Phase Two Environmental Site Assessment (DRAFT)

2421 and 2431 New Street, Burlington, Ontario

Client
TRG (New-Guelph) Inc.
2100 Old Lakeshore Road
Burlington, ON L7R 1A3

Attn: Mr. Charles Mady

Project Number
HAM-00801287-A0

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Date Submitted
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Executive Summary

EXP Services Inc. (EXP) was retained by TRG (New-Guelph) Inc. to complete a Phase Two Environmental Site Assessment (ESA) for 2421 and 2431 New Street, in Burlington, Ontario, hereinafter referred to as the 'Site'. Authorization to proceed with the Phase Two ESA was provided by Mr. Charles Mady of TRG (New-Guelph) Inc.

The Site is located on the north side of New Street in Burlington, Ontario (Figures 1 and 2). The Site measures approximately 0.7 hectares (1.7 acres) in area. The Site is currently occupied by a multi-unit retail commercial plaza including three stand-alone buildings. The building situated along the western portion of the Site is a multi-unit single storey commercial building (Building A). Two additional single storey standalone buildings are situated along the northern boundary (Building B) and at the southeast corner of the Site (Building C). Based on the Phase One ESA historical review, the buildings were constructed in the early 1970s.

The need for a Phase Two ESA on thee property was identified in the Phase One ESA completed for the Site in November 2017. The Phase One ESA identified the following a number of potentially contaminating activities (PCAs) and corresponding Areas of Potential Environmental Concern (APECs):

Area of Potential Environmental Concern (APEC)[1]	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)[2]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern[3]	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 1A: Exceedances of cVOCs in soil and groundwater	Entire Site	Not listed- Exceedances for cVOCs in soil and groundwater	On-Site	VOCs	Soil and Groundwater
APEC 1B: Use of salt for de-icing purposes	Entire Site	Not listed- use of salt for de-icing purposes	On-Site	Electrical Conductivity, Sodium Adsorption Ratio (soil), Sodium and Chloride (groundwater)	Soil and Groundwater
APEC 2A: Exceedances of PHC in groundwater	Near northeast property boundary	Not listed- Exceedances for PHC groundwater	On-Site	PHCs including BTEX	Groundwater
APEC 2B: Former auto service station with UST on property east of Site (2439 New Street / 448 Guelph Line, now 458 Guelph Line)	Near northeast property boundary	28- Gasoline and Associate Products Storage in Fixed Tank 27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Off-Site	PHCs including BTEX	Groundwater

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APEC 2C: Former/current service station with UST and spill incident east of Site (458 Guelph Line)	Near northeast property boundary	28- Gasoline and Associate Products Storage in Fixed Tank 27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles Not listed- Spill incident	Off-Site	PHCs including BTEX	Groundwater
APEC 2D: Former/current service station northeast of Site (458 Guelph Line)	Near northeast property boundary	27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Off-Site	PHCs including BTEX	Groundwater
APEC 3A: Former dry cleaner northeast of Site (480 Guelph Line)	Near northeast property boundary	37- Operation of Dry Cleaning Equipment (where chemicals are used)	Off-Site	VOCs	Groundwater
APEC 3B: Generator of halogenated solvents (466 Guelph Line)	Near northeast property boundary	Not listed – Generator of hazardous wastes	Off-Site	VOCs	Groundwater

This Phase Two ESA was conducted in accordance with the Phase Two ESA standard as defined by O.Reg. 153, as amended, and in accordance with generally accepted professional practices.

For assessment purposes, EXP selected the Ontario Ministry of the Environment and Climate Change (MOECC) Table 2 Site Condition Standards (SCS) of "Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act," for Residential Property Use in a potable groundwater situation with coarse-textured soil in accordance with Ontario Regulation 153/04 (made under the Environmental Protection Act), July 2011.

Based on the results of the subsurface investigation conducted at the Site, the following findings are presented:

1) The Phase Two ESA consisted of advancing a total sixteen (16) boreholes and the instrumentation of fifteen (15) of the boreholes with a groundwater monitoring well to investigate the chemical quality of soil in the areas of potential environmental concern identified in EXP's

Phase One ESA. In addition, ten (10) existing groundwater monitoring wells were sampled and previously collected data deemed compliant with O.Reg. 153/04 were incorporated into this report.

2) The general stratigraphy at the Site, as revealed in boreholes advanced on Site, consists of asphalt or topsoil at the surface with a layer of sand and gravel fill material overlying native silty sand. The depth to bedrock, as noted in the subsurface investigations completed on Site to date, was noted to be between 4.8 and 5.8 m bgs. Bedrock consists of red shale of the Queenston formation, and was encountered to the maximum drilled depth of 15.2 m bgs.

3) Based on groundwater data collected from across the Site, the inferred groundwater flow direction in the overburden is considered to be to the south and the groundwater flow direction in the bedrock is considered to be to the southeast.

4) To assess the quality of soil and groundwater quality in the identified areas of environmental concern, selected soil and groundwater samples were submitted for analysis of PHCs including BTEX, VOCs, and metals and/or inorganics. Based on the reported analytical results, soil and groundwater exceeding the applicable Table 2 SCS was identified at the Site:

    a. Soil with elevated values of EC was identified in the western portion of the Site. Vertical delineation of the impacts was achieved at a maximum depth of 3.0 m bgs;

    b. Soil impacted with VOCs was identified in several boreholes in the eastern portion of the Site. Submission of vertical delineation soil samples for VOCs could not be completed as the samples exceeding the Table 2 SCS were collected just above the overburden/bedrock interface.

    c. Elevated concentrations of VOCs were identified in overburden wells located in the eastern portion of the Site and the majority of bedrock wells located across the Site. Vertical delineation of the VOCs in the 'worst-case' areas was not fully achieved at the maximum depth of the investigation (15.2 m bgs). Tetrachloroethylene was identified as the primary contaminant of concern.

Based on the results of the Phase Two ESA, the Site is not in compliance with the generic Table 2 SCS. The groundwater elevation and chemistry data suggest that the VOC impacts originate from an off-Site source to the north and the Site is in a flow-through scenario. A Risk Assessment is recommended, as an alternative to remediation, to develop Site-specific risk-based criteria based on potential exposure pathways of the identified contaminants.

This executive summary is a brief synopsis of the report and should not be read in lieu of reading the report in its entirety. Limitation of liability, scope of report and third party reliance are outlined in Section 7 of this report.

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1. Introduction

EXP Services Inc. (EXP) was retained by TRG (New-Guelph) Inc. to complete a Phase Two Environmental Site Assessment (ESA) for 2421 and 2431 New Street in Burlington, Ontario, hereinafter referred to as the 'Site'. Authorization to proceed with the Phase Two ESA was provided by Mr. Charles Mady of TRG (New-Guelph) Inc.

The objective of the investigation was assess the subsurface conditions of the Site to support the potential filing of a Record of Site Condition (RSC) in accordance with Ontario Regulation 153/04, as amended by Ontario Regulations 511/09 and 179/11 (O.Reg.153, as amended).

This Phase Two ESA was conducted in accordance with the Phase Two ESA standard as defined by O.Reg. 153, as amended, and in accordance with generally accepted professional practices. Subject to this standard of care, EXP makes no express or implied warranties regarding its services and no third party beneficiaries are intended. Limitation of Liability, Scope of Report and third party reliance are outlined in Section 7 of this report.

1.1 Site Description

The Site is located on the north side of New Street in Burlington, Ontario (Figures 1 and 2). The Site measures approximately 0.7 hectares (1.7 acres) in area. The Site is currently occupied by a multi-unit retail commercial plaza including three stand-alone buildings. The building situated along the western portion of the Site is a multi-unit single storey commercial building (Building A). Two additional single storey standalone buildings are situated along the northern boundary (Building B) and at the southeast corner of the Site (Building C). Based on the Phase One ESA historical review, the buildings were constructed in the early 1970s.

The approximate Universal Transverse Mercator (UTM) coordinates for the Site centroid is Zone 17, 598341E 4799036N.

The property identification numbers (PINs) for the Site are 07068-0255 (LT), 07068-0208 (LT). Refer to Appendix G for a copy of the Site survey.

1.2 Property Ownership

The owner contact information is provided below:

Company Name	TRG (NEW-GUELPH) INC.
Company Address	2100 Old Lakeshore Road Burlington, ON L7R 1A3

1.3 Current and Proposed Future Uses

The western portion of the Site addressed as 2421 New Street is zoned as High Density Residential and the eastern portion of the Site addressed as 2431 New Street is zoned Neighbourhood Commercial (Figure 2). It is EXP's understanding that the Site will be developed for residential land use with an 11-storey condominium-style senior's residence/retirement home with two (2) levels of underground parking (Figure 23).

1.4 Applicable Site Condition Standards

The assessment criteria, Site Condition Standards (SCS), applicable to a given site in Ontario are established under subsection 168.4(1) of the Environmental Protection Act. Tabulated generic criteria are provided in "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" ("the SGWS Standards"), MOE, May 2011. These criteria, which came into force on July 1, 2011, are based on site sensitivity (sensitive or non-sensitive), groundwater use (potable or non-potable), property use (residential, parkland, institutional, commercial, industrial, community and agricultural/other), soil type (coarse or medium to fine textured) and restoration depth (full or stratified restoration). In addition, site specific criteria may be established on the basis of the findings of a Risk Assessment carried out in accordance with Part IX and Schedule C of O. Reg. 153/04, as amended.

The SGWS Standards specify SCS for soil, groundwater and sediment that are tabulated as follows:

Table 1 – Full Depth Background Site Condition Standards;
Table 2 – Full Depth Generic Site Condition Standards in a Potable Ground Water Condition;
Table 3 – Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition.;
Table 4 – Stratified Site Condition Standards in a Potable Ground Water Condition;
Table 5 – Stratified Site Condition Standards in a Non-Potable Ground Water Condition;
Table 6 – Generic Site Condition Standards for Shallow Soils in a Potable Ground Water Condition;
Table 7 – Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition
Table 8 – Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Groundwater Condition;
Table 9 – Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition.

For assessment purposes, EXP selected the Table 2 SCS for Residential Property Use in a potable groundwater situation with coarse-textured soil.

The selection of this category was based on the following factors:

Table 1.4 – Site Condition Standards

Description	Site-Specific Condition
Section 41 Site Sensitivity	**Not Applicable** o The soil at the Site has pH values between 5 and 9 for surficial soil; and, between 5 and 11 for subsurface soil. o The Site is not located adjacent to an area of natural significance/an environmentally sensitive area.
Section 43.1 Site Sensitivity	**Not Applicable** o The Site is not considered a shallow soil property, based on the recovered soil cores, which indicated that more than two-thirds of the Site has an overburden thickness in excess of 2 m. o The Site is not located within 30 m of a surface water body; the nearest surface water body, Roseland Creek is situated approximately 555 m northeast of the Site.
Ground Water	o The Site and surrounding properties within 250 m of the Site are supplied by a municipal drinking water system, and no potable water wells are located on the Site or within 250 m of the Site. o However, in a letter from the Region of Halton dated December 8, 2017, regarding the intent of Non-Potable Water Use for the Site, the Region indicated that given the Site is located within a highly vulnerable aquifer and that potable water use standards are to be applied to the Site
Land Use	**Residential/Parkland/Institutional** o The proposed future use of the Site is for residential use.
Soil Texture	**Coarse-textured** o The predominant texture of soils at the Site is considered to be coarse textured, based on soil characteristics identified in the borehole logs and 75 micron sieve.

2. Background Information

2.1 Physical Setting

The Site is located in the physiographic region described as a Sand Plain. The surficial geology of the Site and surrounding areas are comprised of lacustrine and outwash sand. The bedrock in the general area was part of a group belonging to the Queenston Formation, consisting of shale, limestone, dolostone, and siltstone.

The Site is generally flat with a rise in elevation at the northern portion of the Site ranging from approximately 90 to 94 m above sea level. Lake Ontario is situated approximately 0.9 kilometres (km) south / southeast of the Site. The inferred regional groundwater flow direction at the Site is to south/southeast, towards Lake Ontario.

2.2 Previous Investigations

The need for a Phase Two ESA on the Site was identified in the Phase One ESA completed for the Site by EXP in November 2017. The Phase One ESA identified a number of Potentially Contaminating Activities (PCAs) within the Phase One ESA Study Area (Figure 2) and three (3) corresponding Areas of Potential Environmental Concern (APECs) as shown on Figure 4 and presented in Table 2.2 below.

Table 2.2: Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)[1]	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)[2]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern[3]	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 1A: Exceedances of cVOCs in soil and groundwater	Entire Site	Not listed- Exceedances for cVOCs in soil and groundwater	On-Site	VOCs	Soil and Groundwater
APEC 1B: Use of salt for de-icing purposes	Entire Site	Not listed- use of salt for de-icing purposes	On-Site	Electrical Conductivity, Sodium Adsorption Ratio (soil), Sodium and Chloride (groundwater)	Soil and Groundwater
APEC 2A: Exceedances of PHC in groundwater	Near northeast property boundary	Not listed- Exceedances for PHC groundwater	On-Site	PHCs including BTEX	Groundwater
APEC 2B: Former auto service station with UST on property east of Site	Near northeast property boundary	28- Gasoline and Associate Products Storage in Fixed Tank	Off-Site	PHCs including BTEX	Groundwater

Area of Potential Environmental Concern (APEC)[1]	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)[2]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern[3]	Media Potentially Impacted (Groundwater, soil and/or sediment)
(2439 New Street / 448 Guelph Line, now 458 Guelph Line)		27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles			
APEC 2C: Former/current service station with UST and spill incident east of Site (458 Guelph Line)	Near northeast property boundary	28- Gasoline and Associate Products Storage in Fixed Tank 27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles Not listed- Spill incident	Off-Site	PHCs including BTEX	Groundwater
APEC 2D: Former/current service station northeast of Site (458 Guelph Line)	Near northeast property boundary	27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Off-Site	PHCs including BTEX	Groundwater
APEC 3A: Former dry cleaner northeast of Site (480 Guelph Line)	Near northeast property boundary	37- Operation of Dry Cleaning Equipment (where chemicals are used)	Off-Site	VOCs	Groundwater
APEC 3B: Generator of halogenated solvents (466 Guelph Line)	Near northeast property boundary	Not listed – Generator of hazardous wastes	Off-Site	VOCs	Groundwater

(1) Potentially contaminating activity means a use or activity set out in Column A of Table 2 of Schedule D (O.Reg.153/04, as amended) that is occurring or has occurred in a Phase One Study area

Based on the findings and conclusions of the Phase One ESA, a Phase Two ESA was recommended to investigate the above PCAs within the APECs.

Prior the Phase One ESA completed by EXP, previous subsurface investigations were completed at the Site, including:

1. "*Limited Phase II Environmental Site Assessment, 2411, 2421, 2433 New Street, Burlington*, Ontario" S2S Environmental Inc., January 31, 2017.

- Fieldwork included the advancement of five (5) boreholes (BH1, BH2, BH2B, BH3 and BH4) to completion depths of 4.6 and 6.5 m below ground surface (bgs). Each of the boreholes were instrumented with monitoring wells.
- Soil samples were submitted for the analysis of Volatile Organic Compounds (VOCs), Petroleum Hydrocarbons (PHCs) and/or metals and inorganics;
- Groundwater samples collected from all newly installed monitoring wells and two (2) existing monitoring wells, reportedly installed by Terraprobe (MW2421D and MW2421S), were submitted for the analysis of select VOCs, PHCs and/or select metals and inorganics.

2. "*Phase II Environmental Site Assessment, 2433 New Street, Burlington, Ontario*" Soil-Mat Engineers and Consultants Ltd., October 9, 2009.
   - Fieldwork included four (4) boreholes (BH1 to BH4) to maximum completion depth of 6.1 m bgs along the northern and eastern limits of the Site. Three (3) of the boreholes were instrumented with monitoring wells.
   - Soil samples were submitted for the analysis of VOCs, PHCs and/or metals and inorganics.
   - Groundwater samples were submitted for the analysis of PHCs, VOCs and metals and inorganics.

Based on EXP's Qualified Person (QP) review of the previous reports, analytical data collected in 2017 by S2S was deemed compliant with O.Reg. 153/04 and the data are incorporated into this report, where applicable. With the exception of soil analytical data for metals and inorganics, soil and groundwater analytical data collected in 2009 by Soil-Mat was deemed unreliable given the change in sampling methodologies for volatile parameters (PHCs and VOCs) as per O.Reg. 511/09 which came into effect in July 2011. In addition, analytical data for metals in groundwater do not appear to meet the minimum requirements of O.Reg. 153/04 given the uncertainty regarding the field methodology for filtering and preservation.

3. Scope of the Investigation

The purpose of the Phase Two ESA was to investigate the soil and groundwater quality on-Site to address the identified PCAs in the APECs.

The Phase Two ESA included the investigation of the Site soil and groundwater. As there were no surface water bodies on the Site, sediment sampling was not required.

The field investigative and sampling program was carried out following the requirements of the Site Sampling and Analysis Plan (Appendix F). No significant deviations from the Sampling and Analysis Plan were reported, that could affect the sampling and data quality objectives for the Site.

No physical impediments were encountered during the field investigation; and the entire property was accessible at the time of the investigation.

The fieldwork was supervised by Mr. Erik Enders, P.Geo. (Qualified Person).

3.1 General

The scope of work for the Phase Two ESA was as follows:

- Request local utility locating companies (cable, telephone, gas, hydro) to mark any underground utilities present at the Site;
- Retain a private utility locating company to mark any underground utilities present in the vicinity of the borehole locations and to clear the individual borehole locations;
- Advance a total of sixteen (16) boreholes and complete fifteen (15) of the boreholes as groundwater monitoring wells;
- Collect representative soil samples from the boreholes for laboratory analysis of metals and inorganics, VOCs and PHCs including Benzene, Toluene, Ethylbenzene and Xylene (BTEX), pH and 75 micron (µm) sieve;
- Collect representative groundwater samples from the existing and newly installed groundwater monitoring wells for laboratory analysis of VOCs including BTEX, PHCs, metals and/or chloride;
- Prepare a report of the findings.

The fieldwork was completed concurrent with geotechnical and hydrogeological investigations.

3.2 Borehole Drilling and Soil Sampling

Prior to the commencement of excavation activities, the locations of underground public utilities including telephone, natural gas and electrical lines were determined and marked, where necessary,

at the Site by locating companies. A private utility locating contractor was also retained to clear the individual test pit locations. The approximate locations of underground utilities are shown on Figure 3.

Sixteen (16) boreholes in total were advanced as part of this Phase Two ESA, as shown in Table 3.2 below.

Table 3.2 – Summary of Boreholes Advanced

Borehole Identification	Completion Date	Borehole Termination Depths (m bgs)	Borehole Classficiation	Boring Method
BH101, BH102, BH103S, BH104, BH105S, BH106S, BH107S, BH108, BH110	Between November 27 and December 4, 2017	4.6 – 5.2	Overburden	Hollow stem augers
BH103D, BH105D, BH106D, BH107D, BH109		8.9 – 9.2	Shallow Bedrock	Hollow stem augers (overburden, grounted to bedrock interface to prevent potential for cross contamination) and HQ rock coring (bedrock)
BH201, BH202	Between January 29 and January 30, 2018	15.2	Deep Bedrock	Hollow stem augers (overburden, grouted to bedrock interface to prevent potential for cross contamination) and tricone (bedrock)

The boreholes were advanced by Geo-Environmental Drilling Inc. (GEDI) of Halton Hills, Ontario, using CME 55 track mounted drilling rig or a CME 75 truck mounted drilling rig, under the full-time supervision of EXP field staff.

The approximate locations of the above-mentioned boreholes advanced on the Site are shown on Figures 5A and 5B.

EXP continuously monitored the drilling activities to record the physical characteristics of the soil, depth of soil sample collection and total depth of borehole. Field observations are summarized on the borehole logs provided in Appendix E. Representative soil samples were recovered in the overburden of the boreholes at regular intervals.

Soil sampling activities were conducted in accordance with the Sampling and Analysis Plan presented in Appendix F. Dedicated nitrile gloves were used during sample handling. A portion of the soil core was field preserved using laboratory-supplied vials filled and pre-weighed with methanol. The field preservation reduces the potential for induced volatilization during storage/transport prior to analysis of VOCs, PHC (Fraction 1) and/or BTEX. Soil samples intended for other non-volatile chemical parameters were placed directly into pre-cleaned, laboratory-supplied glass sample jars/vials. The soil samples were placed in clean ice-packed coolers prior to and during transportation to the subcontract laboratory, Maxxam Analytics Inc. (Maxxam) of Mississauga, Ontario and were transported/submitted under Chain of Custody documentation.

Soil samples were subsequently delivered to EXP's laboratory for visual, textural and olfactory classification.

3.3 Field Screening Measurements

A portion of each soil sample collected from the boreholes was placed in a sealed "zip-lock" plastic bag and allowed to reach ambient temperature prior to field screening using a MiniRAE 3000 Photoionization Gas Detector (PID), calibrated with isobutylene. The measurements were made by inserting the instrument's probe into the plastic bag while manipulating the sample to ensure volatilization of the soil gases. These readings provide a real-time indication of the relative concentration of combustible vapors encountered in the subsurface during drilling and are used to aid in the assessment of the vertical and horizontal extent of contamination and the selection of soil samples for analysis.

3.4 Groundwater Monitoring Well Installation

Fifteen (15) monitoring wells installed as part of this Phase Two ESA. Installation details of the monitoring wells are provided in Table 3.4 below. Monitoring well locations are presented Figures 5A and 5B.

Table 3.4 – Monitoring Well Installation Details

Monitoring Well	Ground Surface Elevation (m)	Top of Sand Elevation (m)	Top of Screen Elevation (m)	Bottom of Screen Elevation (m)	Screened Interval (mbgs)	Bottom of Borehole Elevation (m)	Depth of Borehole (mbgs)	Geologic Units Intersected By Well Screen
MW101	90.54	87.8	87.4	85.9	3.1 – 4.6	85.7	4.8	Silty sand
MW102	90.47	87.8	87.4	85.9	3.1 – 4.6	85.3	5.2	Silty sand
MW103d	90.24	82.9	82.5	81.0	7.7 – 9.2	81.0	9.2	Shale bedrock
MW103s	90.23	87.5	87.1	85.6	3.1 – 4.6	85.6	4.6	Silty sand
MW104	90.60	87.9	87.5	86.0	3.1 – 4.6	85.4	5.2	Silty sand
MW105d	90.44	83.1	82.8	81.3	7.6 – 9.1	81.3	9.1	Shale bedrock
MW105s	90.44	87.7	87.3	85.8	3.1 – 4.6	85.8	4.6	Silty sand
MW106d	90.39	83.4	83.0	81.5	7.4 – 8.9	81.5	8.9	Shale bedrock
MW106s	90.39	87.7	87.3	85.8	3.1 – 4.6	85.8	4.6	Silty sand
MW107d	90.46	83.1	82.9	81.4	7.6 – 9.1	81.4	9.1	Shale bedrock
MW107s	90.49	87.8	87.4	85.9	3.1 – 4.6	85.9	4.6	Silty sand
MW108	90.38	87.7	87.3	85.8	3.1 – 4.6	85.2	5.2	Silty sand

Monitoring Well	Ground Surface Elevation (m)	Top of Sand Elevation (m)	Top of Screen Elevation (m)	Bottom of Screen Elevation (m)	Screened Interval (mbgs)	Bottom of Borehole Elevation (m)	Depth of Borehole (mbgs)	Geologic Units Intersected By Well Screen
MW109	90.50	83.2	82.8	81.3	7.7 – 9.2	81.3	9.2	Silty sand
MW201	89.94	76.8	76.2	74.7	13.7 – 15.2	74.7	15.2	Shale bedrock
MW202	90.45	77.4	76.7	75.2	13.7 – 15.2	75.2	15.2	Shale bedrock

mbgs - metres below ground surface

The monitoring wells were installed in general accordance with the Ontario Water Resources Act - R.R.O. 1990, Regulation 903 - Amended to O. Reg. 128/03 and were installed by a licensed well contractor (GEDI) using a CME 55 track mounted drilling rig or a CME 75 truck mounted drilling rig. Petroleum-based greases or solvents were not used during well installation activities.

The monitoring wells consisted of a 1.5 m length of 50 mm diameter PVC screen and an appropriate length of PVC riser pipe. The annular space around the wells were backfilled with sand to an average height of 0.3 m above the top of the screen. A bentonite seal was added from the top of the sand pack to approximately 0.6 m below ground surface. The monitoring wells were completed with flushmount protective well casings.

The current property owner is considered to be the owner of the wells installed at the Site (“well owner”, Section 1.0, Regulation 903). When the monitoring wells are no longer required, they must be decommissioned in accordance with the procedure outlined in the Ontario Water Resources Act - R.R.O. 1990, Regulation 903 - Amended to O. Reg. 128/03.

3.5 Groundwater Sampling

Following the installation of each monitoring well, approximately three (3) to five (5) well volumes of water were removed (or until the monitoring well went dry twice) from each well during the development activities to ensure that any potential residual materials from the drilling had been removed and to ensure that representative groundwater from the surrounding formation was infiltrating the well screen. Monitoring wells were developed using dedicated low-density polyethylene (LDPE) tubing and an inertial foot valve at each monitoring well.

Between December 5, 2017 and February 7, 2018, groundwater samples were collected from fifteen (15) newly installed monitoring wells and ten (10) existing monitoring wells.

