be performed according to the service level selected, you will be contacted.	
Postal Code:	L7N 3H8	Email 3		Analysis Request	

Invoice To		Invoice Distribution	
	Same as Report To: YES NO	Select Invoice Distribution:	EMAIL MAIL FAX
	Copy of Invoice with Report: YES NO	Email 1 or Fax	SSipak@rb-enviro.com
Company:	Same as above	Email 2	
Contact:	Same as above		

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	24893 IQ58212	AFE/Cost Center:	PO#
Job #:	Rb2671	Major/Minor Code:	Routing Code:
PO / AFE:	Rb2671	Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): L2015395

ALS Contact: AF Sampler: AB

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PHC/VOC	PAH	ICPMS Metals (F)	Trip Blank VOC	Number of Containers
1	MW1	27-Oct-17	12:30	GW	X	X	X		
2	MW1D	"	"	"	X				
3	MW3	"	2:00	"	X	X	X		
4	MW3D	"	2:00	"		X			
5	MW2	"	3:00	"	X	X	X		
6	MW2D	"	5:00	"			X		
7	TRIP	"		GW				X	

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	Table 3 - Residential
Are samples for human drinking water use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen		SIF Observations	Yes	No	X
Ice Packs	Ice Cubes	Custody seal intact	Yes X	No	
Cooling Initiated	X				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
10.6°C			10.1		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Andrew Beck	Oct 27, 2017	4:10	PSTOWS	27-OCT-17	16:10	AP	10-30-17	16:50

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

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

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

RUBIDIUM
ENVIRONMENTAL

APPENDIX A - GENERAL:
A4 – Residue Management

BILL OF LADING

ORIGINAL - NOT NEGOTIABLE

aevitas

75 WANLESS COURT, AYR, ONTARIO N0B 1E0
www.aevitas.ca
(519) 740-1333

CARRIER: *AEVITAS INC.*

Carrier's A 095396

Vehicle: 402

Manifest No.

Name: Bill Fairhurst

Date: 8 NOV 2017

Signature:

24 Hour Emergency Response: (866) 856 - 5366

FROM: ☐ same as carrier

Shipper / Consignor: Landshark Drilling

Street: 72 Plains Rd E

City: Burlington Prov.: ONT

Postal Code: L7T 2C1 Tel. No.:

Name:

Signature:

TO: ☒ same as carrier

Receiver / Consignee: AEVITAS Inc

Street: 36 Adams Blvd

City: Brantford Prov: ON

Postal Code: Tel. No.:

Name: Tony Vrsnik

Signature:

LAMPS

NO. OF UNITS	PACKAGING				LAMP TYPE										ESTIMATED COUNTS	NO. OF SKIDS	NOTES/WEIGHT
	Cartons/ Boxes	Blue Bins	Luggers	Other	4 Foot Fluores. T8	4 Foot Fluores. T12	4 Foot Fluores. MIX	8 Foot Fluores. T8	8 Foot Fluores. T12	8 Foot Fluores. MIX	HID/ HPS	INC	HAL	U/V	OTHER			

☒ NON HAZARDOUS ☐ DANGEROUS GOODS

PLU - 6 Drums - Non Regulated 50:1

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the Transportation of Dangerous Goods Regulations.

Name: Please PRINT Signature:

USED OR LEFT ON SITE

Arrival Time 10[IT] Departure Time 10[4C] Workers: Bu Total Time on Site

— Drums — Blue Boxes Notes:

— Cartons/Boxes Type — Other Type P.O.:

Pursuant to applicable legislation, it is mutually agreed as to each carrier of all or any part of, said property over all or any said portion of said route to destination and as to each party, at any time interested in all or any said property, that every service performed hereunder shall be subject to all bill of lading terms and conditions in the governing classification on the date of shipment.