Prior to sampling, the depths to groundwater in the monitoring wells were measured using a water level meter and groundwater was purged from each monitoring well. Groundwater purging activities were completed using low-flow methodology via dedicated LDPE tubing and a peristaltic pump at each monitoring well. Purging activities continued until various field measured physical and chemical

parameters (temperature, pH, conductivity, total dissolved solids, dissolved oxygen and redox potential) had stabilized, indicating that representative groundwater was infiltrating the well screen.

Groundwater sampling activities were completed following the purging using low-flow methodology. Groundwater sampling was completed using the same peristaltic pump and dedicated LDPE tubing that was utilized during the purging process. Groundwater samples were placed directly into the laboratory supplied bottles and/or vials and placed in a cooler containing ice for sample preservation purposes.

The sample vials intended for analysis of volatile parameters were inverted prior to being placed in a cooler to ensure that no head-space was present in the samples. Samples intended for the analysis of dissolved metals were field filtered using a dedicatd 0.45 micron filter. Preservatives were provided in the laboratory supplied bottles, where required. Dedicated nitrile gloves were utilized during sample handling.

The groundwater sampling during the completion of this Phase Two ESA was undertaken in accordance with the Sampling and Analysis Plan presented in Appendix F.

3.6 Analytical Testing

The contracted laboratory selected to perform chemical analysis on select soil and water samples was Maxxam. Maxxam is an accredited laboratory under the Standards Council of Canada/Canadian Association of Laboratory Accreditation (CALA) (Accredited Laboratory No. 97) in accordance with ISO/IEC 17025:1999- “General Requirements for the Competence of Testing and Calibration Laboratories”.

3.6.1 Soil Analysis

A total of 27 soil samples, including four (4) QA/QC field duplicate samples, were analyzed from the boreholes during the soil analytical program. The analytical testing conducted on the soil samples and corresponding submission rationale is summarized in Table 3.6.1 below.

Table 3.6.1: Summary of Soil Samples Submitted for Chemical Analyses

Sample ID	Depth (m bgs)	Date of Sample Collection	Analysis	APEC Coverage	Rationale for Analysis
BH101 SS2	0.8 – 1.4	Dec. 4, 2017	Metals and Inorganics	1B	Shallow soil, fill material
BH101 SS20	0.8 – 1.4		Metals and Inorganics	1B	Field duplicate sample of BH101 SS2
BH101 SS3	1.5 – 2.1		EC/SAR	1B	Vertical delineation of EC impacts identified in BH101 SS2
BH101 SS4	2.3 – 2.9		VOCs	1A	Highest vapour reading
BH101 SS7	4.6 – 5.2		VOCs	1A	Deepest overburden sample, horizontal delineation of impacts identified during previous investigations
BH102 SS2	0.8 – 1.4		Metals and Inorganics	1B	Shallow soil, fill material

Sample ID	Depth (m bgs)	Date of Sample Collection	Analysis	APEC Coverage	Rationale for Analysis
BH101 SS3	1.5 – 2.1		EC/SAR	1B	Vertical delineation of EC impacts identified in BH102 SS2
BH102 SS5	3.0 – 3.7		VOCs, EC/SAR	1A, 1B	Highest vapour reading, vertical delineation of EC impacts identified in BH102 SS3
BH102 SS7	4.6 – 5.2		VOCs	1A	Deepest overburden sample, horizontal delineation of impacts identified during previous investigations
BH103 SS2	0.8 – 1.4	Nov. 28, 2017	VOCs	1A	Highest vapour reading
BH103 SS4	2.3 – 2.9		PHCs, BTEX	2A-2D	Inferred groundwater table
BH103 SS5	3.0 – 3.7		pH, 75 micron sieve	--	Regulatory sample >1.5 m, representative of native soil
BH103 SS7	4.6 – 5.2		VOCs	1A	Deepest overburden sample, horizontal delineation of impacts identified during previous investigations
BH103 SS70	4.6 – 5.2		VOCs	1A	Field duplicate of BH103 SS7
BH104 SS7	4.6 – 5.2	Dec. 1, 2017	VOCs	1A	Deepest overburden sample, horizontal delineation of impacts identified during previous investigations
BH105 SS1	0.0 – 0.6	Nov. 27, 2017	Metals and Inorganics	1B	Shallow soil, fill material
BH105 SS4	2.3 – 2.9		VOCs	1A	Highest vapour reading
BH106 SS8	5.3 – 5.9		VOCs	1A	Deepest overburden sample, horizontal delineation of impacts identified during previous investigations
BH107 SS4	2.3 – 2.9	Nov. 29, 2017	PHCs, BTEX	2A-2D	Inferred groundwater table
BH107 SS7	4.6 – 5.2		VOCs	1A	Highest vapour reading
BH108 SS3	1.5 – 2.1	Dec. 4, 2018	VOCs	1A	Highest vapour reading
BH108 SS7	4.6 – 5.2		VOCs	1A	Deepest overburden sample, horizontal delineation of impacts identified during previous investigations
BH109 SS4	2.3 – 2.9	Nov. 30, 2017	PHCs, BTEX	2A-2D	Inferred groundwater table
BH109 SS40	2.3 – 2.9		PHCs, BTEX	2A-2D	Field duplicate of BH109 SS4
BH109 SS8	5.3 – 5.9		VOCs	1A, 2A-2D, 3A-3B	Highest vapour reading, deepest overburden sample, horizontal delineation of impacts identified during previous investigations
BH109 SS80	5.3 – 5.9		VOCs	1A, 2A-2D, 3A-3B	Field duplicate of BH109 SS8
BH110 SS7	4.6 – 5.2	Dec. 4, 2017	PHCs, BTEX, VOCs, TCLP	1A, 2A-2D, 3A-3B	Elevated vapour reading, within saturated zone, representative of 'worst-case' sample for waste classification

PHCs – Petroleum Hydrocarbons Fractions 1 to 4; BTEX – Benzene, Toluene, Ethylbenene and Xylenes
VOCs – Volatile Organic Compounds; TCLP – Toxcitiy Characteristic Leaching Procedure
EC – Electrical Conductivity; SAR – Sodium Adsorption Ratio

3.6.2 Groundwater Analysis

A total of 28 groundwater samples, including three (3) QA/QC field duplicates, were analyzed during the groundwater analytical program. In addition, two (2) trip blanks and two (2) trip spikes were prepared

by Maxxam, transported to the Site during sampling activities and re-analyzed by Maxxam to determine if field activities could potentially bias the analytical results. The analytical testing conducted on the representative groundwater samples and corresponding submission rationale is summarized in Table 3.6.2 below.

Table 3.6.2: Summary of Groundwater Samples Submitted for Chemical Analyses

Sample ID	Date of Sample Collection	Analysis	Rationale for Analysis
MW101	December 6, 2017 December 18, 2017	VOCs (December 6) Sodium and Chloride (December 18)	Investigation of APEC 1A-1B
MW102	December 6, 2017 December 18, 2017	VOCs (December 6) Sodium and Chloride (December 18)	Investigation of APEC 1A-1B
MW103S	December 7, 2017	VOCs	Investigation of APEC 1A
MW103D	December 6, 2017	VOCs	Investigation of APEC 1A
MW104	December 6, 2017	VOCs	Investigation of APEC 1A
MW105S	December 6, 2017	VOCs	Investigation of APEC 1A
MW105D	December 6, 2017	VOCs	Investigation of APEC 1A
MW106S	December 6, 2017	VOCs	Investigation of APEC 1A
MW106D	December 6, 2017	VOCs	Investigation of APEC 1A
MW107S	December 6, 2017	VOCs	Investigation of APEC 1A
MW107D	December 6, 2017	VOCs	Investigation of APEC 1A
MW108	December 6, 2017	VOCs	Investigation of APEC 1A
MW109	December 7, 2017 February 1, 2018	VOCs	Investigation of APEC 1A, vertical delineation of VOC impacts identified in BH2-S2S and BH2B-S2S
MW201	February 1, 2018	VOCs	'Worst-case' vertical delineation of VOC impacts identified in BH2-SM
MW2201	February 1, 2018	VOCs	Field duplicate of MW201, laboratory QA/QC
MW202	February 1, 2018	VOCs	'Worst-case' vertical delineation of VOC impacts identified in MW109 and BH2-S2S
BH1-SM	November 22, 2017 February 7, 2018	VOCs, PHCs, BTEX (November 22) Metals and Chloride (February 7)	Investigation of APEC 1A-1B, 2A-2D, 3A-3B
BH2-SM	November 22, 2017 February 1, 2018 February 7, 2018	VOCs, PHCs, BTEX (November 22) VOCs (February 1) Metals and Chloride (February 7)	Investigation of APEC 1A-1B, 2A-2D, 3A-3B
BH3-SM	November 22, 2017	VOCs, PHCs, BTEX	Investigation of APEC 1A, 2A-2D, 3A-3B
BH1-S2S	December 5, 2017	VOCs	Investigation of APEC 1A
BH2-S2S	December 7, 2017 February 1, 2018	VOCs	Investigation of APEC 1A, 3A-3B
BH2B-S2S	December 7, 2017 February 1, 2018	VOCs, PHCs, BTEX (December 7) VOCs (February 1)	Investigation of APEC 1A, 2A-2D, 3A-3B
BH2B	December 7, 2017	VOCs, PHCs, BTEX	Field duplicate of BH2B-S2S, laboratory QA/QC
BH3-S2S	December 7, 2017	VOCs, PHCs, BTEX	Investigation of APEC 1A, 2A-2D, 3A-3B

Sample ID	Date of Sample Collection	Analysis	Rationale for Analysis
BH4-S2S	December 5, 2017	VOCs	Investigation of APEC 1A
MW2421D	December 7, 2017	VOCs	Investigation of APEC 1A
MW2421	December 7, 2017	VOCs	Field duplicate of MW2421D, laboratory QA/QC
MW2421S	December 7, 2017	VOCs	Investigation of APEC 1A
Trip Blank (December submission)	--	VOCs, PHCs, BTEX	Determination of the potential for bias of analytical results
Trip Spike (December submission)	--	VOCs, PHCs, BTEX	
Trip Blank (February submission)	--	VOCs	
Trip Spike (February submission)	--	VOCs	

PHCs – Petroleum Hydrocarbons Fractions 1 to 4
BTEX – Benzene, Toluene, Ethylbenene and Xylenes
VOCs – Volatile Organic Compounds

3.7 Residue Management Procedures

The drill cuttings from the monitoring well installation and purged water from groundwater sampling were stored on-Site in labeled drums. The drums were removed from the Site as non-hazardous waste, based on the results of the TCLP obtained during this investigation.

3.8 Elevation Survey

EXP staff surveyed the borehole and monitoring well locations with respect to a geodetic bench mark described as the top of manhole located in the southern corner of the Site near New Street with an elevation of 90.21 m.

The elevations of the boreholes are presented on the borehole logs.

3.9 Quality Assurance and Quality Control Measures

Quality Assurance/Quality Control (QA/QC) measures were integral components of the field sampling and laboratory analytical programs undertaken for this project. The field QA/QC measures consisted of the use of dedicated sampling equipment, the implementation of decontamination procedures, the use of laboratory supplied analytical test group specific sampling containers and preservatives as required, the collection of duplicate samples, Chain of Custody protocols and sample preservation following analytical test group temperature and holding time requirements.

Details regarding quality assurance measures taken in the field, including instrument calibration, decontamination procedures, use of dedicated equipment, sample storage and Chain of Custody documentation are provided in Section 3 above.

Maxxam's QA/QC program involved the systematic analysis of control standards for the purpose of optimizing the measuring system as well as establishing system precision and accuracy and included calibration standards, method blanks, reference standards, spiked samples, surrogates and duplicates.

Four (4) field duplicate soil samples, three (3) field duplicate groundwater samples, two (2) laboratory trip spikes and two (2) laboratory trip blanks were analyzed as part of this investigation. Details regarding the results of the QA/QC program are presented in Section 4.9.

4. Review and Evaluation

4.1 Geology

The detailed soil profiles encountered during this investigation are provided on the attached borehole logs (Appendix E). Boundaries of soil indicated on the log sheets are intended to reflect transition zones for the purpose of environmental assessment and should not be interpreted as exact planes of geological change.

The general stratigraphy at the Site, as revealed in the on-Site borehole logs, consists of asphalt or topsoil at the surface with a layer of sand and gravel fill material overlying native silty sand. The depth to bedrock, as noted in the subsurface investigations completed on Site to date, was noted to be between 4.8 and 5.8 m bgs. Bedrock consists of red shale of the Queenston formation, and was encountered to the maximum drilled depth of 15.2 m bgs.

The Site stratigraphy characteristics are summarized in Table 4.1.

Table 4.1: Site Geological Characteristics

Stratigraphy	Details	Minimum Depth Observed (m bgs)	Maximum Depth Observed (m bgs)	Approximate Elevation Range (m ASL)
Surface	Asphalt / Topsoil	0	0.2	~90.6 to 89.8
	Fill Material (silty sand)	0.2	2.3	~90.4 to 88.2
Overburden	Silty Sand	0.2	5.8	~90.2 to 84.6
Bedrock	Red shale (Queenston Formation)	4.8	15.2	~85.5 to 74.8

The geology of the Site is illustrated on the cross-sections (Figures 17A, 18A, 19A and 20A).

4.2 Ground Water Elevations and Flow Direction

Groundwater was measured in the monitoring wells at least 24 hours following development and sampling on December 12, 2017, with the exception of monitoring wells MW201, MW202 and November 21, 2017, as shown in Table 5.2.

Table 5.2: Groundwater Elevations (December 12, 2017)

Monitoring Well	Ground Elevation (m)	Groundwater Depth (mbgs)	Groundwater Elevation (m)
MW101	90.54	2.83	87.71
MW102	90.47	2.90	87.57
MW103D	90.24	2.50	87.74
MW103S	90.23	2.46	87.77
MW104	90.60	2.62	87.98
MW105D	90.44	2.71	87.73
MW105S	90.44	2.82	87.62
MW106D	90.39	2.73	87.66
MW106S	90.39	2.96	87.43
MW107D	90.46	2.88	87.58
MW107S	90.49	2.99	87.50
MW108	90.38	2.48	87.90
MW109	90.50	2.74	87.76
MW201	89.94	2.13**	87.81**
MW202	90.45	2.65**	87.80**
BH1-SM	89.94	2.37	87.57
BH2-SM	89.90	2.22	87.68
BH3-SM	90.15	2.38*	87.77*
BH1-S2S	90.38	2.87	87.51
BH2-S2S	90.49	2.51	87.98
BH2B-S2S	90.46	2.42	88.04
BH3-S2S	89.94	2.36	87.58
BH4-S2S	90.26	2.79	87.47
MW2421D	90.40	2.65	87.75
MW2421S	90.40	2.69	87.71

Note: Elevations were measured in relation to a local benchmark (top of manhole located in the southern corner of the Site near New Street) with an actual elevation of 90.21 m
mbgs - metres below ground surface
* groundwater level from November 21, 2017
** groundwater level from February 1, 2018

Based on groundwater data collected from across the Site, the inferred groundwater flow direction in the overburden is considered to be to the south (Figure 6A) and the groundwater flow direction in the bedrock is considered to be to the southeast (Figure 6B).

The local groundwater flow is expected to be influenced by utility trenches and/or the presence of disturbed soil (i.e. fill material) on the Site. Groundwater flow direction can be estimated with greater certainty using measurements of groundwater elevations at the Site on several occasions over a longer period of time.

4.3 Groundwater Hydraulic Conductivity and Gradients

Single well response tests completed during EXP's hydrogeologic investigation measured estimated the hydraulic conductivity of groundwater at the Site as follows:

- Overburden: $1.7x10^{-5}$ to $3.2x10^{-5}$ m/s
- Shallow bedrock (to 9.1 m): $1.7x10^{-5}$ to $2.6x10^{-6}$ m/s

Based on the measured groundwater elevations, the horizontal hydraulic gradient is between 0.001 to 0.006 m/m and there is a upward vertical hydraulic gradient between -0.007 to -0.01 m/m.

4.4 Soil Texture

Based on the grain size analysis of the silty sand unit (BH103 SS5), the soil texture at the Site is interpreted as coarse-grained (refer to the 75 micron sieve analysis in the Certificates of Analysis - Appendix D).

4.5 Soil Field Screening

The soil vapour measurements in the recovered soil samples ranged between 0.3 and 305 parts per million (ppm). The vapour readings are presented on the borehole logs in Appendix E.

4.6 Soil Quality

In accordance with the authorized scope of work, chemical analyses were performed on selected soil samples recovered from the boreholes. The selection of representative "worst case" soil samples from each borehole was based on visual evidence of impacts or depth of sample collection. The summarized analytical data, including data collected by Soil-Mat and S2S, are presented in Appendix B. Copies of the laboratory Certificates of Analysis for the tested soil samples are provided in Appendix D.

The Table 2 SCS criteria are applicable if soil pH is in the range of 5 to 9 for surface soil (less than 1.5 m below soil surface) and 5 to 11 for subsurface soil (greater than 1.5 m below soil surface). The reported pH values for both surface and subsurface soil samples collected during this Phase Two ESA and previous investigations are within the acceptable range to use the Table 2 SCS.

4.6.1 VOCs

Sixteen (16) soil samples, including two (2) QA/QC field duplicate, were analyzed for VOCs as part of this investigation. In addition, analytical data from five (5) soil samples including one (1) QA/QC field duplicate collected in January 2017 by S2S, were reviewed during the Phase Two ESA. The results of the analysis together with the applicable Table 2 SCS are presented in Table B1 in Appendix B.

The detected concentrations of tetrachloroethylene (PCE) in seven (7) of the analyzed soil samples (including the January 2017 samples) exceeded the Table 2 SCS. In addition, the detected concentration of trichloroethylene (TCE) exceeded the Table 2 SCS in the soil sample analyzed from borehole BH110. The remaining VOCs in the soil samples analyzed were not detected above the Table 2 SCS or were not detected above the laboratory Reportable Detection Limits (RDLs). The laboratory RDLs were below the Table 2 SCS.

The soil samples impacted with PCE and/or TCE were collected at depths ranging between 4.6 and 5.5 m bgs. Submission of vertical delineation soil samples for VOCs could not be completed as the samples exceeding the Table 2 SCS were collected just above the overburden/bedrock interface.

The distribution of VOCs in soil is presented in plan view on Figure 7 and in cross section on Figures 17B, 18B, 19B and 20B.

4.6.2 PHCs

Five (5) soil samples, including one (1) QA/QC field duplicate, were analyzed for PHCs as part of this investigation. In addition, analytical data from five (5) soil samples including one (1) QA/QC field duplicate collected in January 2017 by S2S, were reviewed during the Phase Two ESA. The results of the analysis together with the applicable Table 2 SCS are presented in Table B2 in Appendix B.

PHCs were not detected above the laboratory RDLs in the soil samples analyzed. The laboratory RDLs were below the Table 2 SCS.

The locations of the soil samples analyzed for PHCs are presented in plan view on Figure 8.

4.6.3 Metals and Inorganics

Four (4) soil samples, including one (1) QA/QC field duplicate, were analyzed for metals and inorganics as part of this investigation. In addition, the following analytical data were reviewed during the Phase Two ESA and deemed reliable for assessment purposes:

- Five (5) soil samples, including one (1) QA/QC field duplicate, collected by S2S in January 2017 and analyzed for metals and inorganics;
- Four (4) soil samples collected by S2S in January 2017 and analyzed for metals;

- Four (4) soil samples collected by Soil-Mat in September 2009 and analyzed for metals and inorganics;

The results of the analysis together with the applicable Table 2 SCS are presented in Table B3 in Appendix B.

The measured values of Electrical Conductivity (EC) in the soil samples analyzed from boreholes BH101 (SS2) and BH102 (SS2) were above the Table 2 SCS. The concentrations of metals and inorganics in the remaining analyzed soil samples were either detected below the Table 2 SCS or were not detected above the laboratory RDLs. The laboratory RDLs were below the Table 2 SCS.

To vertically delineate the EC impacts, three (3) additional soil samples were analyzed for EC and Sodium Adsorption Ratio (SAR). Vertical delineation of EC was achieved at borehole BH101 at approximately 1.5 m bgs and at borehole BH102 at approximately 3.0 m bgs. The values for SAR also met the Table 2 SCS in each of the samples submitted for analysis.

The distribution of the soil samples analyzed for metals and inorganics is presented in plan view on Figures 10 and 11 and in cross section on Figures 17C and 20C.

4.7 Ground Water Quality

The summarized analytical data, including data collected by S2S, are presented in Appendix C. Copies of the laboratory Certificates of Analysis for the groundwater samples are provided in Appendix D.

No evidence of free product (i.e. visible film or sheen), or odour was observed during well purging and groundwater sampling.

4.7.1 *VOCs*

Each of the 23 newly installed or existing monitoring wells installed within the overburden or shallow bedrock (up to 9.1 m bgs) were sampled and analyzed for VOCs. In addition, two (2) QA/QC field duplicates, one (1) trip blank and one (1) trip spike were analized for VOCs during the preliminary sampling event.

Based on the results of the preliminary sampling event, elevated concentrations of VOCs including PCE, TCE, vinyl chloride (VC), cis1,2-dichloroethylene (DCE) and/or chloroform were identified in overburden wells located in the eastern portion of the Site and the majority of bedrock wells located across the Site.

To vertically delineate the VOC impacts in the ‘worst-case’ areas, two (2) deep bedrock wells were installed to an approximate depth of 15.2 m bgs in January 2018. The two (2) deep bedrock wells were sampled in February 2018, as well as the four (4) existing ‘worst-case’ wells (BH2-S2S, BH2B-S2S, MW109 and BH2-SM) resampled and analyzed for VOCs to observe any potential fluctuations in the

concentrations of the contaminants of concern. One (1) field duplicate, one (1) trip spike and one (1) trip blank were also analyzed for VOCs during the February 2018 sampling event.

The results of the analysis together with the applicable Table 2 SCS are presented in Table C1 in Appendix C.

Based on the reported analytical results, the VOC parameters that were detected at concentrations above the applicable Table 2 SCS are presented in Table 4.7.1. Due to elevated concentrations of target analytes, two (2) groundwater samples required dilution at the laboratory. As a result, the laboratory RDLs were raised and several RDLs were elevated above the Table 2 SCS as shown in Table 4.7.1 below.

Table 4.7.1: Contaminants of Concern in Groundwater

Parameter Analyzed in Groundwater	Maximum Concentration (µg/L)	Site Condition Standard (1) (µg/L)	Maximum Concentration Above Applicable SCS?	Montoring Well Location
Chloroform	11	2.4	Yes	BH2B-S2S (overburden)
Cis-1,2-Dichloroethylene	11	1.6	Yes	BH2-SM (overburden/bedrock well)
Tetrachloroethylene	3900	1.6	Yes	MW109 (bedrock well)
Trichloroethylene	110	1.6	Yes	MW109 (bedrock well)
Vinyl chloride	4.0	0.5	Yes	BH2-SM (overburden/bedrock well)
Bromomethane(2)	<2.5	0.89	Yes	BH2-SM (overburden/bedrock well)
1,4-Dichlorobenzene(2	<2.5	1.0	Yes	BH2-SM (overburden/bedrock well)
1,1,1,2-Tetrachloroethane(2	<2.5	1.1	Yes	BH2-SM (overburden/bedrock well)
1,1,2,2-Tetrachloroethane(2	<2.5	1.0	Yes	BH2-SM (overburden/bedrock well)
1,3-Dichloropropene (cis +trans) (2	<2.5	0.5	Yes	BH2-SM (overburden/bedrock well)

(1) Table 2 Site Condition Standards for All Types of Property Use and coarse textured soil.
(2) Contaminant not detected but laboratory MDL above Table 2 SCS

A discussion regarding the results of the QA/QC program is presented in Section 4.9.

The distribution of VOCs in groundwater is presented in plan view on Figures 12A, 12B and 12C and in cross section on Figures 17B, 18B, 19B and 20B.

4.7.2 *PHCs*

Six (6) groundwater samples, including one (1) QA/QC field duplicate, were analyzed for PHCs as part of this investigation. In addition, analytical data from six (6) groundwater samples including one (1) QA/QC field duplicate collected in January 2017 by S2S, was reviewed during the Phase Two ESA. The results of the analysis together with the applicable Table 2 SCS are presented in Table C2 in Appendix C.

Based on the analytical data, no exceedances of the Table 2 SCS were identified for PHCs. The laboratory RDLs were below the Table 2 SCS.

The locations of the groundwater samples analyzed for PHCs are presented in plan view on Figure 13.

4.7.3 *Metals and Inorganics*

Two (2) groundwater samples were analyzed for metals and chloride, and two (2) groundwater samples were analyzed for sodium and chloride as part of this investigation. In addition, analytical data from six (6) groundwater samples including one (1) QA/QC field duplicate collected in January 2017 by S2S, were reviewed during the Phase Two ESA. The results of the analysis together with the applicable Table 2 SCS are presented in Table C3 in Appendix C.

Based on the analytical data, no exceedances of the Table 2 SCS were identified for metals (including sodium) and inorganics (including chloride). The laboratory RDLs were below the Table 2 SCS.

The locations of the groundwater samples analyzed for metals are presented in plan view on Figure 15, and the locations of groundwater samples analyzed for sodium and chloride are presented in plan view on Figure 16 and in cross section on Figures 17C and 20C.