White Copy – Aevitas Yellow Copy – Receiver Pink Copy – Shipper

APPENDIX A - GENERAL:
A5 – Survey of Phase Two Property

TOPOGRAPHIC SURVEY

OF PART OF

LOTS 34, 35 AND 36
REGISTERED PLAN 725PF

IN THE

CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

SCALE 1:150 METRIC

3 1.5 0 3 6 9 metres

S.D. McLAREN, O.L.S. – 2015

BENCHMARK:

MONUMENT 44

Maplehurst School, 481 Plains Road East (Highway No. 2) 1.92 km northeast of Waterdown Road; tablet in the front of southeast concrete foundation wall, 1.5m southwest of the most easterly of two entrances, 1.04m below red brick siding. No. 3488.

ELEVATION: 98.754 metres CGVD–1928:1978

PLAINS ROAD EAST

(ORIGINAL ROAD ALLOWANCE BETWEEN BROKEN FRONT CONCESSION & CONCESSION 1)
(PART 3, INST 1431 DEPARTMENT OF HIGHWAYS PLAN PLAN P–1957–44
ORDER–IN–COUNCIL 4000/69 FORMERLY THE KING'S HIGHWAY No. 2)

PIN 07122–0002 (LT)

CENTRE LINE OF PAVEMENT
CONCRETE CURB
CONCRETE SIDEWALK
ASPHALT
SITE BENCHMARK
TOP OF CUT CROSS
ELEV.=101.044
MH T/L=101.04 SW.Inv=97.22
(REFERENCE BEARING) N43°32'00"E
(P1 & Msd) 98.755
(P2,D1 & Set) 44.501
(P2 & Msd) 32.918
(P2 & Set) 21.336
(P2 & Set) 5.182
N43°32'50"E
N43°32'00"E
PART 6, MISC. PLAN 427
PART 5, MISC. PLAN 427
PART 7, MISC. PLAN 427
ROOF PEAK = 105.539
1 1/2 STOREY VINYL–SIDED DWELLING No. 92
ROOF PEAK = 109.276
2 STOREY BRICK DWELLING No. 84
1 1/2 STOREY VINYL–SIDED DWELLING No. 94
ROOF PEAK = 106.767
ROOF PEAK = 107.838
BUILDING
ROOF PEAK = 106.785
BUILDING
METAL SHED
GARDEN SHED
PIN 07117–0035 (LT)
PIN 07117–0034 (LT)
PIN 07117–0033 (LT)
PIN 07117–0036 (LT)
PIN 07117–0032 (LT)
PIN 07117–0037 (LT)
LOT 33
LOT 34
LOT 35
LOT 36
LOT 37
LOT 32
LOT 39
REGISTERED PLAN 725
BRANTWOOD AVENUE
GLENWOOD AVENUE
TOWNSEND AVENUE
N47°02'00"W
48.705 (D1 & Set)
48.705 (P1 & Msd)
285.452 (P1 & Msd)
284.188 (P1 & Msd)
CM (P1)
SIB (OU)
N43°32'00"E 44.501 (P1 & Msd) (D1 & Msd)
BELL BOX
GRAVEL
STONE
GRAVEL DRIVE
ASPHALT DRIVE
PORCH
STEPS
ROCKS
RAILING
BASEMENT STAIRS
CONCRETE
LSA
PS
GM
BH
DS
WW
WS
ANTENNA ROPE
CHAIN LINK FENCE (APPEARS TO BE MORE THAN 25± YEARS OLD)
BOARD FENCE (APPEARS TO BE MORE THAN 10± YEARS OLD)
FENCE ON LINE
LATTICE FENCE
ROW OF CEDARS
CL OF CEDARS 0.37± SW
CL OF CEDARS 0.46± SW
CL OF CEDARS 0.69± NE
CL OF CEDARS 0.72± NW 0.66± NE
BOARD FENCE 0.26 NW
FENCE 0.13 NE
FENCE 0.06 NW
FENCE 0.04 SW
FENCE 0.05 SW
FENCE 0.57 NW
FENCE 0.63 NW
FENCE 0.60 NW
FENCE 0.62 NW
FENCE 0.05 NE
FENCE ON LINE NW
0.25ø TREE C10 'CUT HALF WAY'
0.55ø TREE
0.45ø TREE
0.4ø TREE
0.3ø TREE
0.2ø TREE
0.1ø TREE
0.5ø TREE
0.15ø TREE
0.4ø EVG
0.3ø EVG
0.1ø EVG
0.45ø EVG
0.35ø EVG
0.15ø EVG
0.1ø EVG
0.67ø
0.654
0.55ø TREE
0.45ø TREE 100.91
0.25ø TREE C10 'CUT HALF WAY'

LEGEND:

□	DENOTES	MONUMENT SET
■	"	MONUMENT FOUND
IB	"	IRON BAR
CC	"	CUT CROSS
SIB	"	STANDARD IRON BAR
SSIB	"	SHORT STANDARD IRON BAR
824	"	A.T. McLAREN, O.L.S.
OU	"	ORIGIN UNKNOWN
Msd	"	MEASURED
P1	"	REGISTERED PLAN 725
P2	"	MISC. PLAN 427
D1	"	INSTRUMENT 744002
CL	"	CENTRELINE
BH	"	BOREHOLE
HP	"	HYDRO POLE
GW	"	GUY WIRE
DS	"	DOOR SILL
WS	"	WINDOW SILL
WW	"	WINDOW WELL
GM	"	GAS METER
CLF	"	CHAIN LINK FENCE
LF	"	LATTICE FENCE
LSA	"	LANDSCAPED AREA
PS	"	PATIO STONES
—U—	"	OVERHEAD UTILITIES
EVG	"	EVERGREEN
ø	"	DIAMETER

METRIC NOTE

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

BEARING NOTE:

BEARINGS ARE ASTRONOMIC AND ARE REFERRED TO THE SOUTHEASTERLY LIMIT OF PLAINS ROAD EAST AS SHOWN ON C. REGISTERED PLAN 725427 AS BEING N43°32'00"E

MARCH 26, 2015
DATE

S. DAN McLAREN, O.L.S.

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A.T. McLaren Limited
LEGAL AND ENGINEERING SURVEYS
69 JOHN STREET SOUTH, SUITE 230
HAMILTON, ONTARIO, L8N 2B9
PHONE (905) 527–8559 FAX (905) 527–0032

Drawn	Checked	Crew Chief	Scale	Dwg.No.
JB	RBM	SM	1:150	34581

APPENDIX B – HISTORICAL DATA:
B1 – Phase One ESA Summary Issued by Terraprobe Inc.

1.0 EXECUTIVE SUMMARY

Terraprobe Inc. was retained by Ember Dog Inc. to complete a Phase One Environmental Assessment (ESA) on the property located at 92 Plains Road East in Burlington, Ontario. The Phase One ESA involved three main tasks, as follows:

- a records review of historical site use and activities for the Phase One property and for the Phase One study area;
- interviews with available individuals having some knowledge of current and/or site activities; and,
- a reconnaissance inspection of the Property.

The Property was developed with a residential dwelling some time between 1934 and 1954. Since that time the Property has been in residential use. An above ground heating oil tank located in the garage was the source of heat for the apartment above. The potential that historical site activities have resulted in adverse impact to the environmental condition of the Property is considered to be low, but cannot be completely eliminated. Activities on properties in the Phase One Study Area have included some environmentally sensitive activities. The Phase One ESA identified the following Areas of Potential Environmental Concern associated with the Property and properties in the Study Area.

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity		Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC-1	92 Plains Road East - above ground heating oil tank in southeast corner of garage	28	Gasoline and Associated Products Storage in Fixed Tanks	on-site	metals, PHCs, PAHs	soil ground water
APEC-2	92 Plains Road East -fill of unknown quality at northwest portion of property	30	Importation of fill material of unknown quality	on-ste	metals, PHCs, PAHs, VOCs	soil groundwater
APEC-3	71 Plains Road East - former gasoline/service station northwest of property	28	Gasoline and Associated Products Storage in Fixed Tanks	off-site	metals, PHCs, PAHs, VOCs	ground water

The Phase One ESA identified Areas of Potential Environmental Concern on the Phase One Property and within the Study Area related to historical site use or activities. On the basis of the above, a requirement for a Phase Two ESA has been identified.