4.8 Sediment Quality

As there were no surface water bodies on the Site, sediment sampling was not conducted.

4.9 Quality Assurance and Quality Control Results

As part of this Phase Two ESA, the following field duplicate soil samples were submitted for analysis:

- one (1) for metals and inorganics;
- one (1) for PHCs and BTEX and
- two (2) for VOCs.

The following field duplicate groundwater samples were submitted for analysis:

- one (1) for PHCs and BTEX and
- three (3) for VOCs.

The analytical sample results were quantitatively evaluated by calculating the relative percent difference (RPD) between the samples and their duplicates. Where the concentrations of the analyzed representative soil sample and the duplicate were not both greater than five times the laboratory RDL, RPDs could not be calculated. The results of the analyses where the concentrations were at least five times the laboratory RDL compared to the duplicate sample concentrations were within an acceptable degree of variance.

The laboratory quality assurance program included the analysis of laboratory duplicate (replicate) samples, method blanks, spiked blanks, spiked samples and samples of reference materials in accordance with the Analytical Protocol. These analytical results comprise portions of the Certificates of Analysis in Appendix D.

Two (2) laboratory-prepared trip spikes were transported in the field during the groundwater sampling program and re-analyzed for VOCs and/or PHCs. The percent recovery for the analytes within the trip spikes were within the statistical control, indicating that field sampling procedures did not contribute to the loss of volatile analytes.

Two (2) laboratory-prepared trip blanks were transported in the field during the groundwater sampling program and re-analyzed for VOCs and/or PHCs. PHCs and VOCs were not detected in the blanks indicating that the field sampling procedures did not contribute to the addition of target analytes.

The results of all QA/QC analysis provide confidence in the laboratory results obtained during this investigation.

4.10 Phase Two Conceptual Site Model

The Phase Two Conceptual Site Model is attached as Appendix A.

5. Summary and Conclusions

Based on the results of the subsurface investigation conducted at the Site, the following findings are presented:

1) The Phase Two ESA consisted of advancing a total sixteen (16) boreholes and the instrumentation of fifteen (15) of the boreholes with a groundwater monitoring well to investigate the chemical quality of soil in the areas of potential environmental concern identified in EXP's Phase One ESA. In addition, ten (10) existing groundwater monitoring wells were sampled and previously collected data deemed compliant with O.Reg. 153/04 were incorporated into this report.

2) The general stratigraphy at the Site, as revealed in boreholes advanced on Site, consists of asphalt or topsoil at the surface with a layer of sand and gravel fill material overlying native silty sand. The depth to bedrock, as noted in the subsurface investigations completed on Site to date, was noted to be between 4.8 and 5.8 m bgs. Bedrock consists of red shale of the Queenston formation, and was encountered to the maximum drilled depth of 15.2 m bgs.

3) Based on groundwater data collected from across the Site, the inferred groundwater flow direction in the overburden is considered to be to the south and the groundwater flow direction in the bedrock is considered to be to the southeast.

4) To assess the quality of soil and groundwater quality in the identified areas of environmental concern, selected soil and groundwater samples were submitted for analysis of PHCs including BTEX, VOCs, and metals and/or inorganics. Based on the reported analytical results, soil and groundwater exceeding the applicable Table 2 SCS was identified at the Site:

    a. Soil with elevated values of EC was identified in the western portion of the Site. Vertical delineation of the impacts was achieved at a maximum depth of 3.0 m bgs;

    b. Soil impacted with VOCs was identified in several boreholes in the eastern portion of the Site. Submission of vertical delineation soil samples for VOCs could not be completed as the samples exceeding the Table 2 SCS were collected just above the overburden/bedrock interface.

    c. Elevated concentrations of VOCs were identified in overburden wells located in the eastern portion of the Site and the majority of bedrock wells located across the Site. Vertical delineation of the VOCs in the 'worst-case' areas was not fully achieved at the maximum depth of the investigation (15.2 m bgs). Tetrachloroethylene was identified as the primary contaminant of concern.

Based on the results of the Phase Two ESA, the Site is not in compliance with the generic Table 2 SCS. The groundwater elevation and chemistry data suggest that the VOC impacts originate from an off-Site source to the north and the Site is in a flow-through scenario. A Risk Assessment is

recommended, as an alternative to remediation, to develop Site-specific risk-based criteria based on potential exposure pathways of the identified contaminants.

6. References

This study was conducted in general accordance with the applicable Regulations, Guidelines, Policies, Standards, Protocols and Objectives administered by the Ministry of the Environment and Climate Change. Specific reference is made to the following:

- "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario,*" Ministry of the Environment of Ontario, December 1996;
- *The Ontario Water Resources Act - R.R.O. 1990, Regulation 903 - Amended to O. Reg. 128/03*, August 2003;
- *"Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act,"* 2011;
- *"Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act,"* March 2004 (amended as of July 1, 2011);
- *Ontario Regulation 153/04 (made under the Environmental Protection Act), May 2004 (as amended by O. Reg. 511/09 and O. Reg. 179/11;*
- *Environmental Protection Act, R.S.O. 1990, Chapter E.19, as amended, September 2004;*
- *"Phase One Environmental Site Assessment, 2421 and 2431 New Street, Burlington, Ontario," EXP Services Inc., January 2018;*
- *"Limited Phase II Environmental Site Assessment, 2411, 2421, 2433 New Street, Burlington, Ontario"* S2S Environmental Inc., January 31, 2017; and
- *"Phase II Environmental Site Assessment, 2433 New Street, Burlington, Ontario"* Soil-Mat Engineers and Consultants Ltd., October 9, 2009.

7. General Limitations

The information presented in this report is based on a limited investigation designed to provide information to support an assessment of the current environmental conditions within the subject property. The conclusions and recommendations presented in this report reflect Site conditions existing at the time of the investigation (February 2018).

More specific information with respect to the conditions between samples, or the lateral and vertical extent of materials may become apparent during excavation operations. The interpretation of the borehole information must, therefore, be validated during any such excavation operations. Consequently, during the future development of the property, conditions not observed during this investigation may become apparent. Should this occur, EXP should be contacted to assess the situation, and the need for additional testing and reporting. EXP has qualified personnel to provide assistance in regards to any future geotechnical and environmental issues related to this property.

The environmental investigation was completed to address the intent of applicable provincial Regulations, Guidelines, Policies, Standards, Protocols and Objectives administered by the Ministry of Environment and Climate Change. It should also be noted that current environmental Regulations, Guidelines, Policies, Standards, Protocols and Objectives are subject to change, and such changes, when put into effect, could alter the conclusions and recommendations noted throughout this report. Achieving the study objectives stated in this report has required us to arrive at conclusions based upon the best information presently known to us. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to an acceptable level. Professional judgment was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions. Like all professional persons rendering advice we do not act as absolute insurers of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions.

Our undertaking at EXP, therefore, is to perform our work within limits prescribed by our clients, with the usual thoroughness and competence of the engineering profession. It is intended that the outcome of this investigation assist in reducing the client's risk associated with environmental impairment. Our work should not be considered 'risk mitigation'. No other warranty or representation, either expressed or implied, is included or intended in this report.

This report was prepared for the exclusive use of the TRG (New-Guelph) Inc. and may not be reproduced in whole or in part, without the prior written consent of EXP, or used or relied upon in whole or in part by other parties for any purposes whatsoever. Any use which a third party makes of this report, or any part thereof, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. EXP Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We trust this report is satisfactory for your purposes. Should you have any questions, please do not hesitate to contact this office.

Yours truly,

EXP Services Inc.

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Environmental Specialist
Earth and Environment

DRAFT

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Environmental Geoscientist
Earth and Environment

Figures



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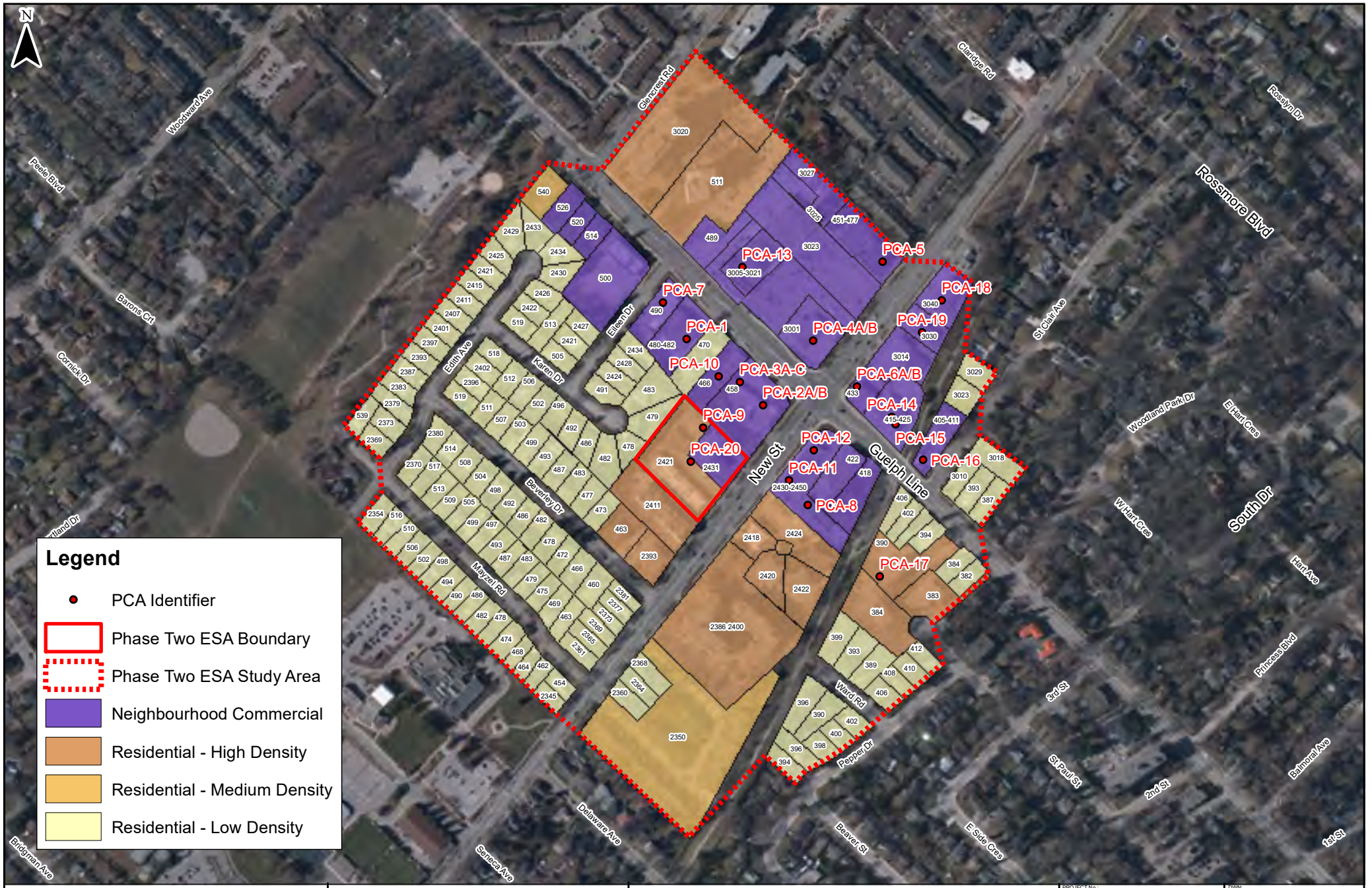
Phase Two ESA Boundary

0 150 300 450 600 750 m

TITLE AND LOCATION:

SITE LOCATION PLAN
Phase Two Environmental Site Assessment
2421 & 2431 New Street
Burlington, Ontario

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: OCTOBER 2017	FIG. No.: 1



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Data Source: Official Plan - Schedule B. City of Burlington, 2015.

TITLE AND LOCATION:

SURROUNDING LAND USE PLAN WITH POTENTIALLY CONTAMINATING ACTIVITIES (PCAs)

Phase Two Environmental Site Assessment
2421 & 2431 New Street
Burlington, Ontario

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: OCTOBER 2017	FIG. No.: 2



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0 8 16 24 32 40 m

TITLE AND LOCATION:

SITE PLAN AND
UNDERGROUND UTILITIES
Phase Two Environmental Site Assessment
2421 & 2431 New Street
Burlington, Ontario

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: DECEMBER 2017	FIG. No.: 3



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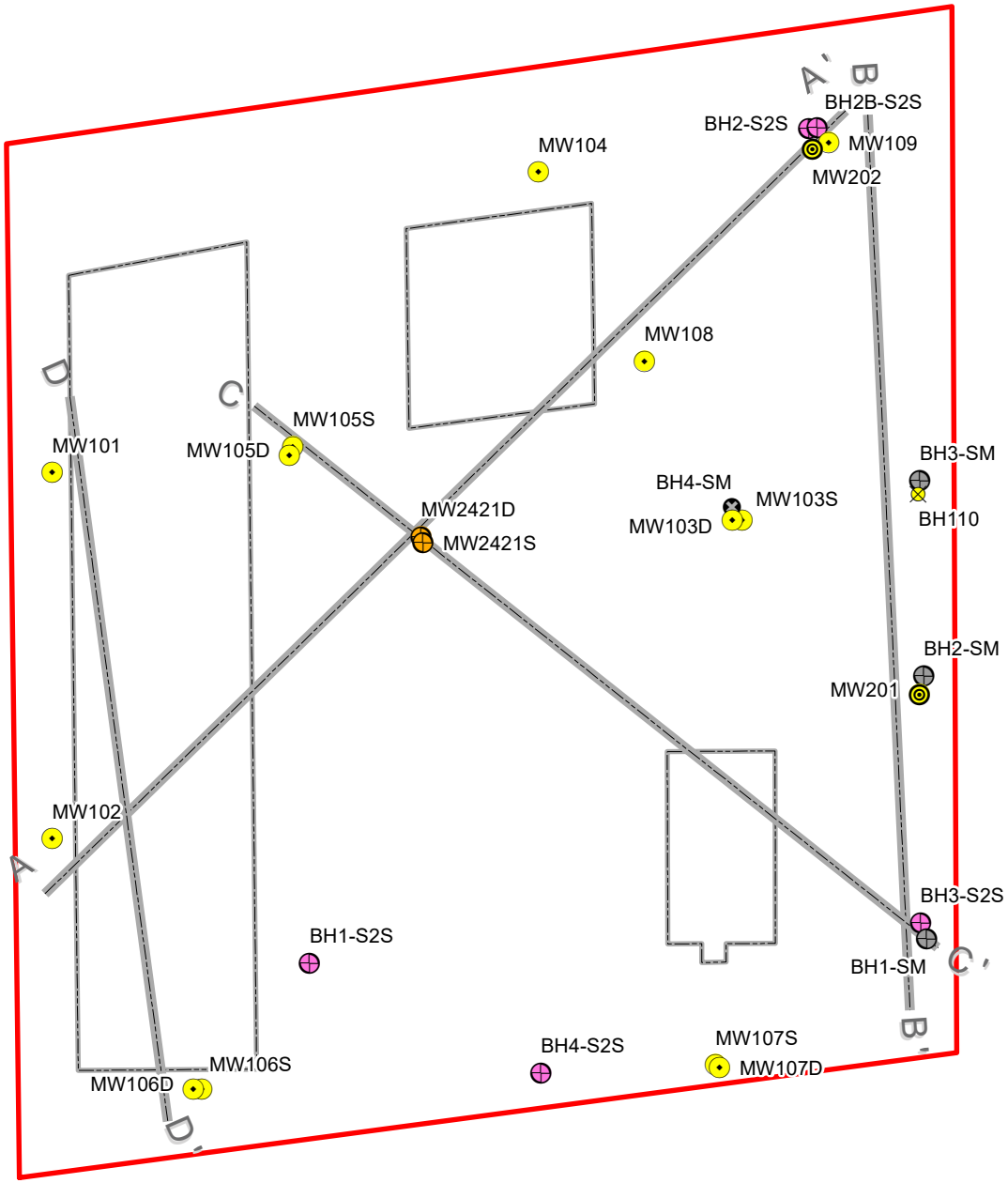
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• INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •

0 8 16 24 32 40 m

TITLE AND LOCATION:

AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APECs)
Phase Two Environmental Site Assessment
2421 & 2431 New Street
Burlington, Ontario

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: DECEMBER 2017	FIG. No.: 4



Legend

- Cross Section Axis
- Phase Two ESA Boundary
- Existing Building
- Borehole / Monitoring Well (SoilMat, 2009)
- Borehole / Monitoring Well (Terraprobe, 2011)
- Borehole / Monitoring Well (S2S, 2017)
- Borehole / Monitoring Well (EXP, 2017)
- Borehole / Monitoring Well (EXP, 2018)
- Borehole (SoilMat, 2009)
- Borehole (EXP, 2017)

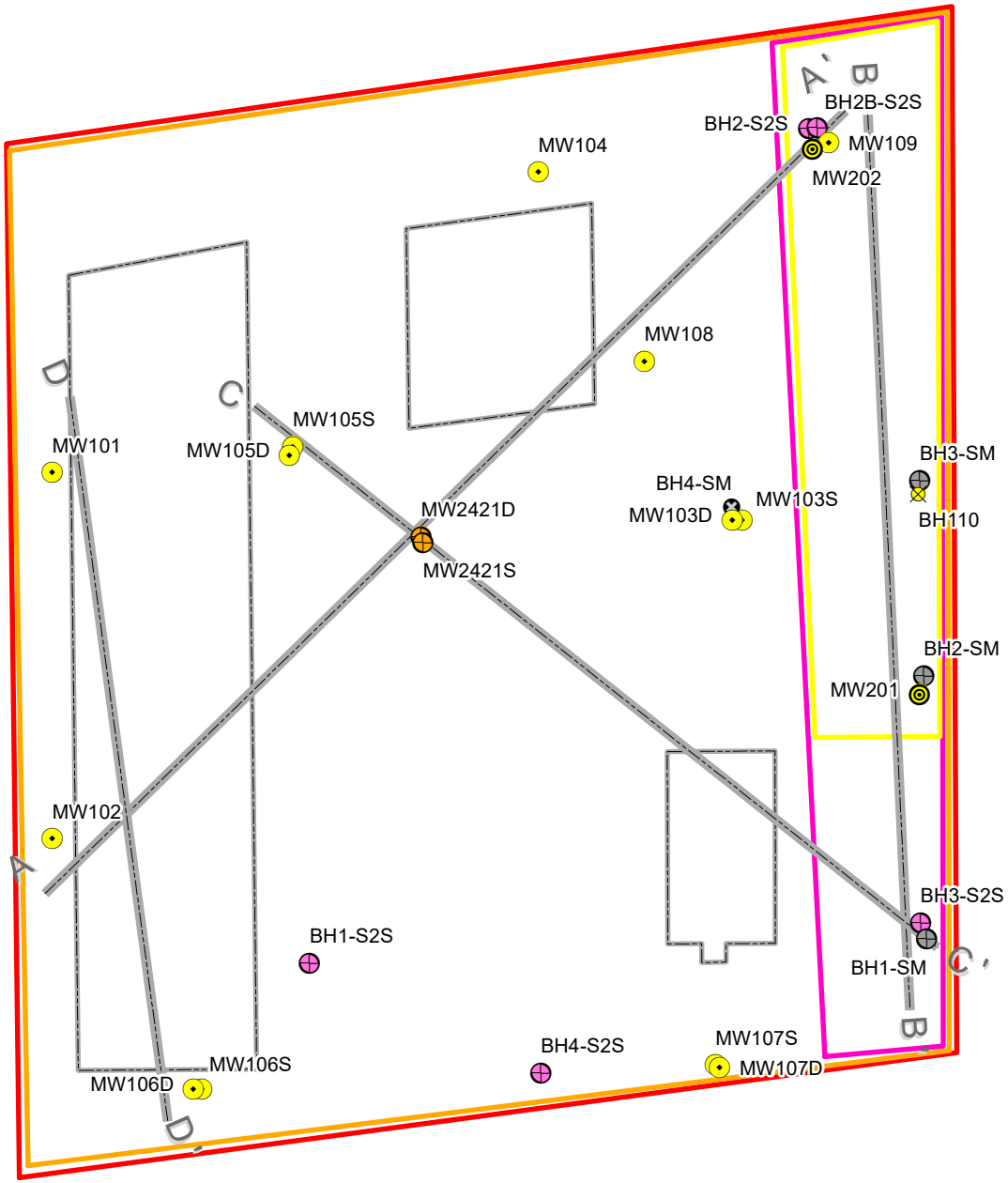
0 5 10 20 30 40 50 m

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PHASE TWO ESA
2421 AND 2431 NEW STREET
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DRAWING TITLE:
BOREHOLE LOCATION PLAN

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 5A



Legend

- Cross Section Axis
- Phase Two ESA Boundary
- APEC-1A-1B
- APEC-2A-2D
- APEC-3A-3B
- Existing Building
- Borehole / Monitoring Well (SoilMat, 2009)
- Borehole / Monitoring Well (Terraprobe, 2011)
- Borehole / Monitoring Well (S2S, 2017)
- Borehole / Monitoring Well (EXP, 2017)
- Borehole / Monitoring Well (EXP, 2018)
- Borehole (SoilMat, 2009)
- Borehole (EXP, 2017)

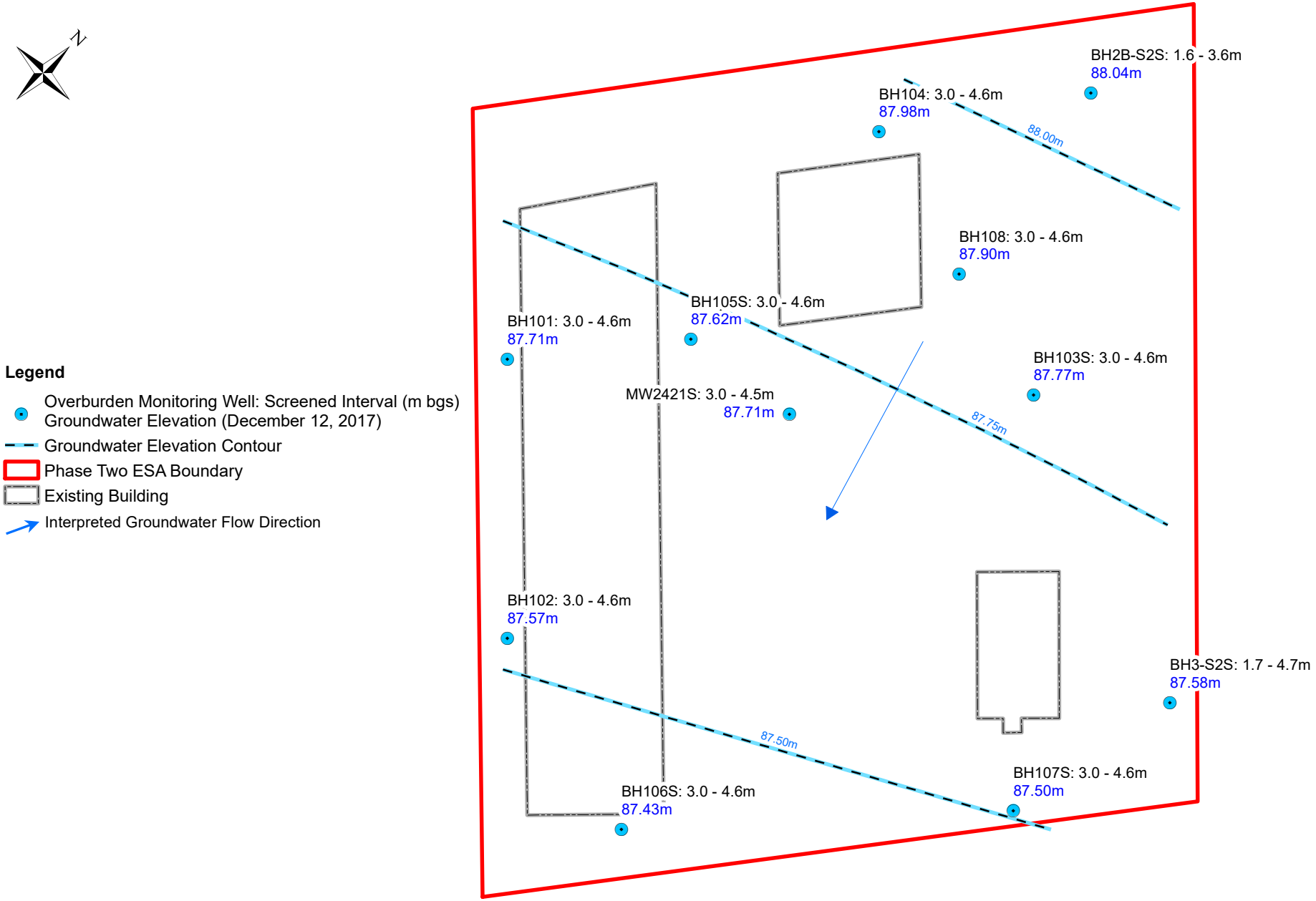
0 5 10 20 30 40 50 m

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PROJECT TITLE:
PHASE TWO ESA
2421 AND 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
BOREHOLE LOCATION PLAN
WITH AREAS OF POTENTIAL
ENVIRONMENTAL CONCERN

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 5B



Legend

- Overburden Monitoring Well: Screened Interval (m bgs) Groundwater Elevation (December 12, 2017)
- Groundwater Elevation Contour
- Phase Two ESA Boundary
- Existing Building
- Interpreted Groundwater Flow Direction

Notes:
Monitoring wells partially or fully screened in shale bedrock excluded from groundwater contour interpretation.

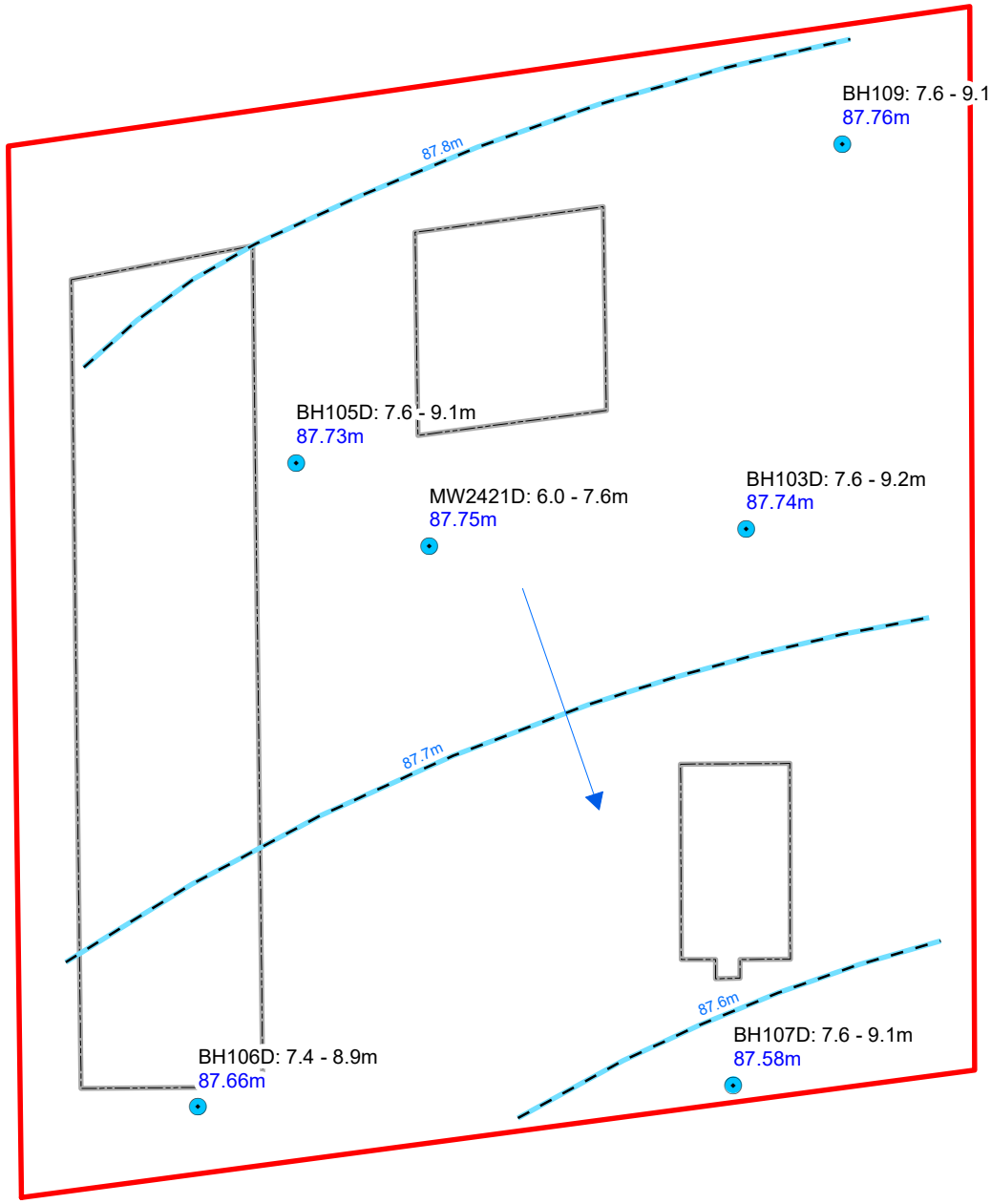
0 5 10 20 30 40 50 m

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PROJECT TITLE:
PHASE TWO ESA
2421 AND 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
INTERPRETED GROUNDWATER CONTOUR PLAN (OVERBURDEN WELLS)

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: DECEMBER 2017	FIG. No.: 6A



Legend

- Bedrock Monitoring Well: Screened Interval (m bgs) Groundwater Elevation (December 12, 2017)
- Groundwater Elevation Contour
- Phase Two ESA Boundary
- Existing Building
- Interpreted Groundwater Flow Direction

Notes:
Monitoring wells partially or fully screened in overburden excluded from groundwater contour interpretation.

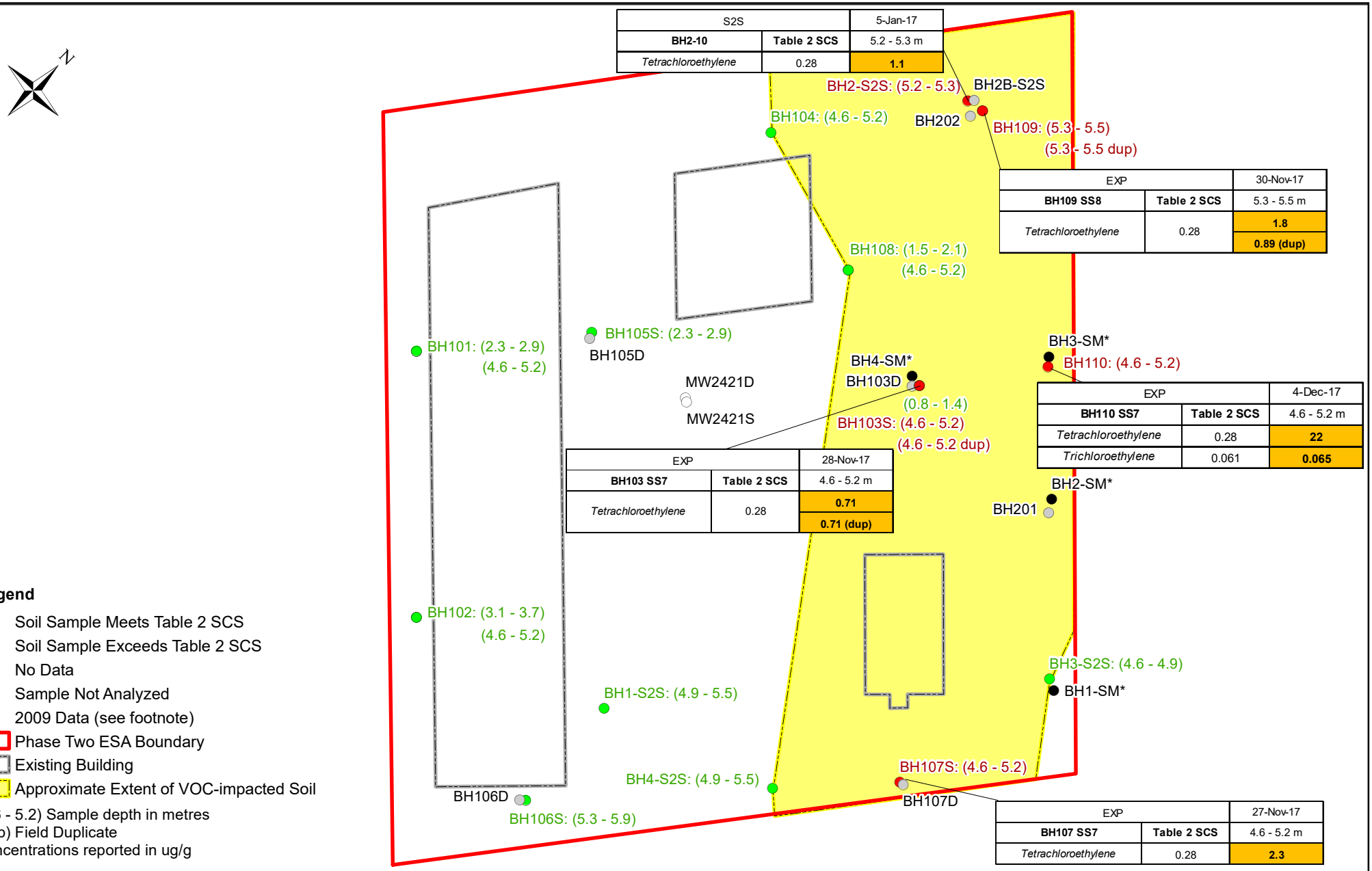
0 5 10 20 30 40 50 m

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PROJECT TITLE:
PHASE TWO ESA
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BURLINGTON, ONTARIO

DRAWING TITLE:
INTERPRETED GROUNDWATER CONTOUR PLAN (BEDROCK WELLS)

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: DECEMBER 2017	FIG. No.: 6B



Legend

- Soil Sample Meets Table 2 SCS
- Soil Sample Exceeds Table 2 SCS
- No Data
- Sample Not Analyzed
- 2009 Data (see footnote)
- Phase Two ESA Boundary
- Existing Building
- Approximate Extent of VOC-impacted Soil

(4.6 - 5.2) Sample depth in metres
(dup) Field Duplicate
Concentrations reported in ug/g

* Note: Soil data collected for VOCs in 2009 was not utilized given the change in sampling methodologies (field preservation) as per O.Reg. 511/09 which came into effect July 2011.

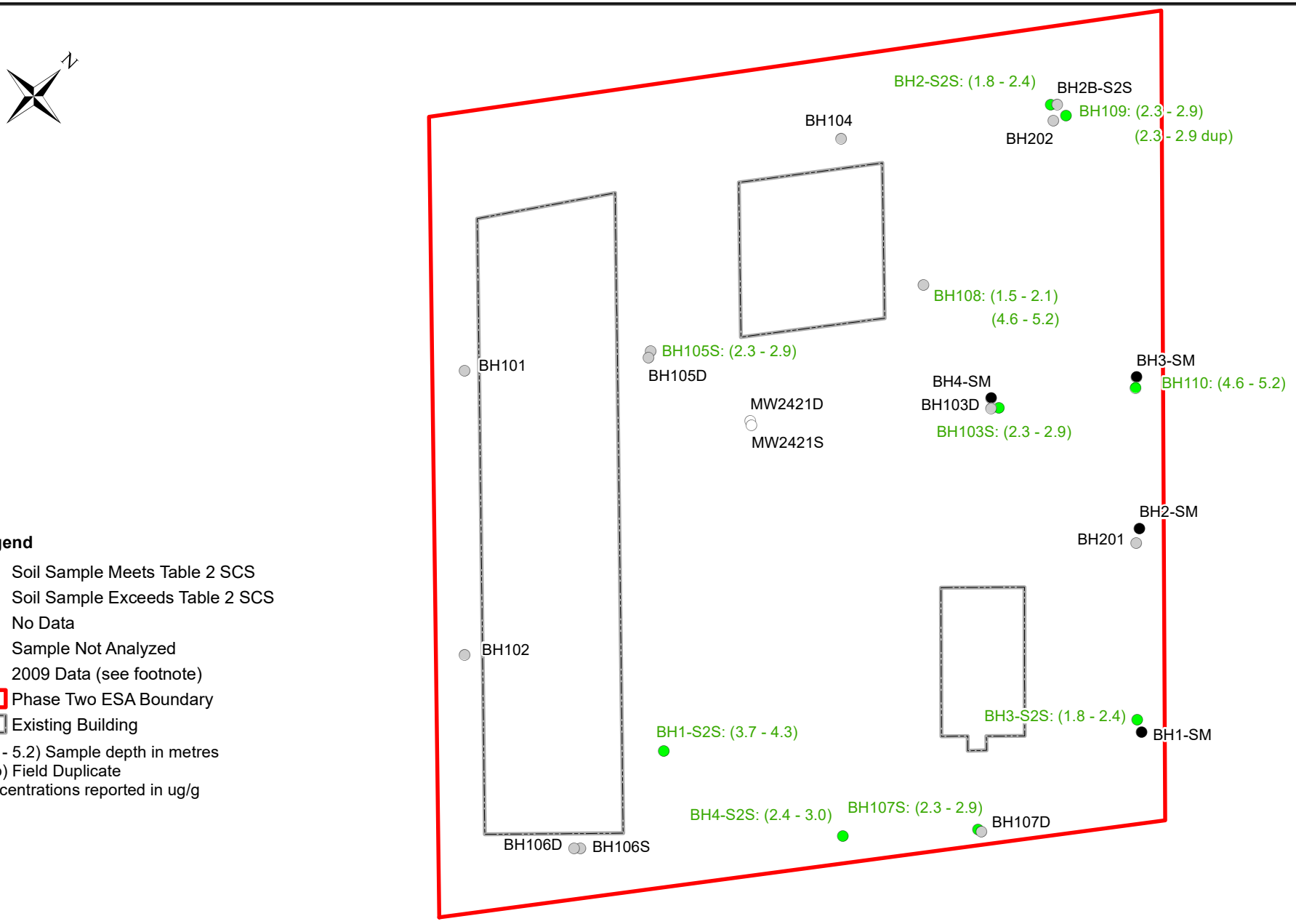
0 5 10 20 30 40 50 m

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PROJECT TITLE:
PHASE TWO ESA
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BURLINGTON, ONTARIO

DRAWING TITLE:
SUMMARY OF VOCs in SOIL

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 7



Legend

- Soil Sample Meets Table 2 SCS
- Soil Sample Exceeds Table 2 SCS
- No Data
- Sample Not Analyzed
- 2009 Data (see footnote)
- Phase Two ESA Boundary
- Existing Building

(4.6 - 5.2) Sample depth in metres
(dup) Field Duplicate
Concentrations reported in ug/g

* Note: Soil data collected for PHCs in 2009 was not utilized given the change in sampling methodologies (field preservation) as per O.Reg. 511/09 which came into effect July 2011.

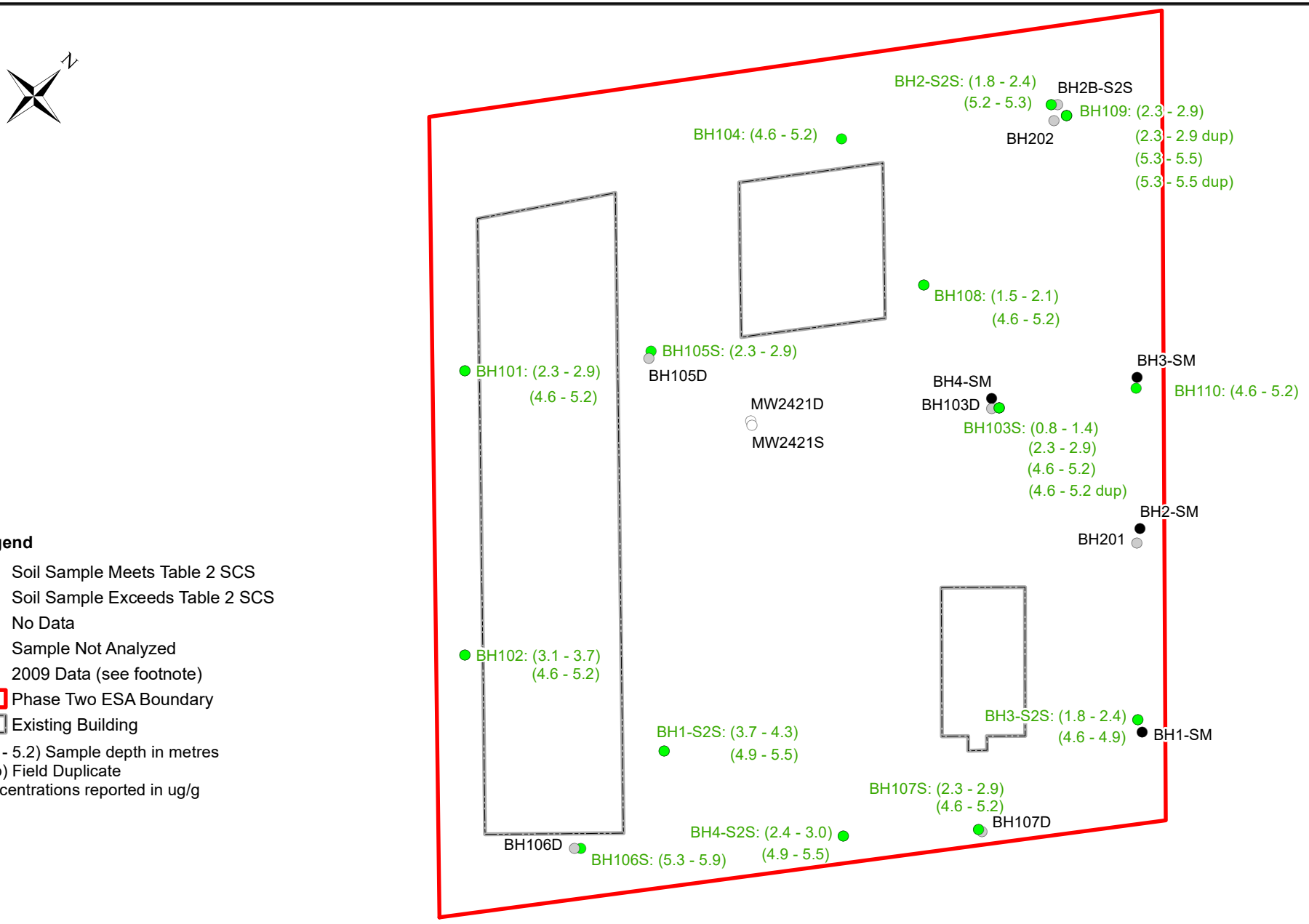
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BURLINGTON, ONTARIO

DRAWING TITLE:
SUMMARY OF PHCs in SOIL

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 8



Legend

- Soil Sample Meets Table 2 SCS
- Soil Sample Exceeds Table 2 SCS
- No Data
- Sample Not Analyzed
- 2009 Data (see footnote)
- Phase Two ESA Boundary
- Existing Building

(4.6 - 5.2) Sample depth in metres
(dup) Field Duplicate
Concentrations reported in ug/g

* Note: Soil data collected for BTEX in 2009 was not utilized given the change in sampling methodologies (field preservation) as per O.Reg. 511/09 which came into effect July 2011.

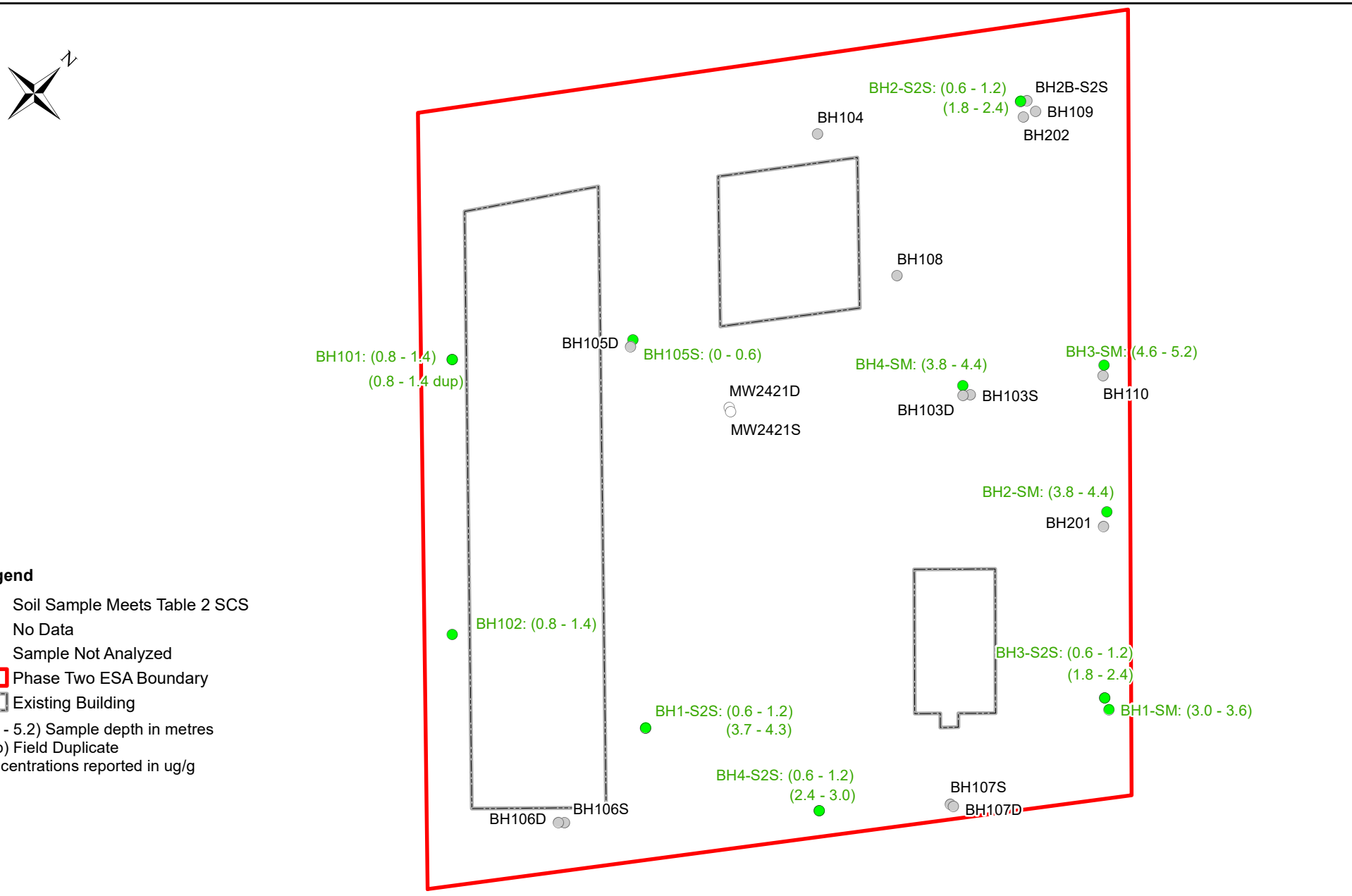
0 5 10 20 30 40 50 m

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PROJECT TITLE:
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DRAWING TITLE:
SUMMARY OF BTEX in SOIL

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 9

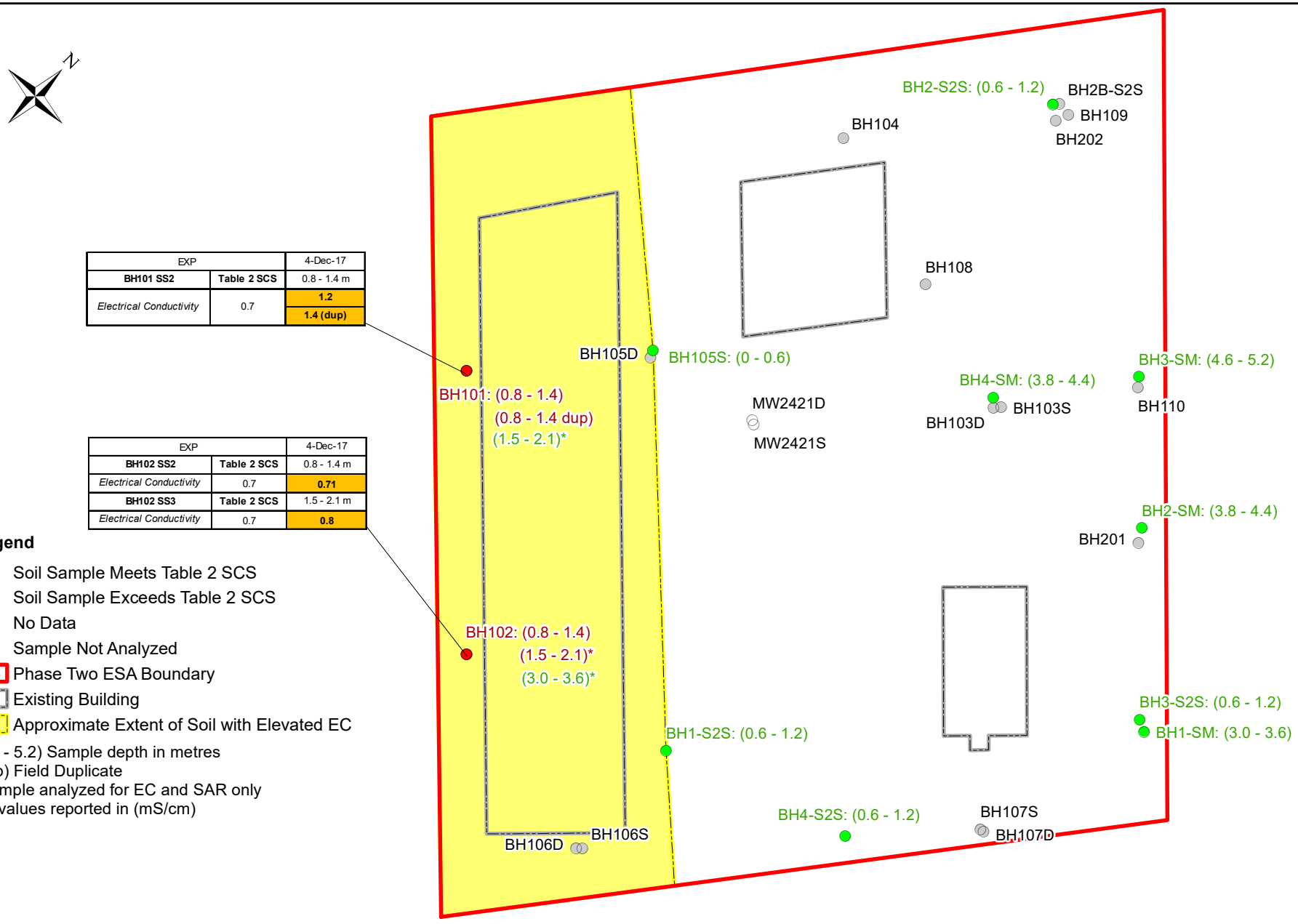


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PROJECT TITLE:
PHASE TWO ESA
2421 AND 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
SUMMARY OF METALs in SOIL

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 10



EXP		4-Dec-17
BH101 SS2	**Table 2 SCS**	0.8 - 1.4 m
Electrical Conductivity	0.7	**1.2**
		1.4 (dup)

EXP		4-Dec-17
BH102 SS2	**Table 2 SCS**	0.8 - 1.4 m
Electrical Conductivity	0.7	**0.71**
BH102 SS3	**Table 2 SCS**	1.5 - 2.1 m
Electrical Conductivity	0.7	**0.8**

Legend

- Soil Sample Meets Table 2 SCS
- Soil Sample Exceeds Table 2 SCS
- No Data
- Sample Not Analyzed
- Phase Two ESA Boundary
- Existing Building
- Approximate Extent of Soil with Elevated EC

(4.6 - 5.2) Sample depth in metres
(dup) Field Duplicate
* sample analyzed for EC and SAR only
EC values reported in (mS/cm)

Note:
Inorganics include Electrical Conductivity (EC), Sodium Adsorption Ratio (SAR) and Free Cyanide

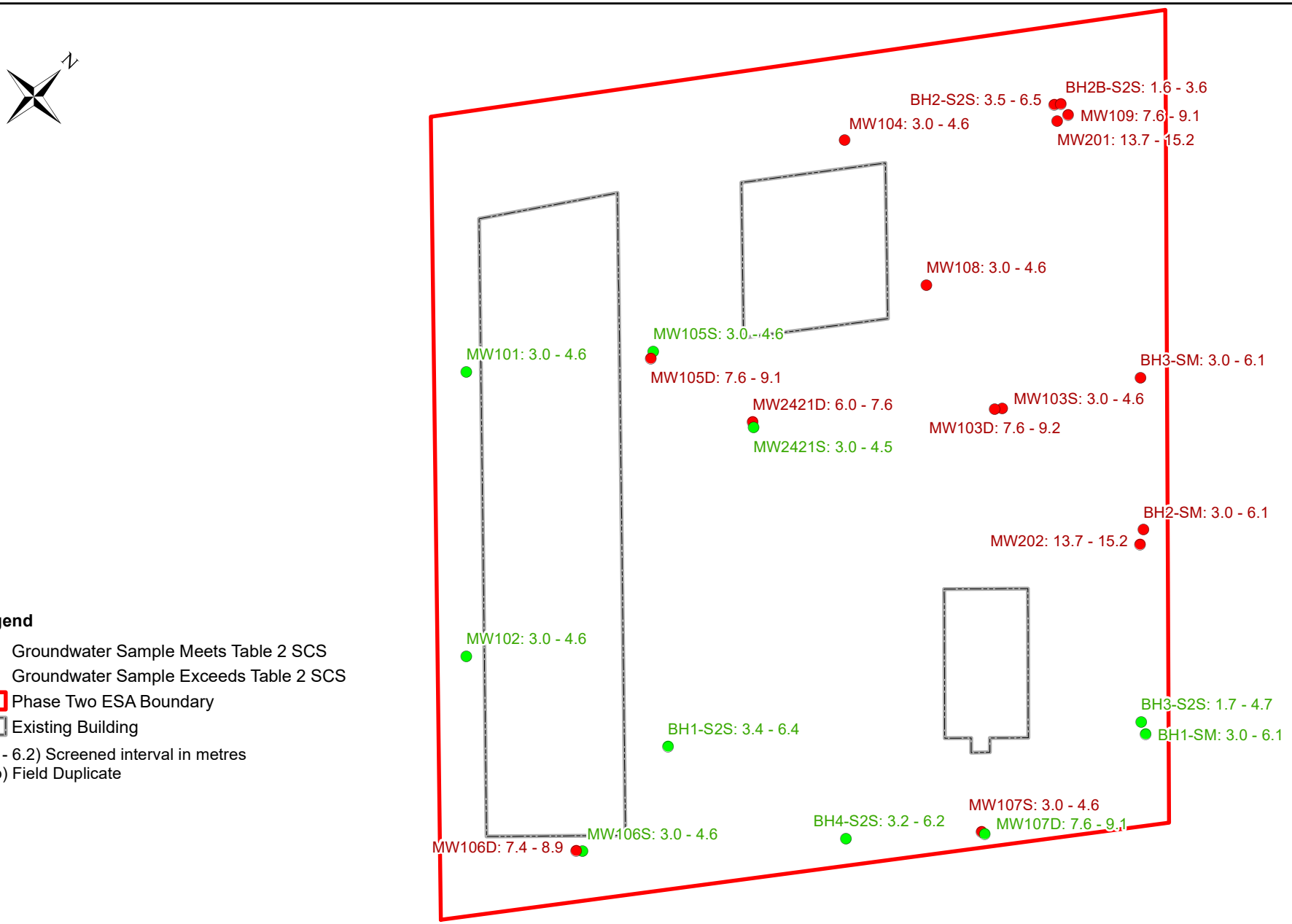
0 5 10 20 30 40 50 m

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PROJECT TITLE:
PHASE TWO ESA
2421 AND 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
SUMMARY OF
INORGANICS in SOIL

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 11



Legend

- Groundwater Sample Meets Table 2 SCS
- Groundwater Sample Exceeds Table 2 SCS
- Phase Two ESA Boundary
- Existing Building

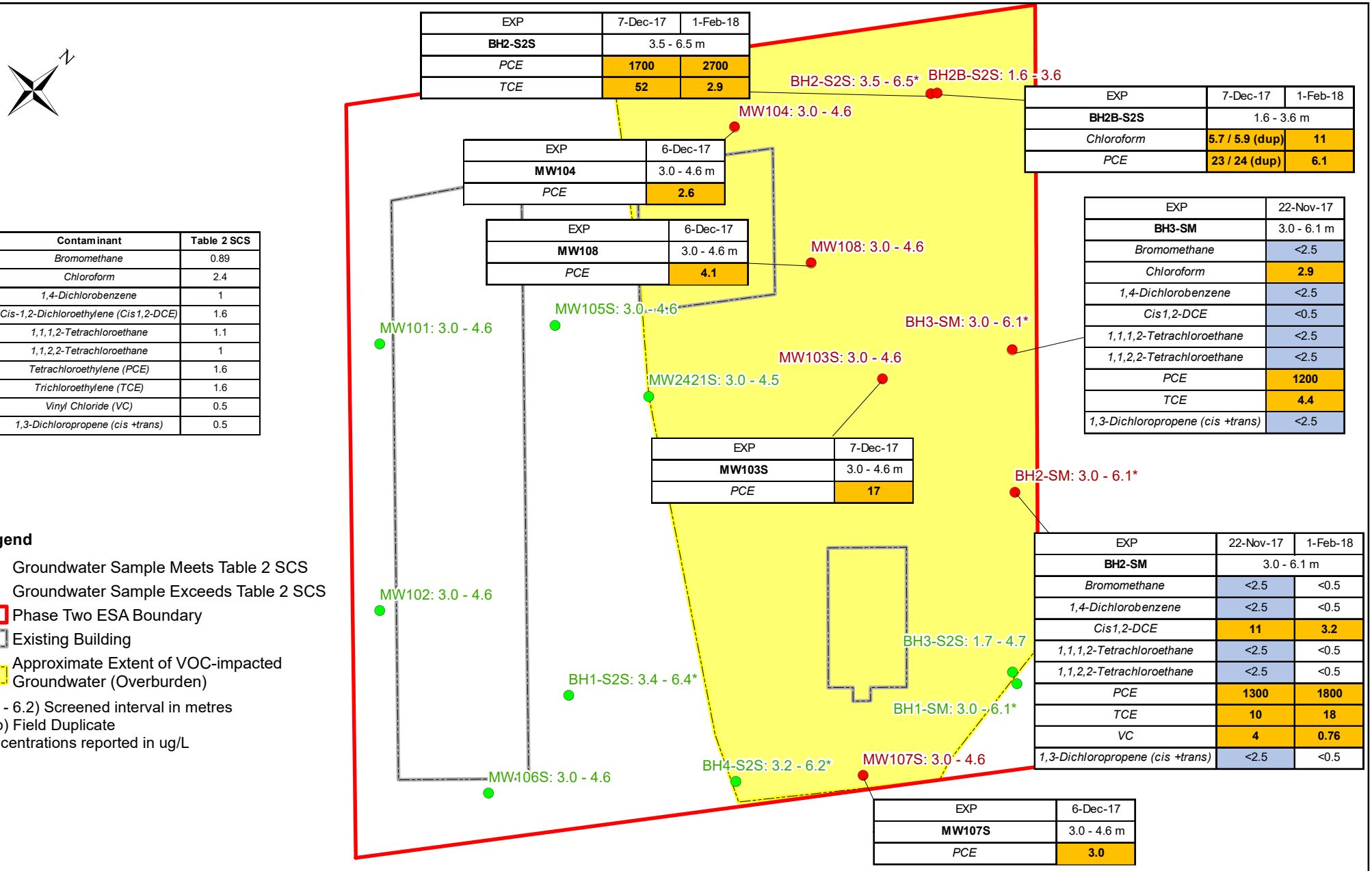
(3.2 - 6.2) Screened interval in metres
(dup) Field Duplicate

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PROJECT TITLE:
PHASE TWO ESA
2421 AND 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
SUMMARY OF VOCs
in GROUNDWATER

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 12A



EXP	7-Dec-17	1-Feb-18
BH2-S2S	3.5 - 6.5 m	
PCE	**1700**	**2700**
TCE	**52**	**2.9**

EXP	7-Dec-17	1-Feb-18
BH2B-S2S	1.6 - 3.6 m	
Chloroform	**5.7 / 5.9 (dup)**	**11**
PCE	**23 / 24 (dup)**	**6.1**

EXP	6-Dec-17
MW104	3.0 - 4.6 m
PCE	**2.6**

EXP	6-Dec-17
MW108	3.0 - 4.6 m
PCE	**4.1**

EXP	22-Nov-17
BH3-SM	3.0 - 6.1 m
Bromomethane	<2.5
Chloroform	**2.9**
1,4-Dichlorobenzene	<2.5
Cis1,2-DCE	<0.5
1,1,1,2-Tetrachloroethane	<2.5
1,1,2,2-Tetrachloroethane	<2.5
PCE	**1200**
TCE	**4.4**
1,3-Dichloropropene (cis +trans)	<2.5

EXP	7-Dec-17
MW103S	3.0 - 4.6 m
PCE	**17**

EXP	22-Nov-17	1-Feb-18
BH2-SM	3.0 - 6.1 m	
Bromomethane	<2.5	<0.5
1,4-Dichlorobenzene	<2.5	<0.5
Cis1,2-DCE	**11**	**3.2**
1,1,1,2-Tetrachloroethane	<2.5	<0.5
1,1,2,2-Tetrachloroethane	<2.5	<0.5
PCE	**1300**	**1800**
TCE	**10**	**18**
VC	**4**	**0.76**
1,3-Dichloropropene (cis +trans)	<2.5	<0.5

EXP	6-Dec-17
MW107S	3.0 - 4.6 m
PCE	**3.0**

Contaminant	Table 2 SCS
Bromomethane	0.89
Chloroform	2.4
1,4-Dichlorobenzene	1
Cis-1,2-Dichloroethylene (Cis1,2-DCE)	1.6
1,1,1,2-Tetrachloroethane	1.1
1,1,2,2-Tetrachloroethane	1
Tetrachloroethylene (PCE)	1.6
Trichloroethylene (TCE)	1.6
Vinyl Chloride (VC)	0.5
1,3-Dichloropropene (cis +trans)	0.5

Legend

- Groundwater Sample Meets Table 2 SCS
- Groundwater Sample Exceeds Table 2 SCS
- Phase Two ESA Boundary
- Existing Building
- Approximate Extent of VOC-impacted Groundwater (Overburden)

(3.2 - 6.2) Screened interval in metres
(dup) Field Duplicate
Concentrations reported in ug/L

Note:
* well partially screened in weathered bedrock

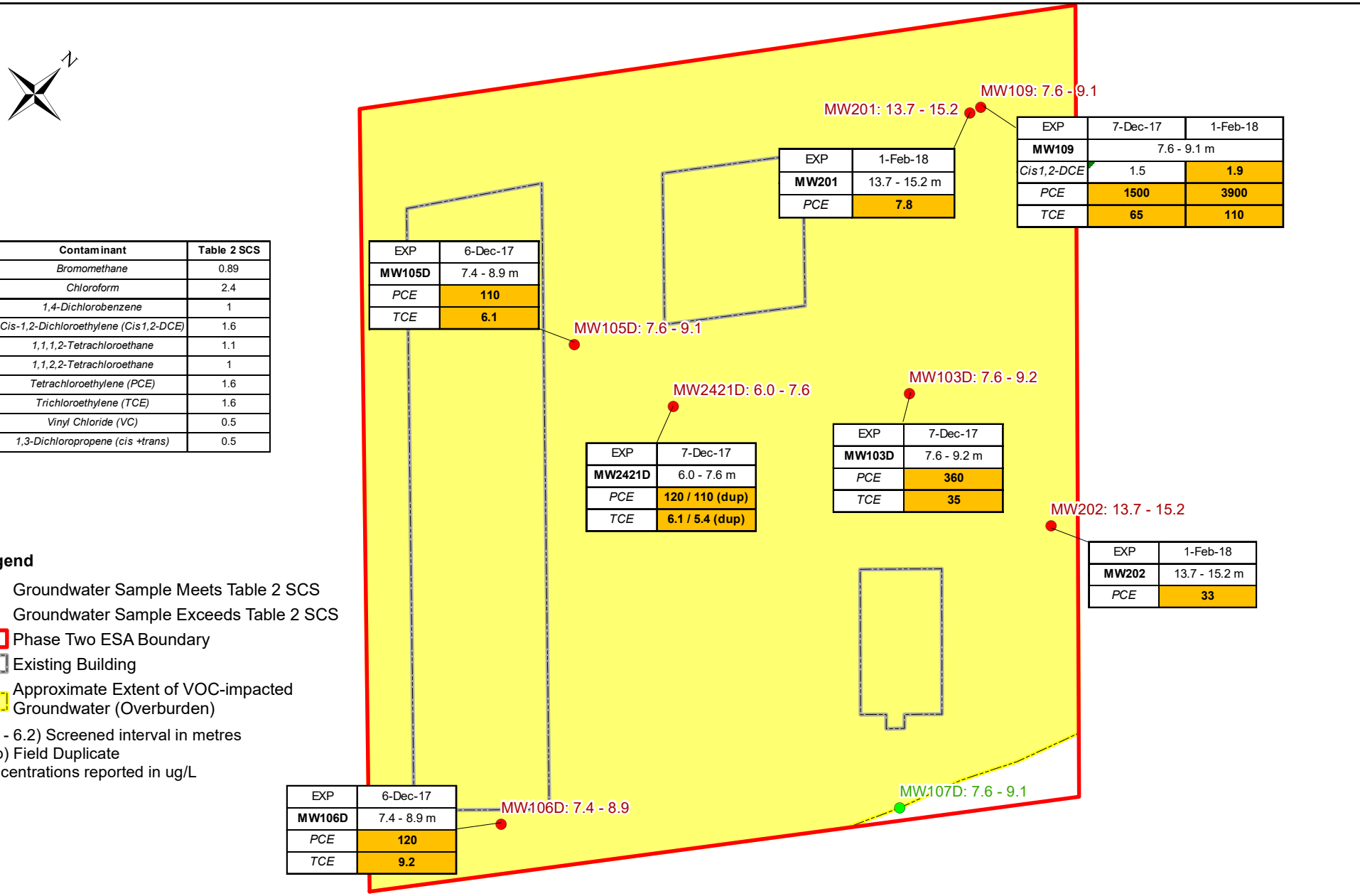
0 5 10 20 30 40 50 m

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PROJECT TITLE:
PHASE TWO ESA
2421 AND 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
SUMMARY OF VOCs
in GROUNDWATER
(OVERBURDEN WELLS)

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 12B



Contaminant	Table 2 SCS
Bromomethane	0.89
Chloroform	2.4
1,4-Dichlorobenzene	1
Cis-1,2-Dichloroethylene (Cis1,2-DCE)	1.6
1,1,1,2-Tetrachloroethane	1.1
1,1,2,2-Tetrachloroethane	1
Tetrachloroethylene (PCE)	1.6
Trichloroethylene (TCE)	1.6
Vinyl Chloride (VC)	0.5
1,3-Dichloropropene (cis +trans)	0.5

EXP	7-Dec-17	1-Feb-18
MW109	7.6 - 9.1 m	
Cis1,2-DCE	1.5	**1.9**
PCE	**1500**	**3900**
TCE	**65**	**110**

EXP	1-Feb-18
MW201	13.7 - 15.2 m
PCE	**7.8**

EXP	6-Dec-17
MW105D	7.4 - 8.9 m
PCE	**110**
TCE	**6.1**

EXP	7-Dec-17
MW2421D	6.0 - 7.6 m
PCE	**120 / 110 (dup)**
TCE	**6.1 / 5.4 (dup)**

EXP	7-Dec-17
MW103D	7.6 - 9.2 m
PCE	**360**
TCE	**35**

EXP	1-Feb-18
MW202	13.7 - 15.2 m
PCE	**33**

EXP	6-Dec-17
MW106D	7.4 - 8.9 m
PCE	**120**
TCE	**9.2**

Legend

- Groundwater Sample Meets Table 2 SCS
- Groundwater Sample Exceeds Table 2 SCS
- Phase Two ESA Boundary
- Existing Building
- Approximate Extent of VOC-impacted Groundwater (Overburden)

(3.2 - 6.2) Screened interval in metres
(dup) Field Duplicate
Concentrations reported in ug/L

Note:
Refer to Figure 12B for wells partially screened in weathered bedrock.

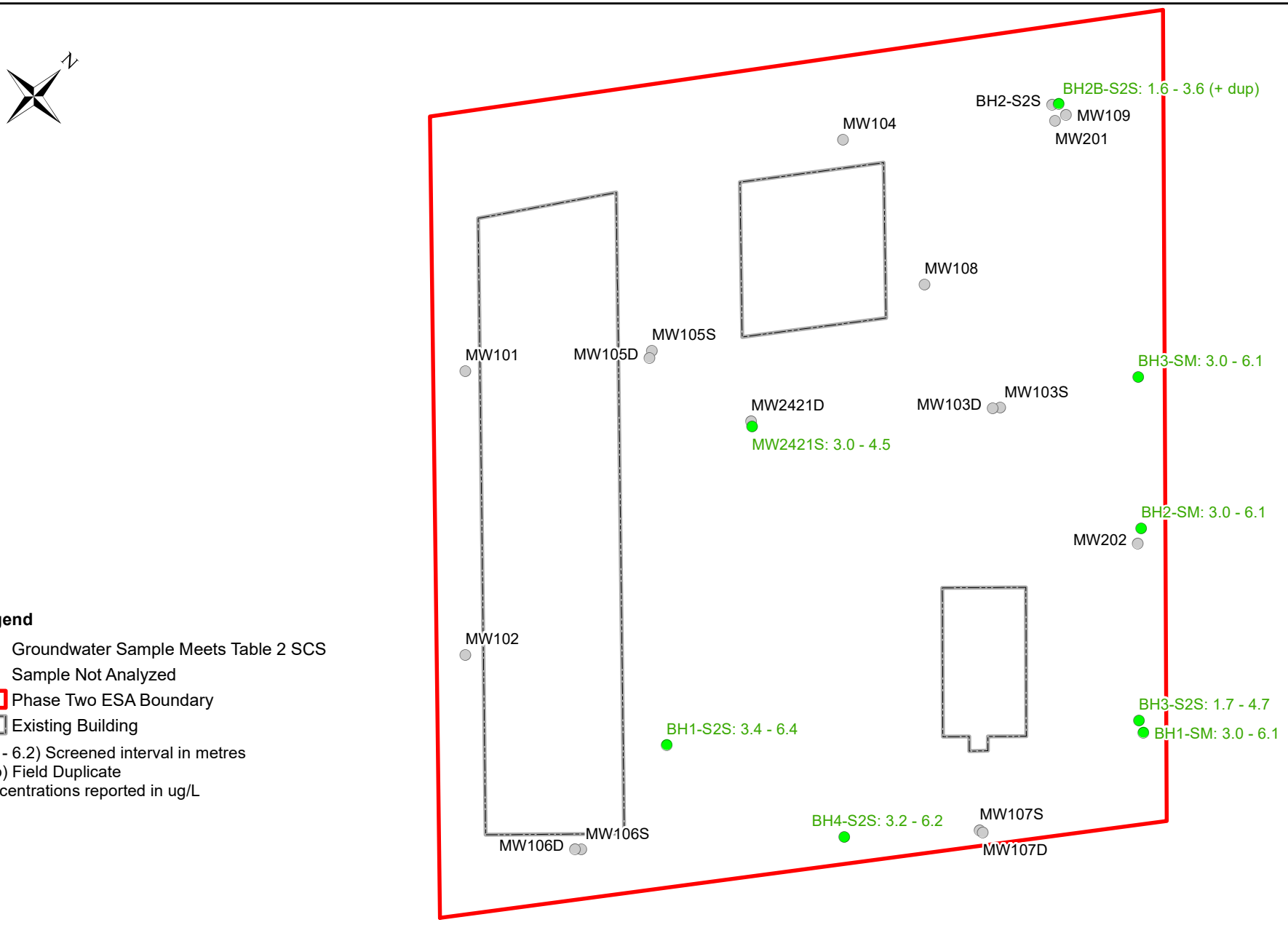
0 5 10 20 30 40 50 m

EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

PROJECT TITLE:
PHASE TWO ESA
2421 AND 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
SUMMARY OF VOCs
in GROUNDWATER
(BEDROCK WELLS)

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 12C



Legend

- Groundwater Sample Meets Table 2 SCS
- Sample Not Analyzed
- Phase Two ESA Boundary
- Existing Building

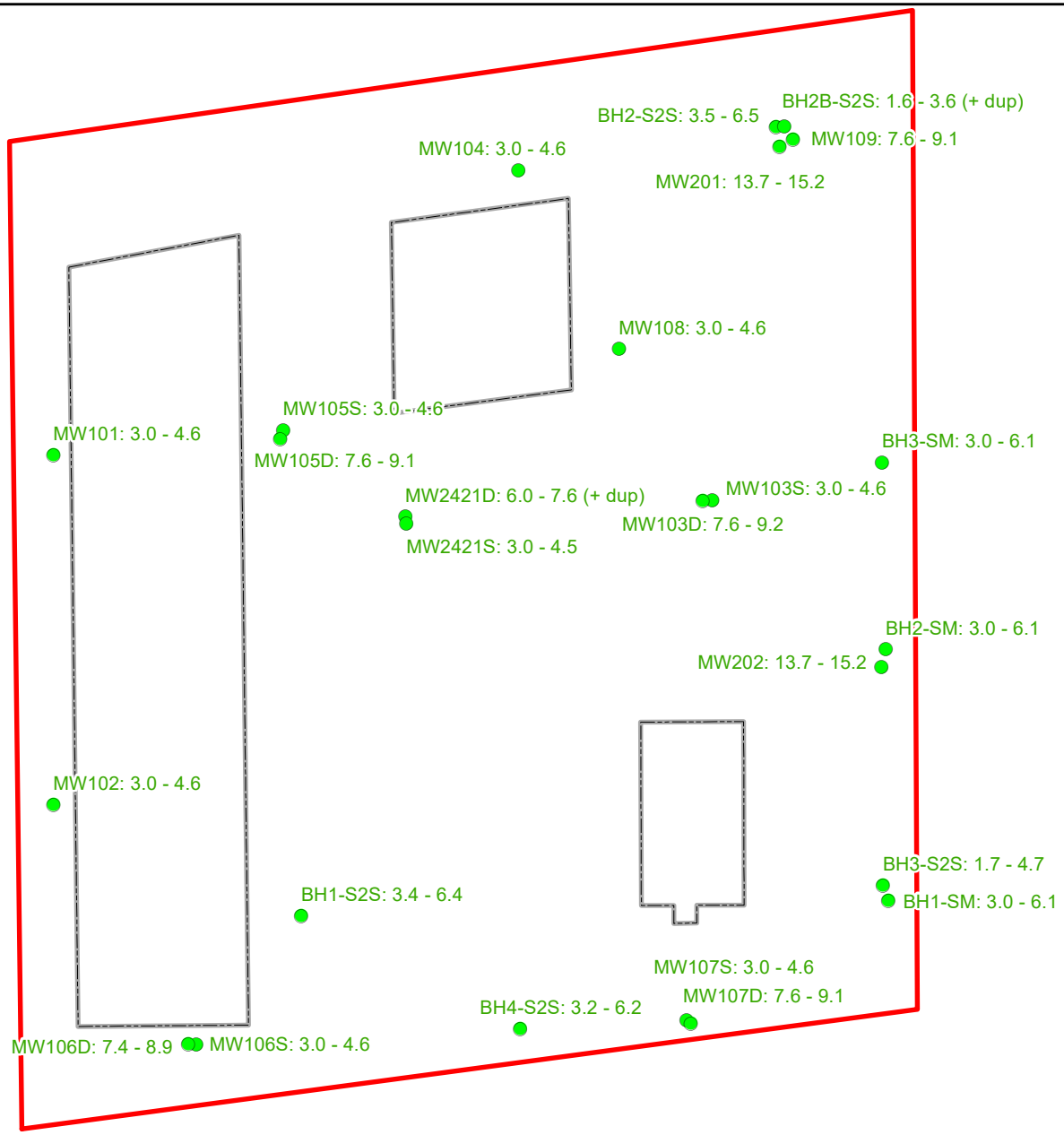
(3.2 - 6.2) Screened interval in metres
(dup) Field Duplicate
Concentrations reported in ug/L

EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

PROJECT TITLE:
PHASE TWO ESA
2421 AND 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
SUMMARY OF PHCs
in GROUNDWATER

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 13



Legend

- Groundwater Sample Meets Table 2 SCS
- Phase Two ESA Boundary
- Existing Building

(3.2 - 6.2) Screened interval in metres
(dup) Field Duplicate
Concentrations reported in ug/L

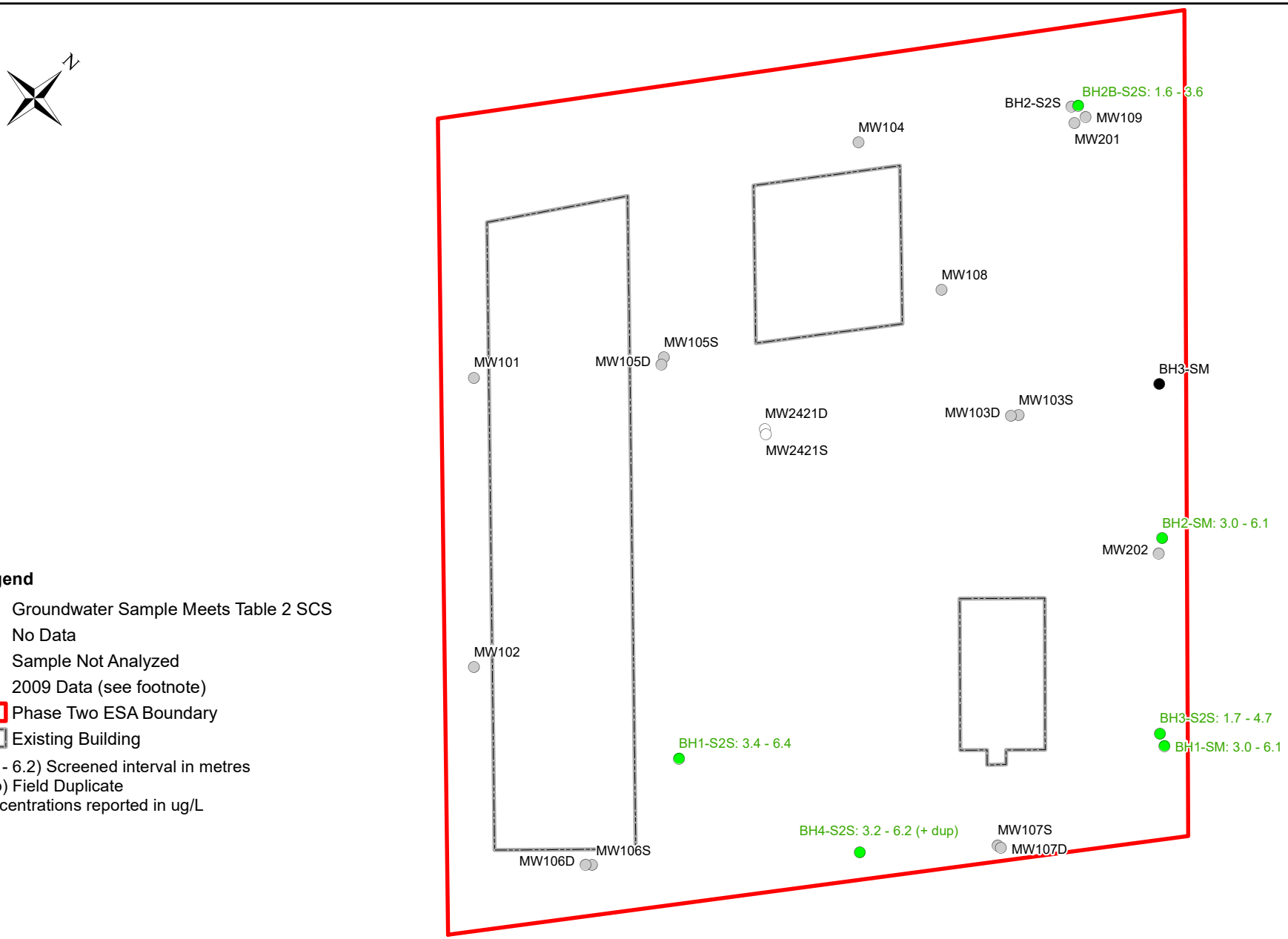
0 5 10 20 30 40 50 m

EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

PROJECT TITLE:
PHASE TWO ESA
2421 AND 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
SUMMARY OF BTEX
in GROUNDWATER

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 14



Legend

- Groundwater Sample Meets Table 2 SCS
- No Data
- Sample Not Analyzed
- 2009 Data (see footnote)
- Phase Two ESA Boundary
- Existing Building

(3.2 - 6.2) Screened interval in metres
(dup) Field Duplicate
Concentrations reported in ug/L

*Note: The 2009 Soil-Mat data does not appear to meet the minimum requirements of O.Reg.153/04 (as amended). As such, the data is deemed unreliable.

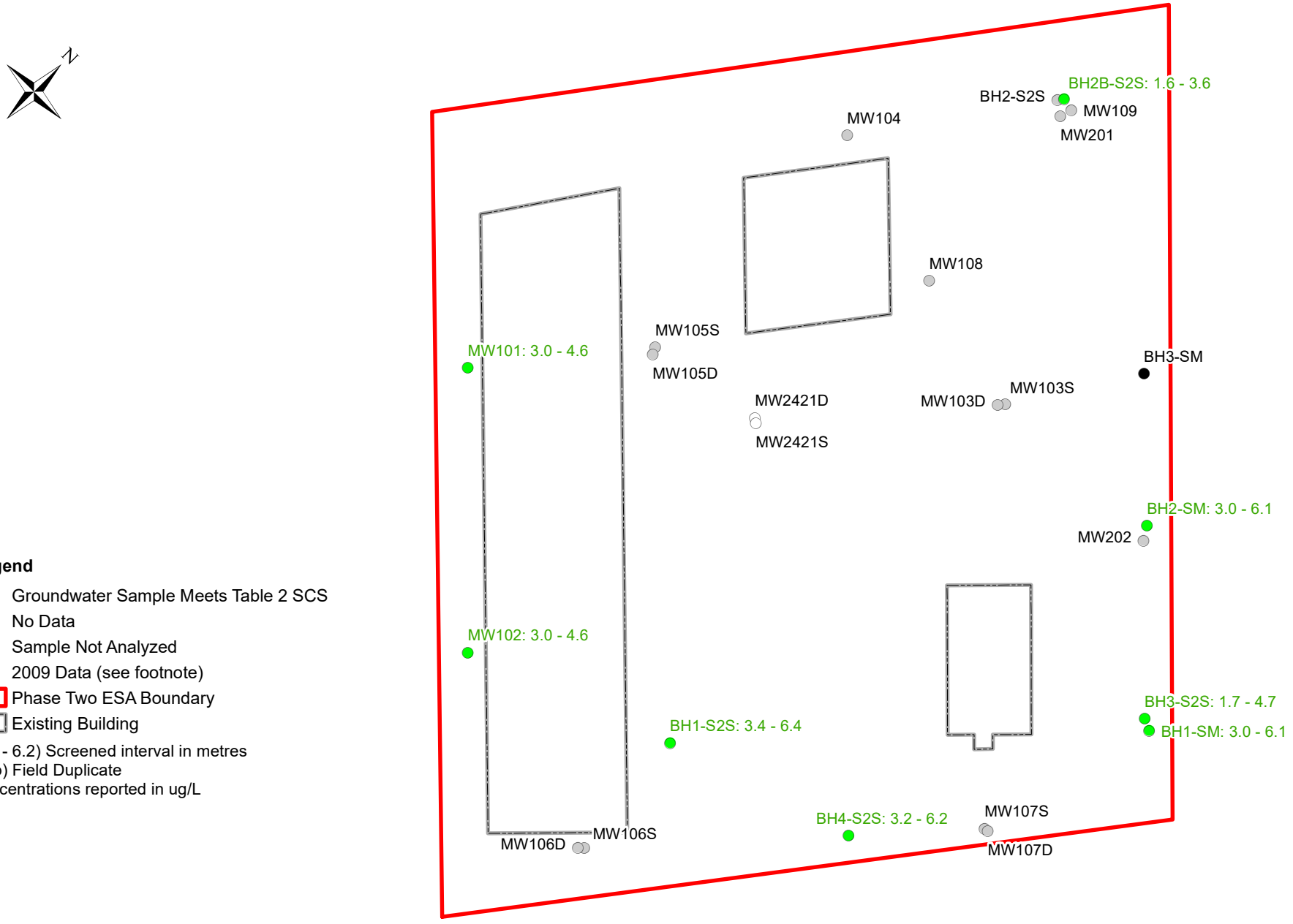
0 5 10 20 30 40 50 m

EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

PROJECT TITLE:
PHASE TWO ESA
2421 AND 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
SUMMARY OF METALs in GROUNDWATER

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 15



Legend

- Groundwater Sample Meets Table 2 SCS
- No Data
- Sample Not Analyzed
- 2009 Data (see footnote)
- Phase Two ESA Boundary
- Existing Building

(3.2 - 6.2) Screened interval in metres
(dup) Field Duplicate
Concentrations reported in ug/L

*Note: The 2009 Soil-Mat data does not appear to meet the minimum requirements of O.Reg.153/04 (as amended). As such, the data is deemed unreliable.

0 5 10 20 30 40 50 m

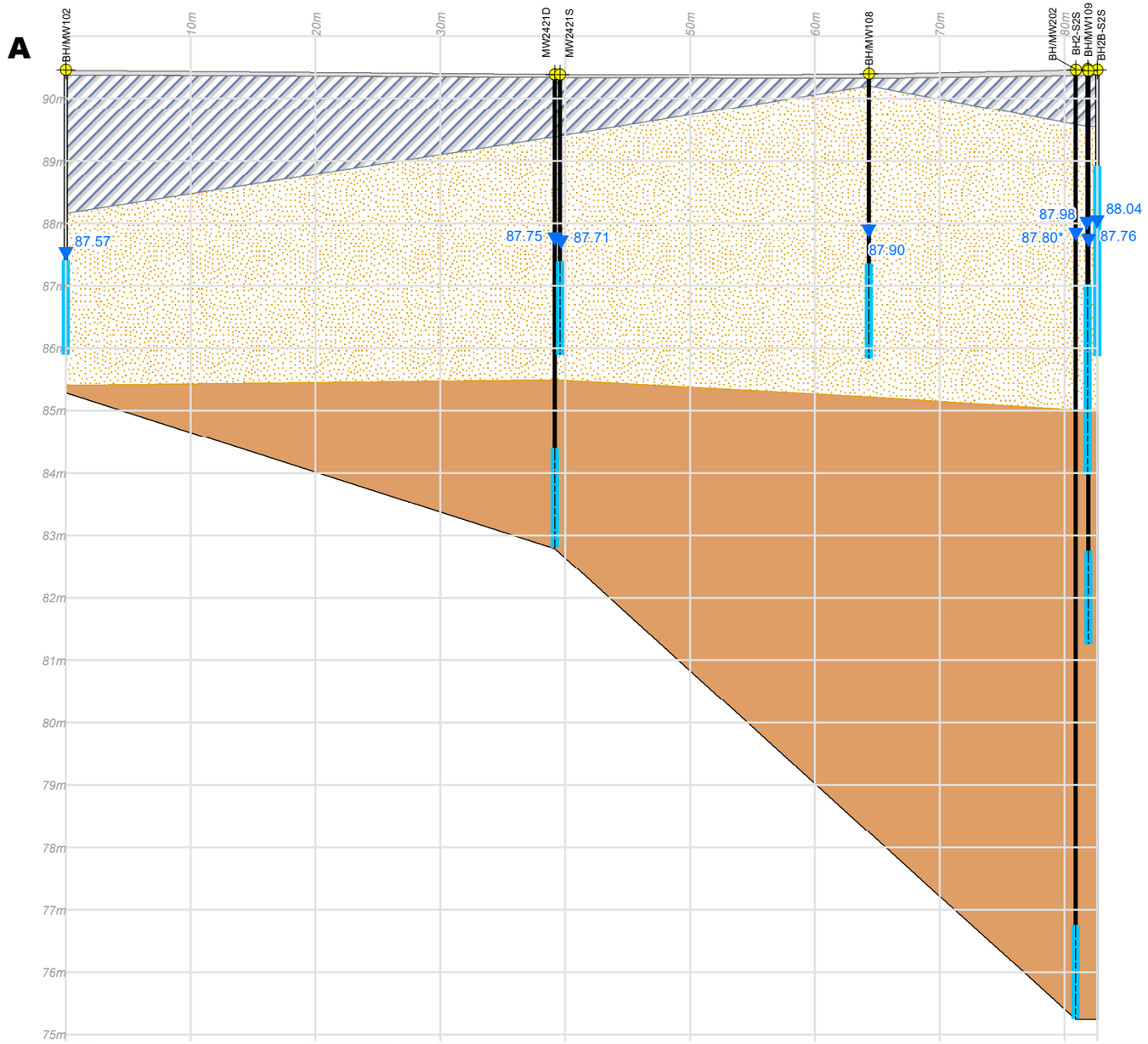
EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

PROJECT TITLE:
PHASE TWO ESA
2421 AND 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
SUMMARY OF SODIUM and CHLORIDE in GROUNDWATER

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 16

LITHOLOGY



Note:
* Groundwater elevations as measured on December 12, 2017 with the exception of MW202 which was measured on February 1, 2018.

EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

Monitoring Well
- Riser
- Screen
- Groundwater Elevation

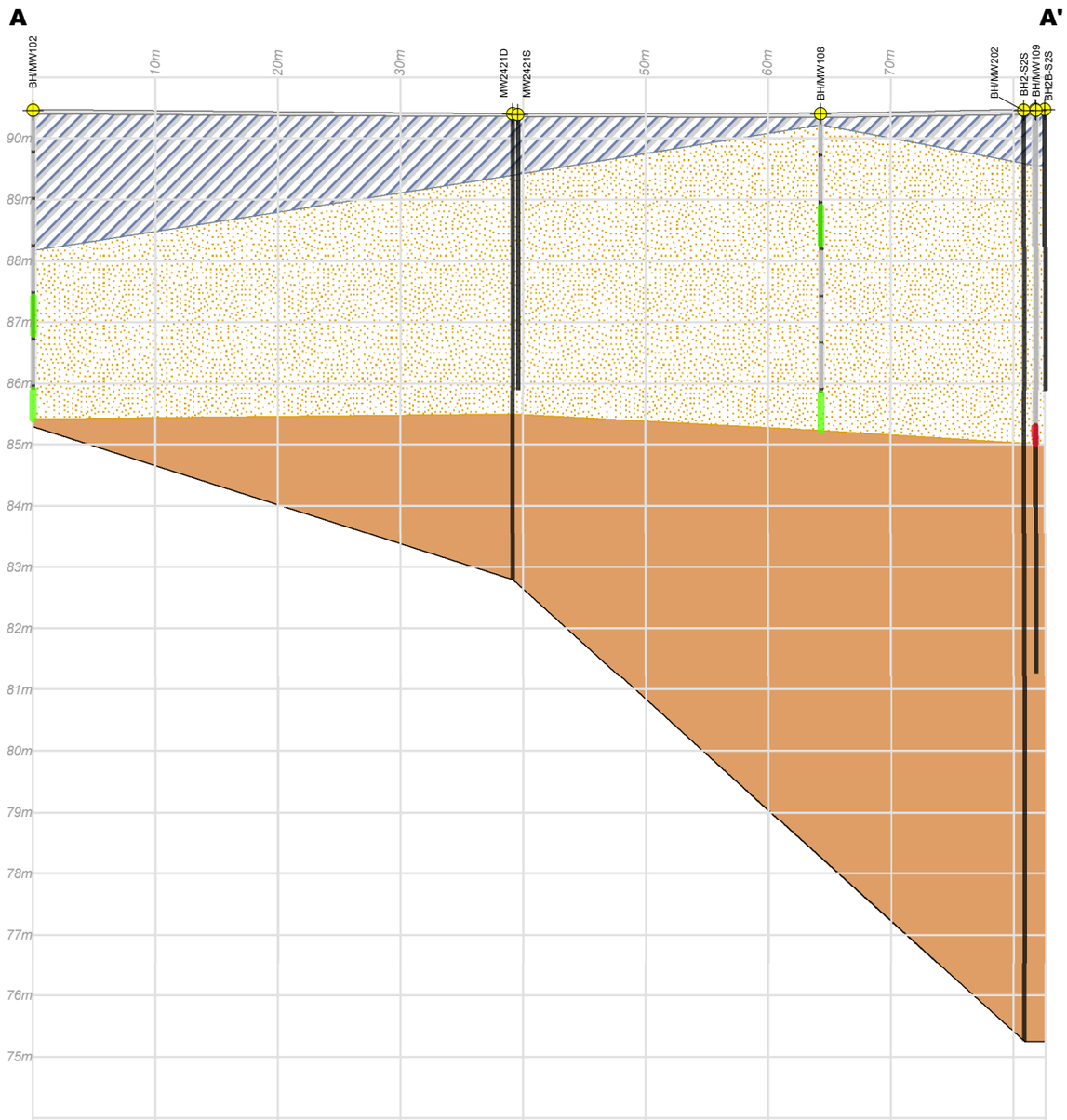
Geology
- ASPHALT
- FILL
- SILTY SAND
- SHALE

PROJECT TITLE:
PHASE TWO ESA
2421 and 2431 NEW STREET
BURLINGTON, ONTARIO

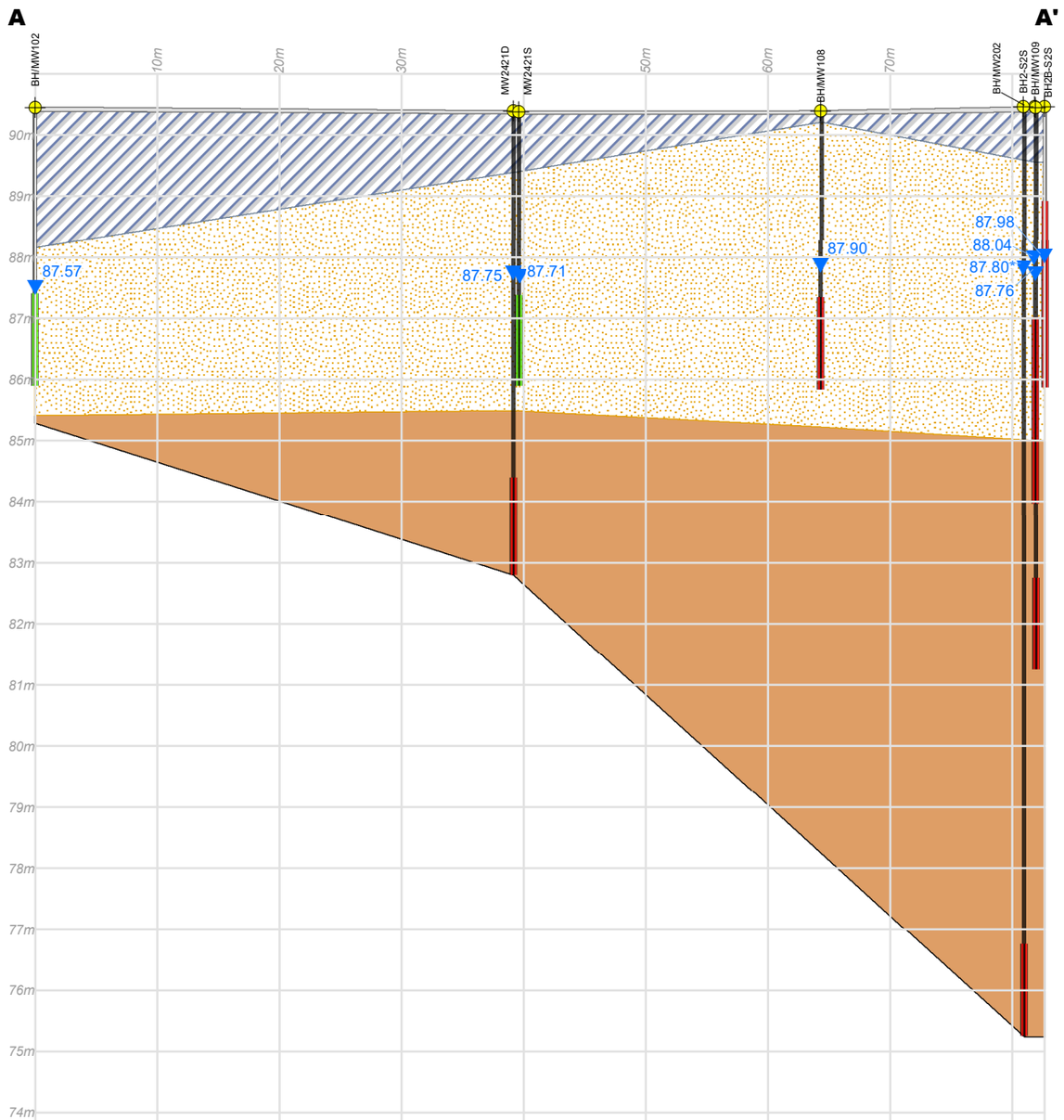
DRAWING TITLE:
GEOLOGICAL
CROSS SECTION A-A'

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 17A

VOCs in SOIL



VOCs in GROUNDWATER



EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

Geology
- ASPHALT
- FILL
- SILTY SAND
- SHALE BEDROCK

Soil Sample
- Not Analyzed
- Meets Table 2 SCS
- Exceeds Table 2 SCS

Groundwater Sample
- Not Analyzed
- Meets Table 2 SCS
- Exceeds Table 2 SCS

PROJECT TITLE:

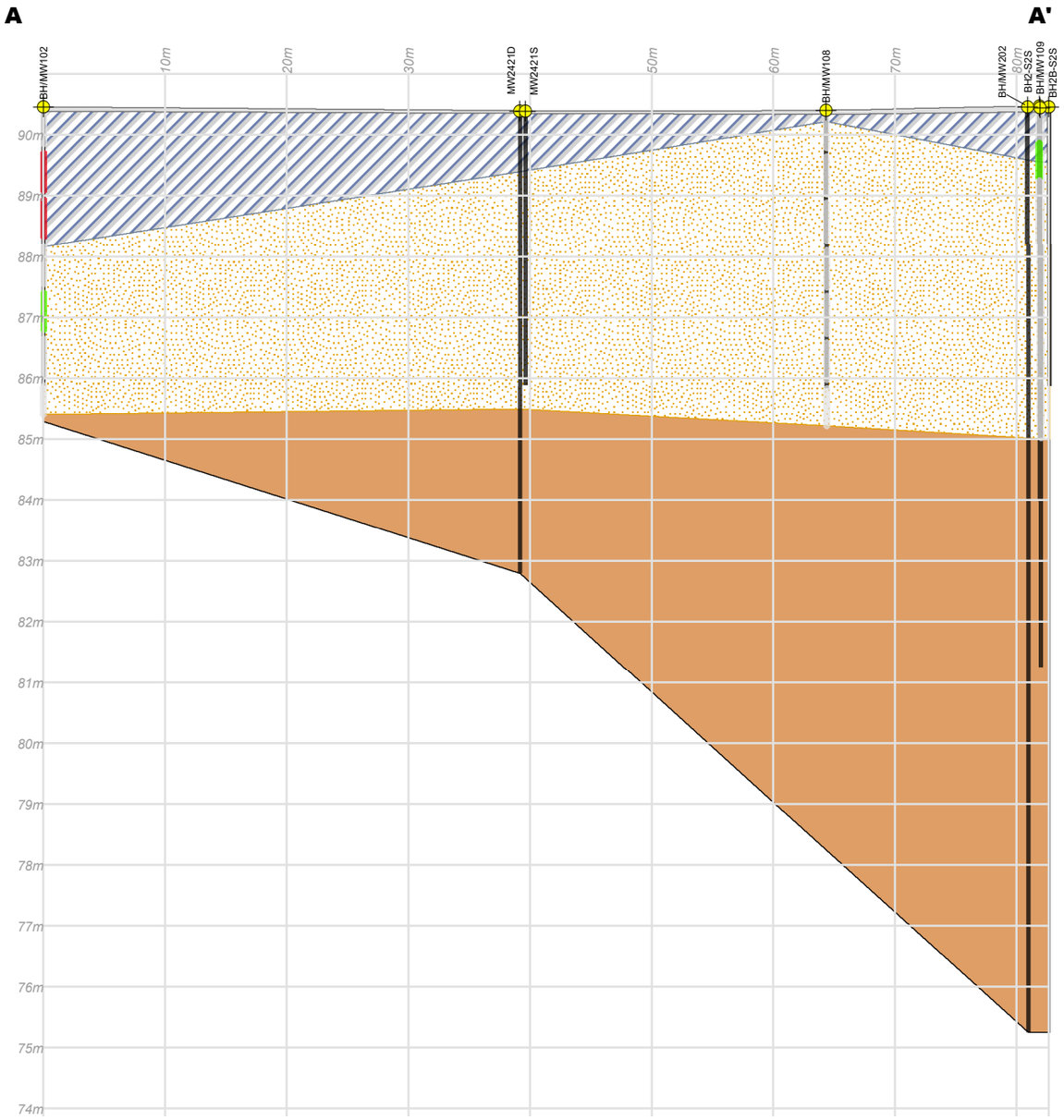
PHASE TWO ESA
2421 and 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:

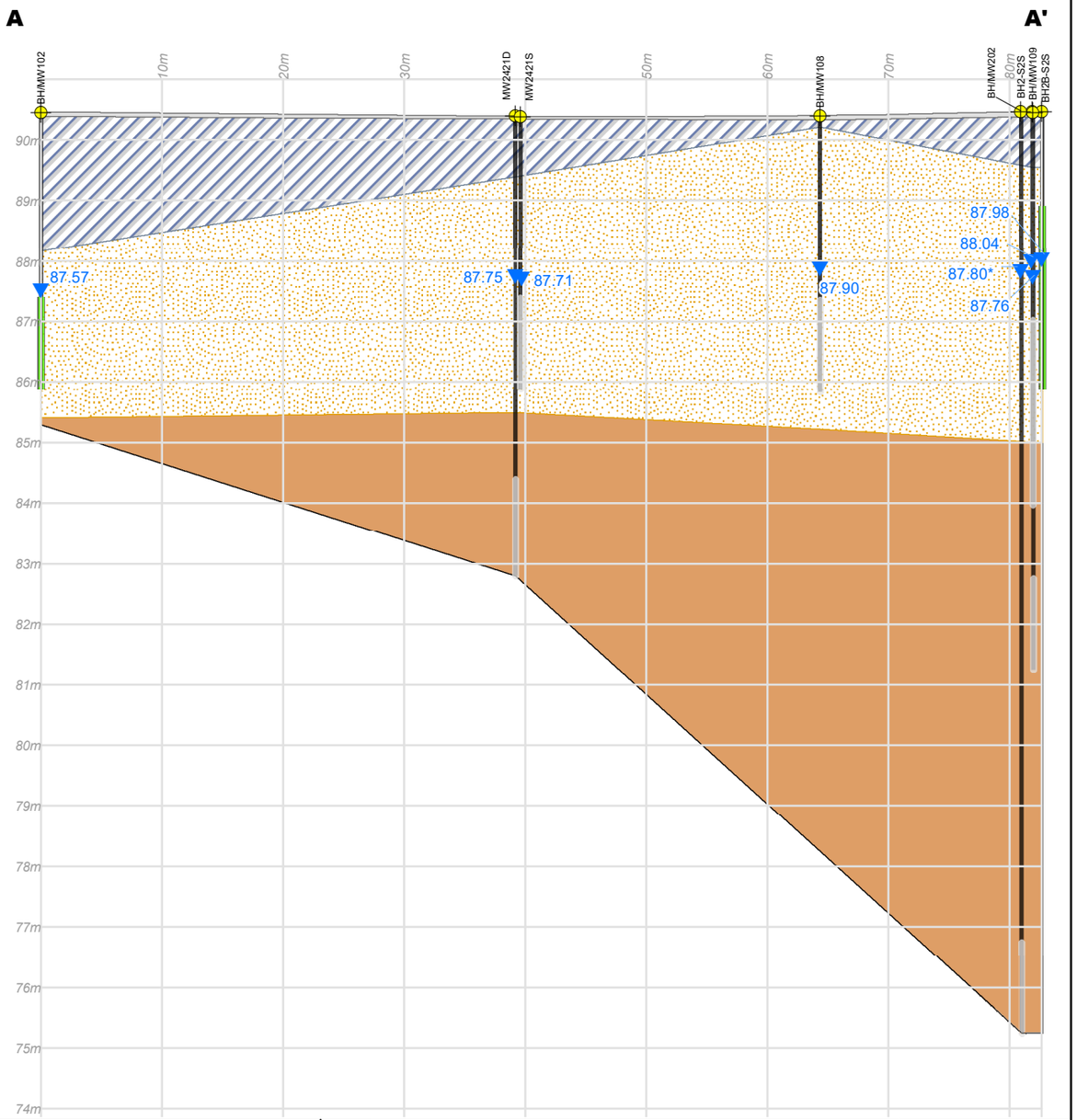
CROSS SECTION A-A'
VOLATILE ORGANIC COMPOUNDS
IN SOIL AND GROUNDWATER

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 17B

EC/SAR in SOIL



SODIUM AND CHLORIDE in GROUNDWATER



EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

Geology
- ASPHALT
- FILL
- SILTY SAND
- SHALE BEDROCK

Soil Sample
- Not Analyzed
- Meets Table 2 SCS
- Exceeds Table 2 SCS

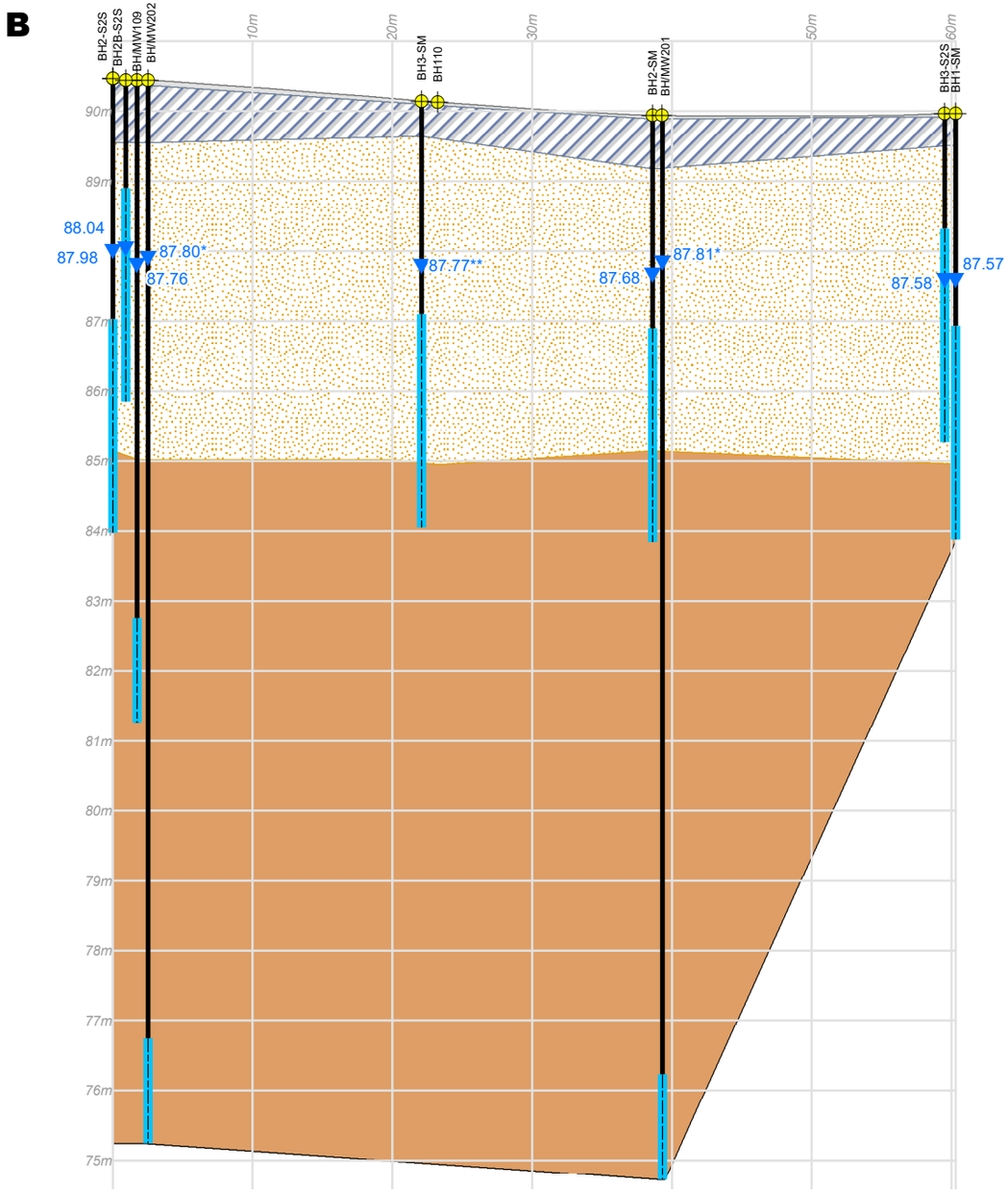
Groundwater Sample
- Not Analyzed
- Meets Table 2 SCS
- Exceeds Table 2 SCS

PROJECT TITLE:
PHASE TWO ESA
2421 and 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
CROSS SECTION A-A'
EC/SAR IN SOIL AND
Na/Cl IN GROUNDWATER

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 17C

LITHOLOGY



Note:
Groundwater elevations as measured on December 12, 2017 with the exception of:
*MW201 and MW202 which were measured on February 1, 2018 and
** BH3-SM which was measured on November 21, 2017.

EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

Monitoring Well
- Riser
- Screen
- Groundwater Elevation (12/12/2017)

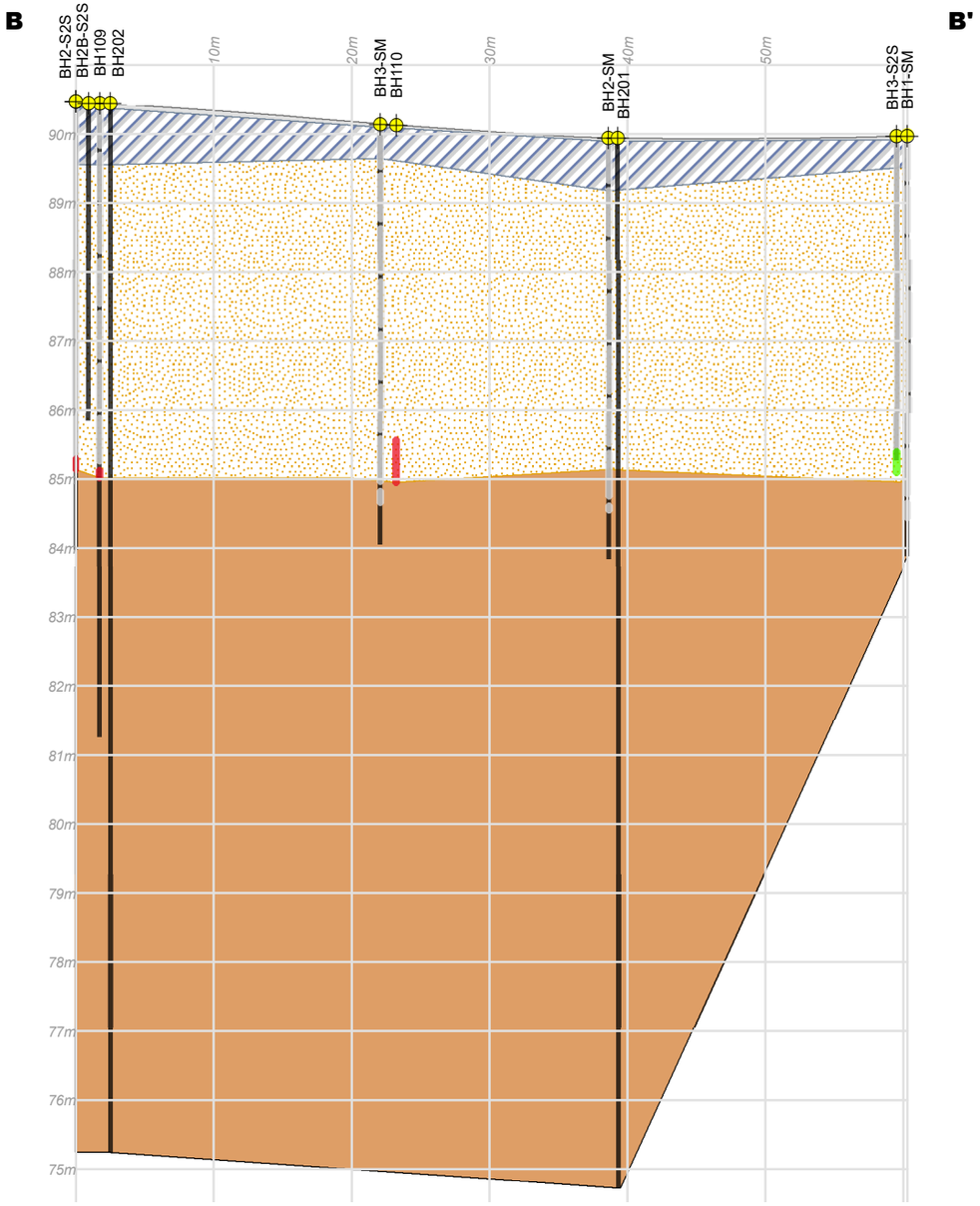
Geology
- ASPHALT
- FILL
- SILTY SAND
- SHALE

PROJECT TITLE:
PHASE TWO ESA
2421 and 2431 NEW STREET
BURLINGTON, ONTARIO

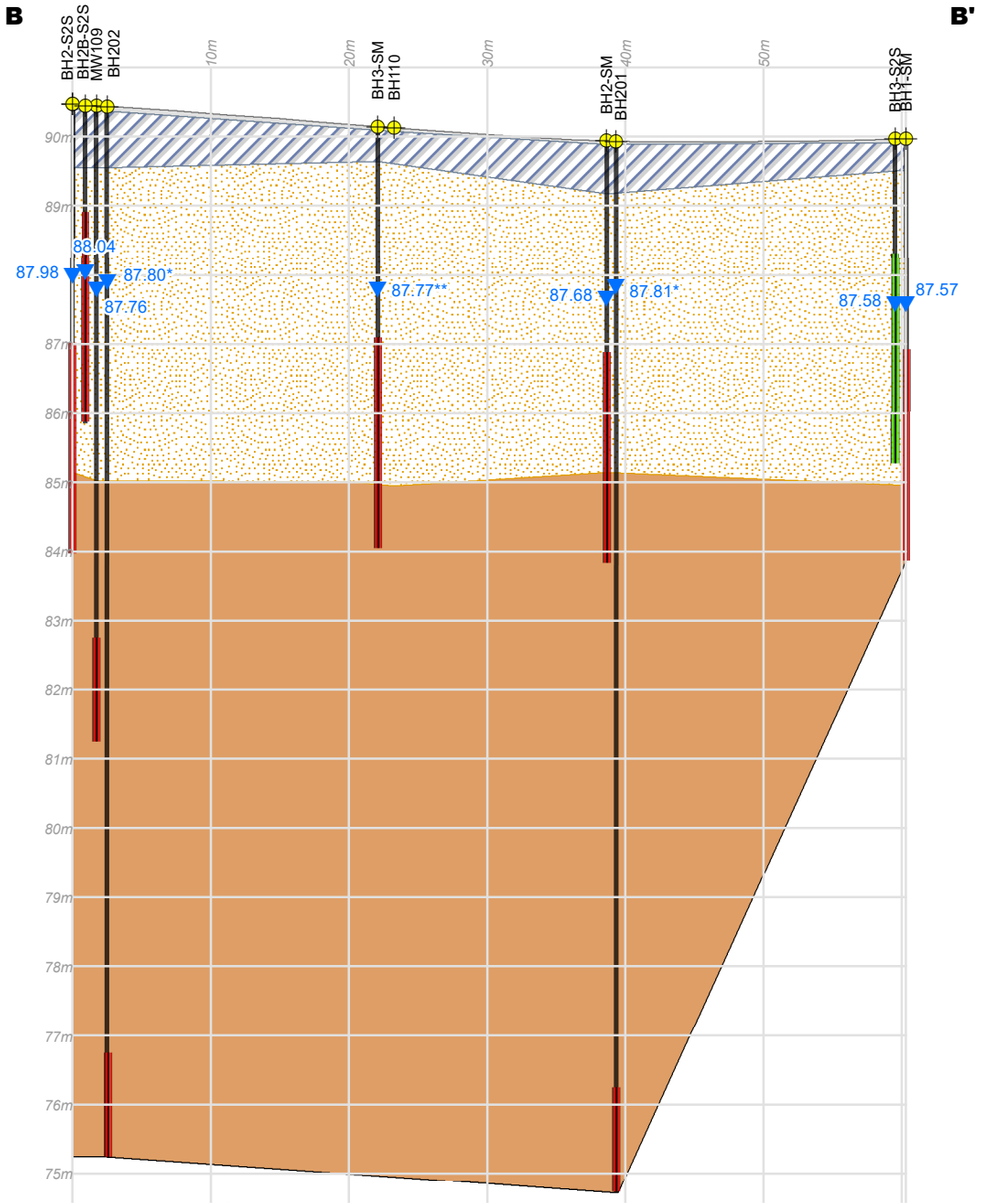
DRAWING TITLE:
GEOLOGICAL
CROSS SECTION B-B'

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 18A

VOCs in SOIL



VOCs in GROUNDWATER



EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

Geology
- ASPHALT
- FILL
- SILTY SAND
- SHALE BEDROCK

Soil Sample
- Not Analyzed
- Meets Table 2 SCS
- Exceeds Table 2 SCS

Groundwater Sample
- Not Analyzed
- Meets Table 2 SCS
- Exceeds Table 2 SCS

PROJECT TITLE:

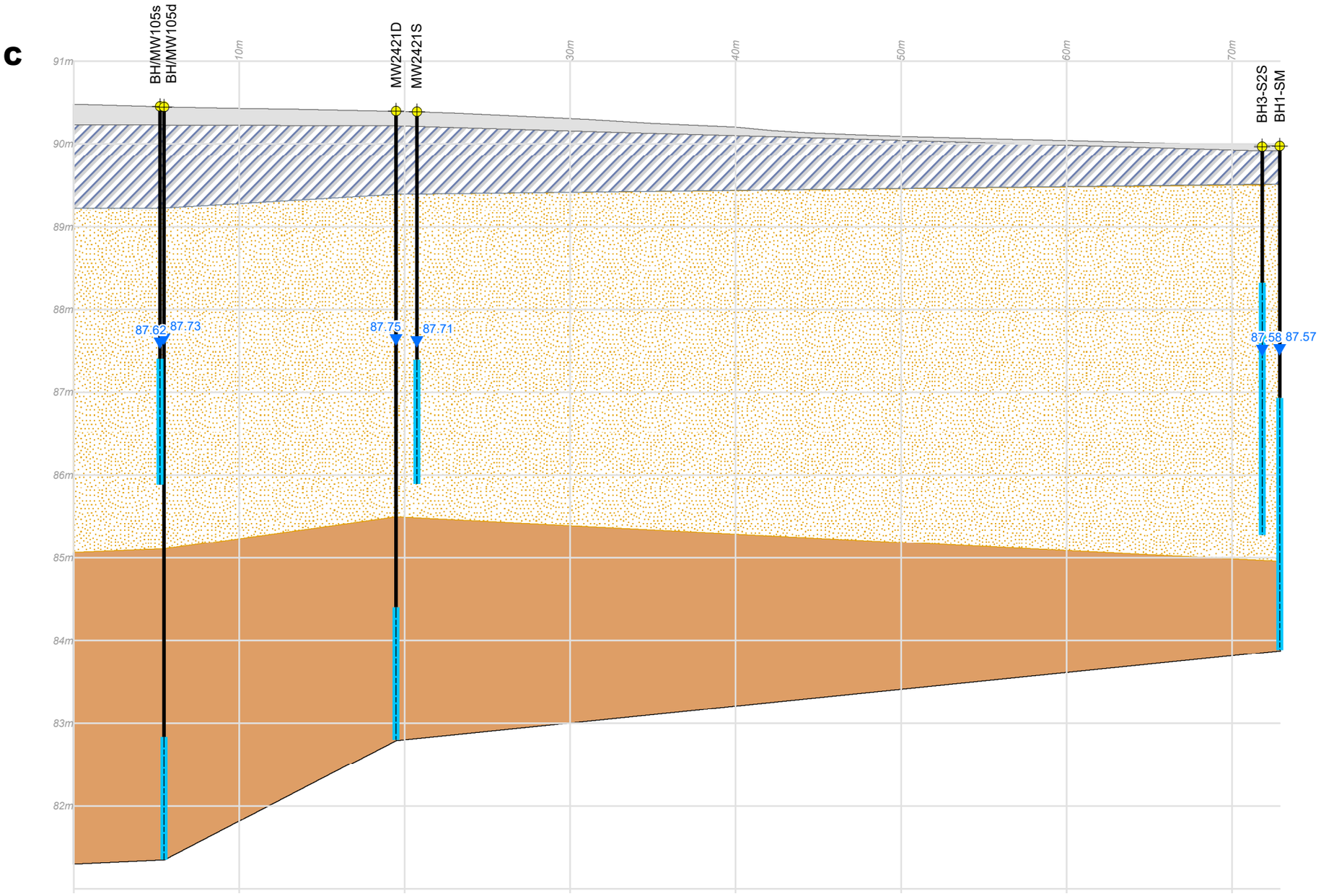
PHASE TWO ESA
2421 and 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:

CROSS SECTION B-B'
VOLATILE ORGANIC COMPOUNDS
IN SOIL AND GROUNDWATER

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 18B

LITHOLOGY



EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

Monitoring Well
- Riser
- Screen
- Groundwater Elevation (12/12/2017)

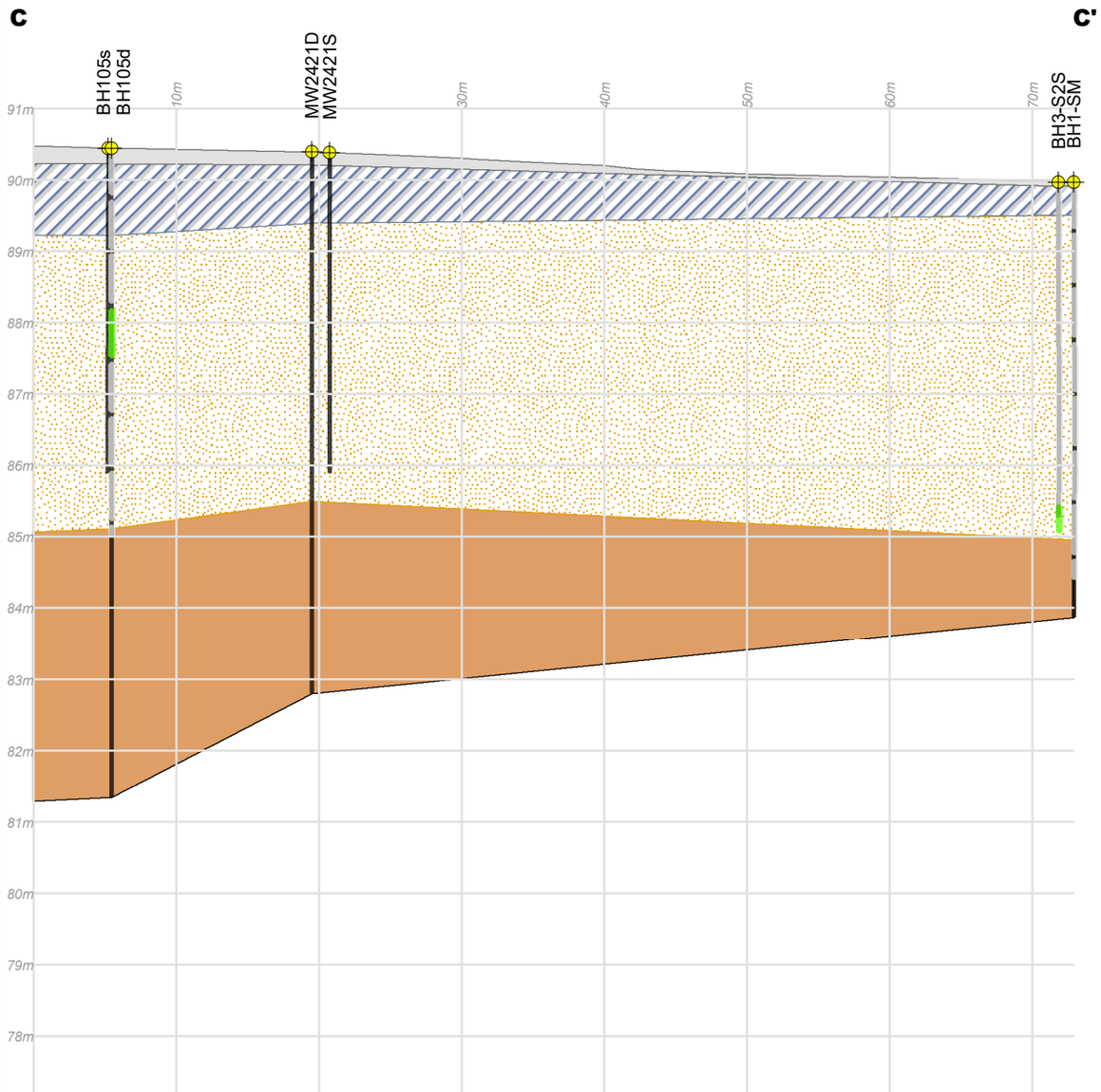
Geology
- ASPHALT
- FILL
- SILTY SAND
- SHALE

PROJECT TITLE:
PHASE TWO ESA
2421 and 2431 NEW STREET
BURLINGTON, ONTARIO

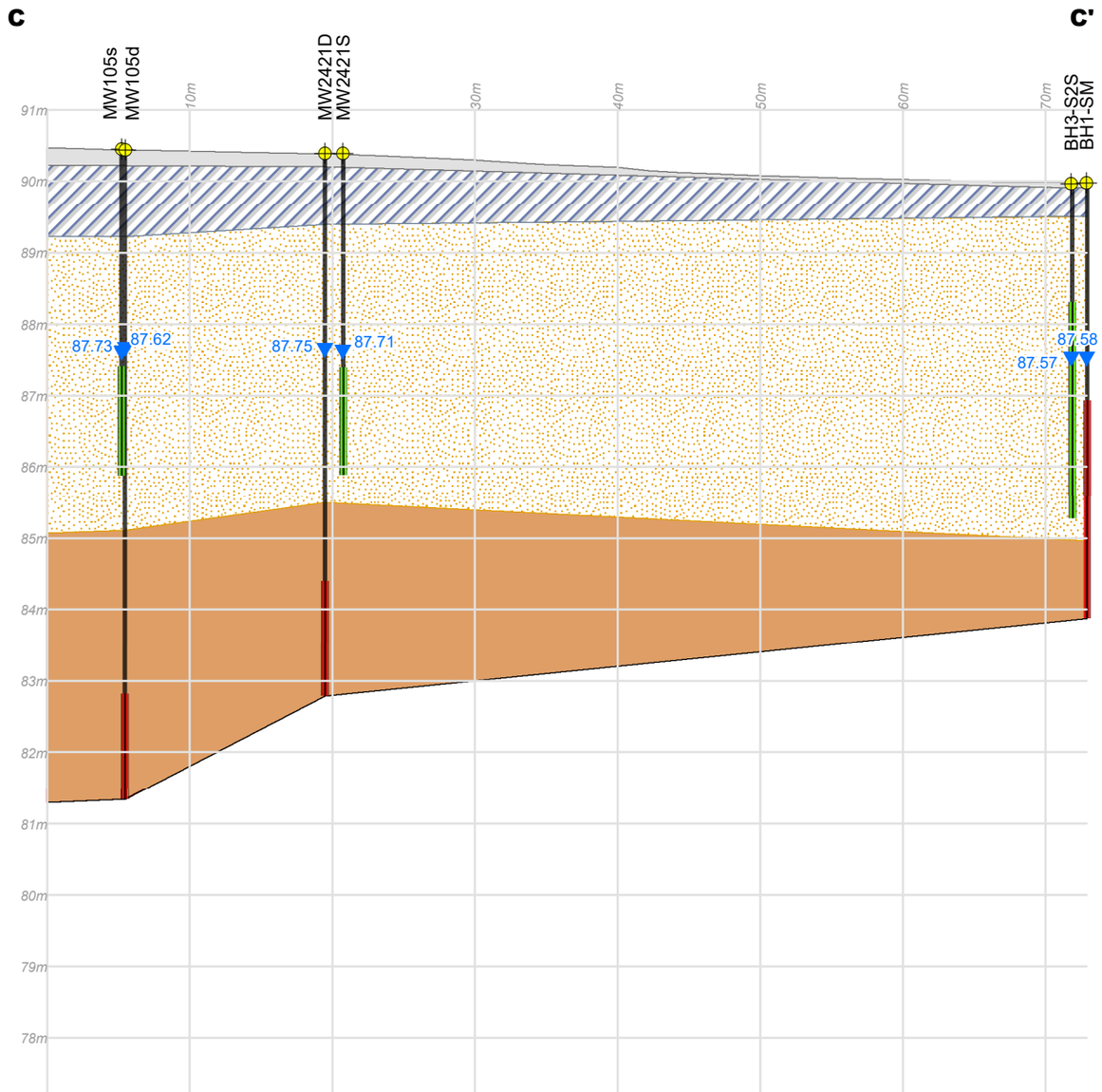
DRAWING TITLE:
GEOLOGICAL
CROSS SECTION C-C'

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: JANUARY 2018	FIG. No.: 19A

VOCs in SOIL



VOCs in GROUNDWATER



EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

Geology
- ASPHALT
- FILL
- SILTY SAND
- SHALE BEDROCK

Soil Sample
- Not Analyzed
- Meets Table 2 SCS
- Exceeds Table 2 SCS

Groundwater Sample
- Not Analyzed
- Meets Table 2 SCS
- Exceeds Table 2 SCS

PROJECT TITLE:

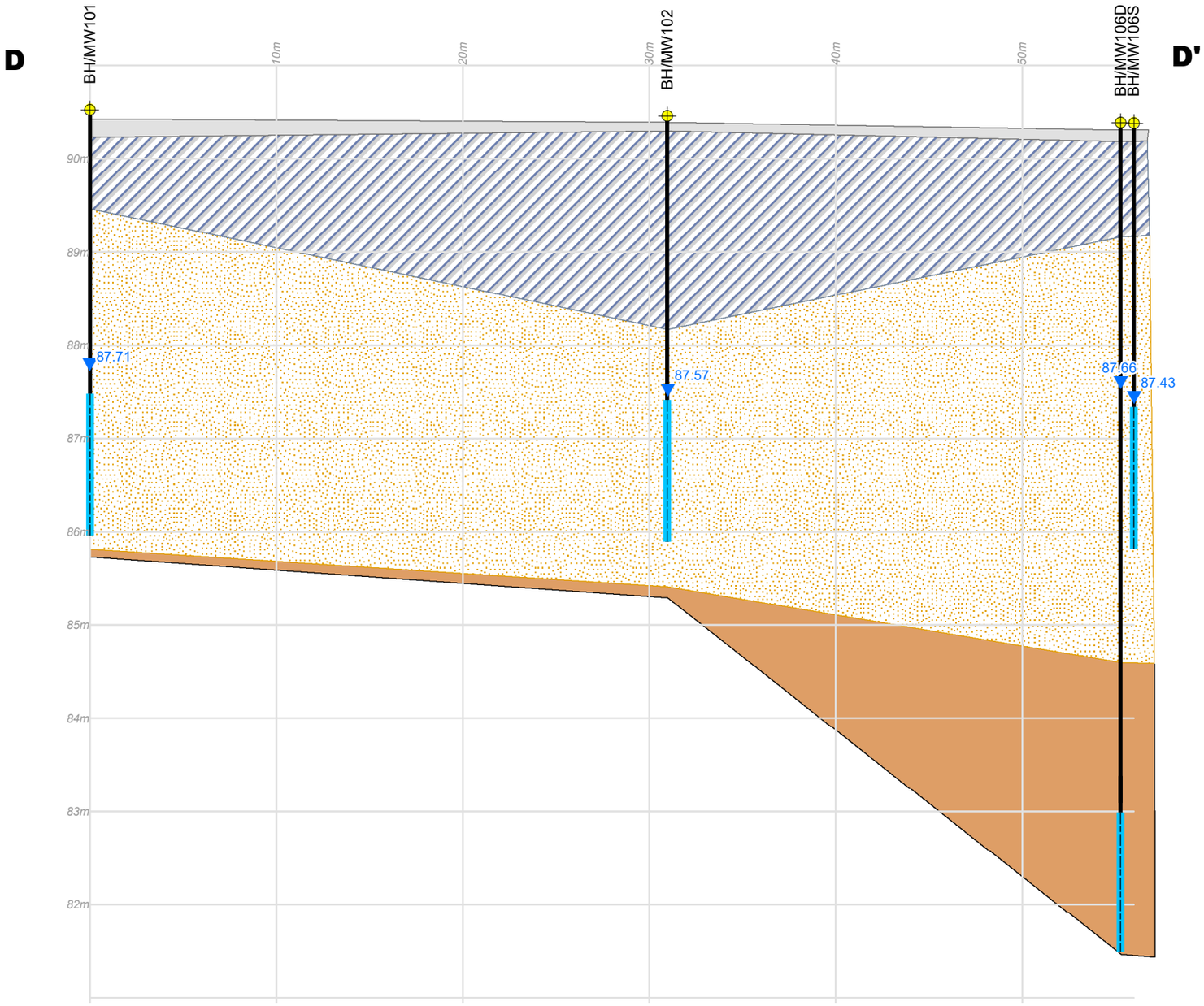
PHASE TWO ESA
2421 and 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:

CROSS SECTION C-C'
VOLATILE ORGANIC COMPOUNDS
IN SOIL AND GROUNDWATER

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: DECEMBER 2017	FIG. No.: 19B

LITHOLOGY



EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

Monitoring Well
- Riser
- Screen
- Groundwater Elevation (12/12/2017)

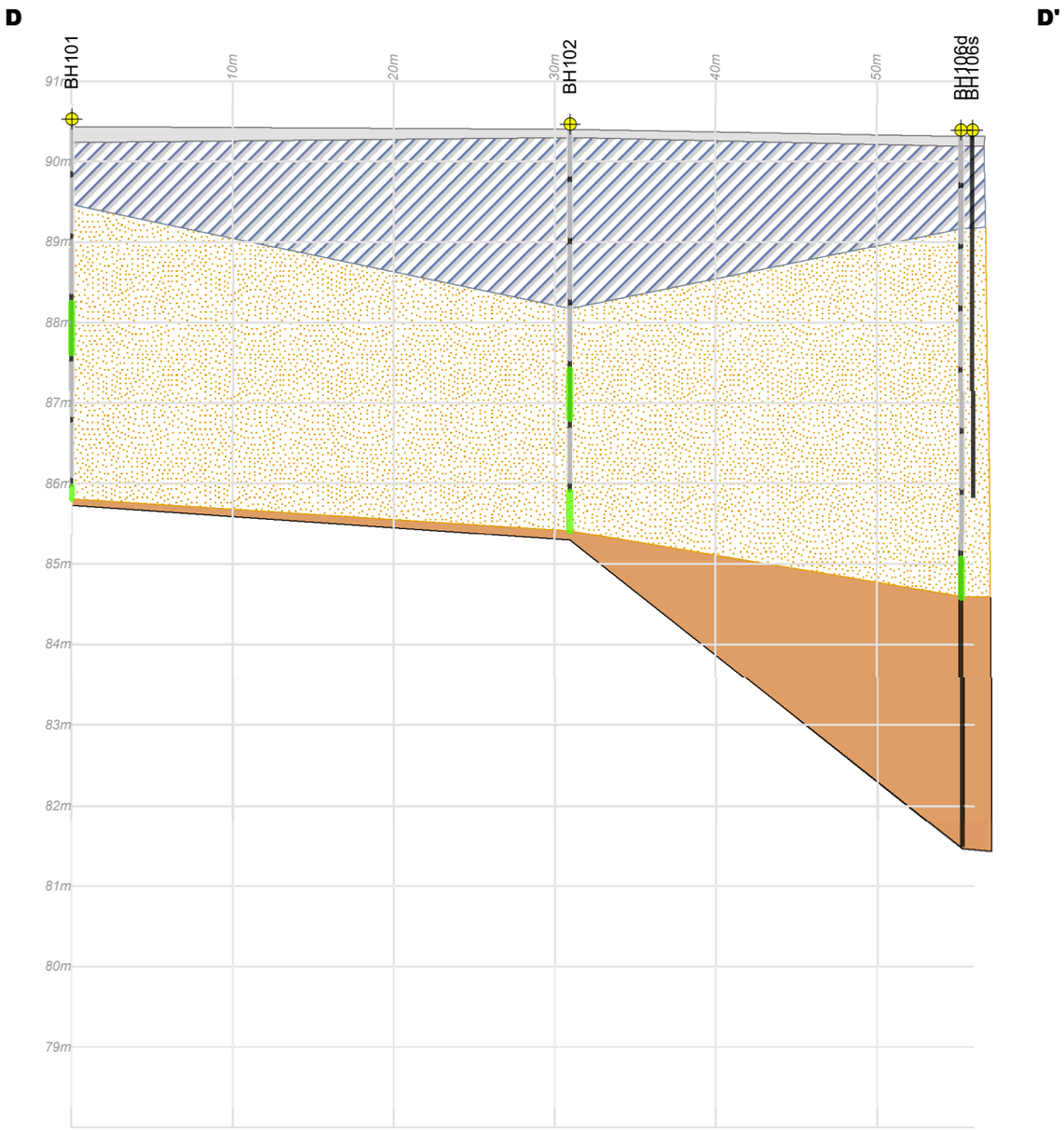
Geology
- ASPHALT
- FILL
- SILTY SAND
- SHALE

PROJECT TITLE:
PHASE TWO ESA
2421 and 2431 NEW STREET
BURLINGTON, ONTARIO

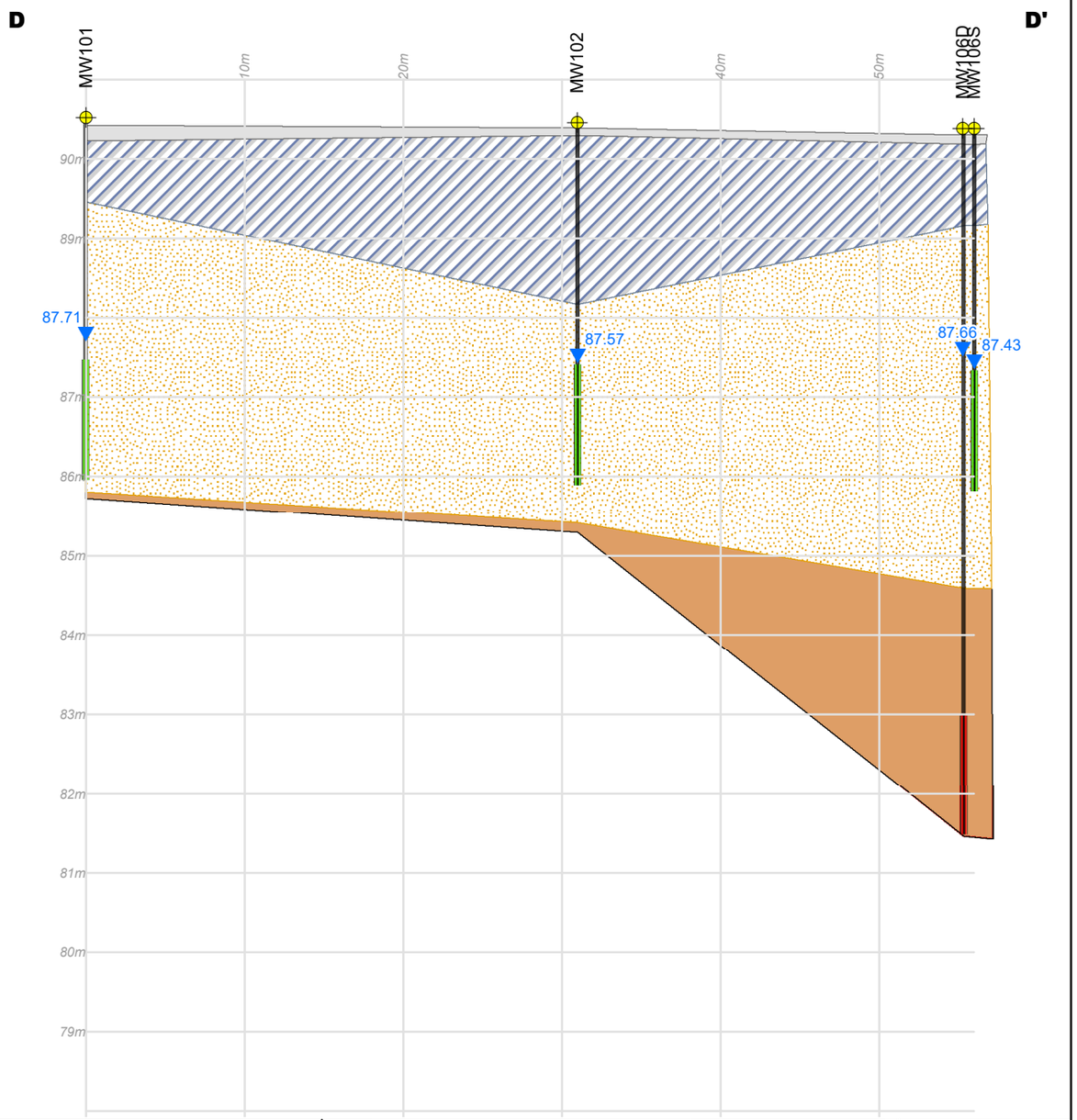
DRAWING TITLE:
GEOLOGICAL
CROSS SECTION D-D'

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: JANUARY 2018	FIG. No.: 20A

VOCs in SOIL



VOCs in GROUNDWATER



EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

Geology
- ASPHALT
- FILL
- SILTY SAND
- SHALE BEDROCK

Soil Sample
- Not Analyzed
- Meets Table 2 SCS
- Exceeds Table 2 SCS

Groundwater Sample
- Not Analyzed
- Meets Table 2 SCS
- Exceeds Table 2 SCS

PROJECT TITLE:

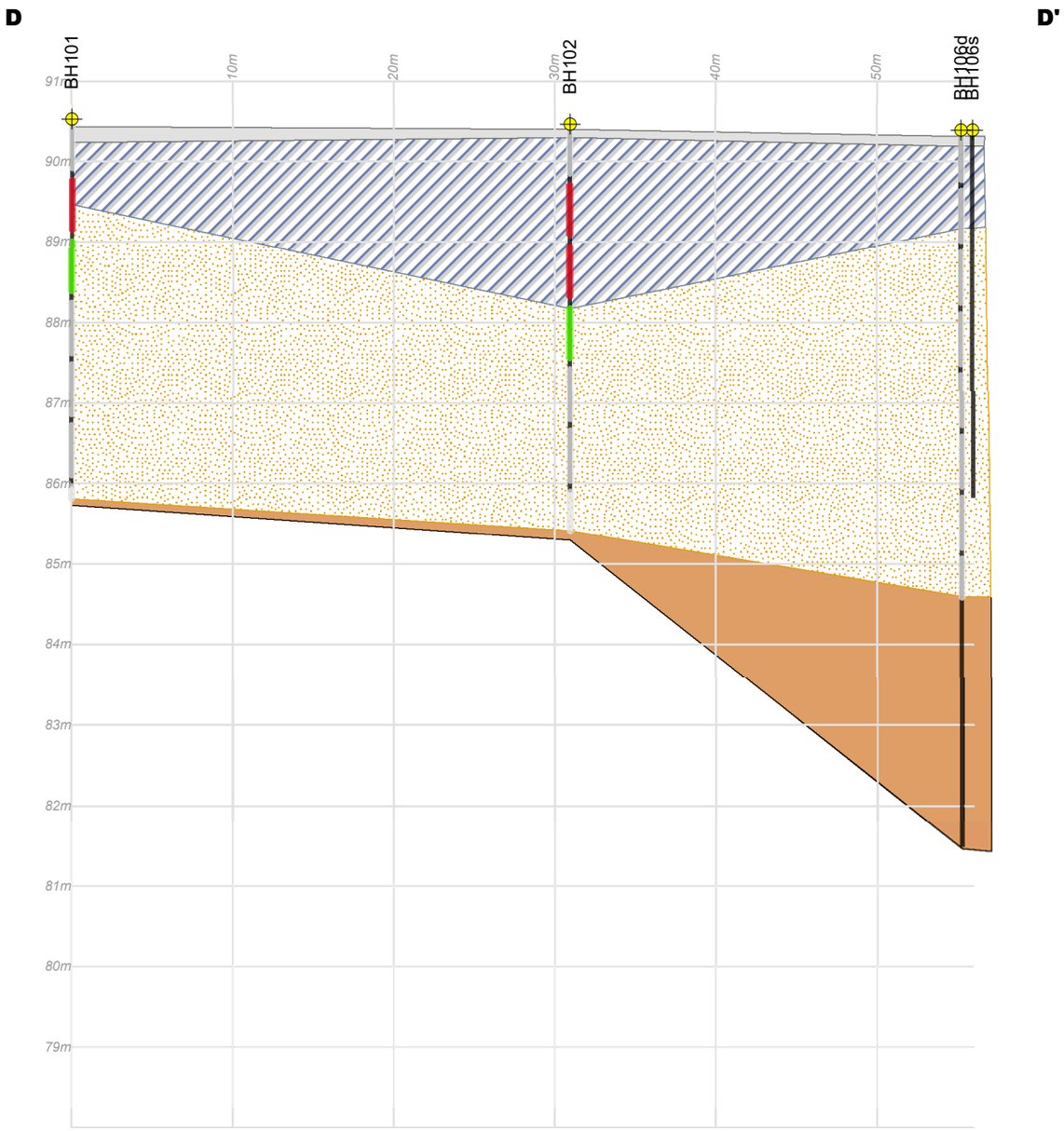
PHASE TWO ESA
2421 and 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:

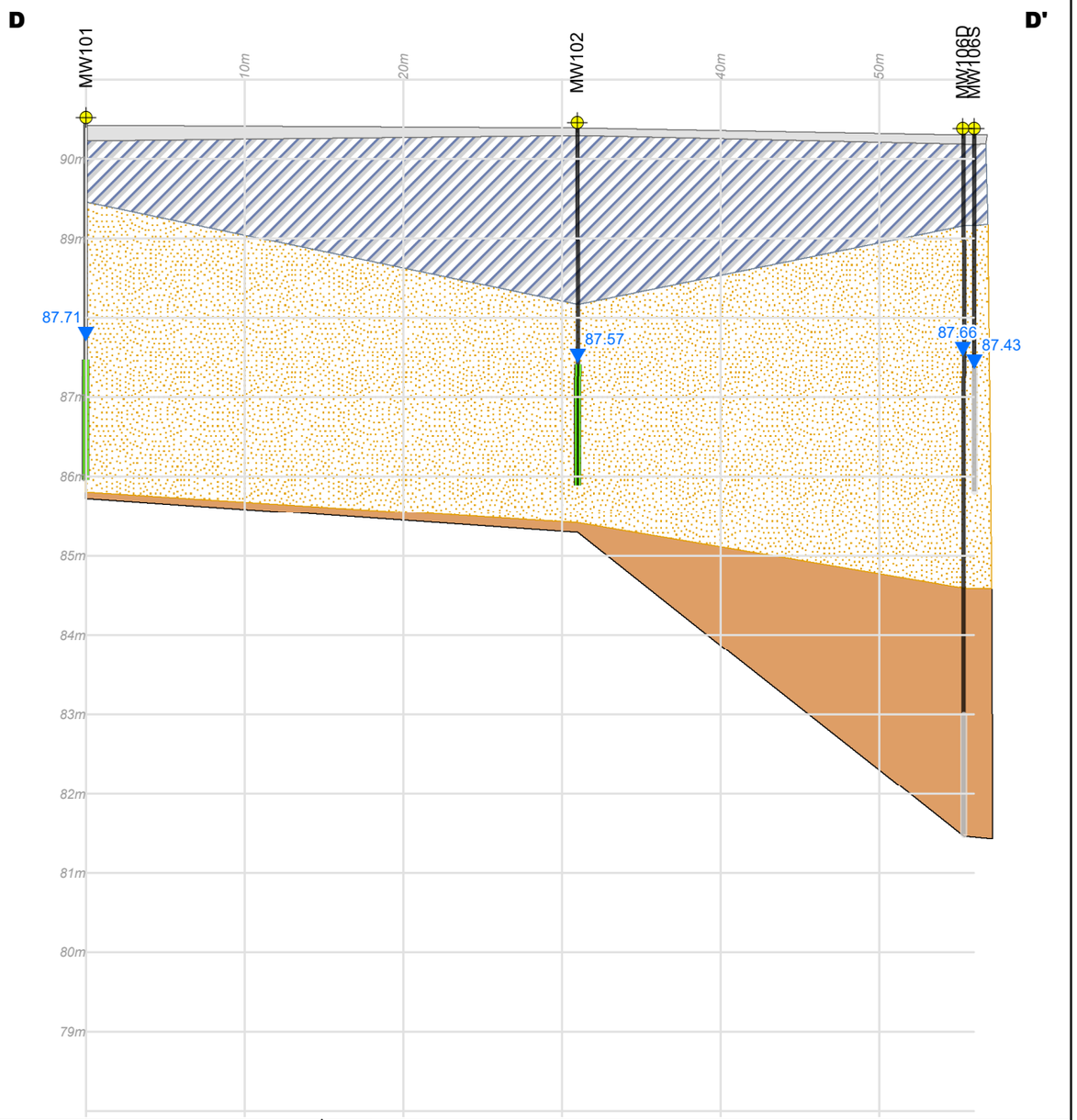
CROSS SECTION D-D'
VOLATILE ORGANIC COMPOUNDS
IN SOIL AND GROUNDWATER

PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 20B

EC/SAR in SOIL



SODIUM AND CHLORIDE in GROUNDWATER



EXP Services Inc.
80 BANCROFT STREET
HAMILTON, ONTARIO
L9B 1A5
T - (905) 573-4000
F - (905) 573-9693

Geology
- ASPHALT
- FILL
- SILTY SAND
- SHALE BEDROCK

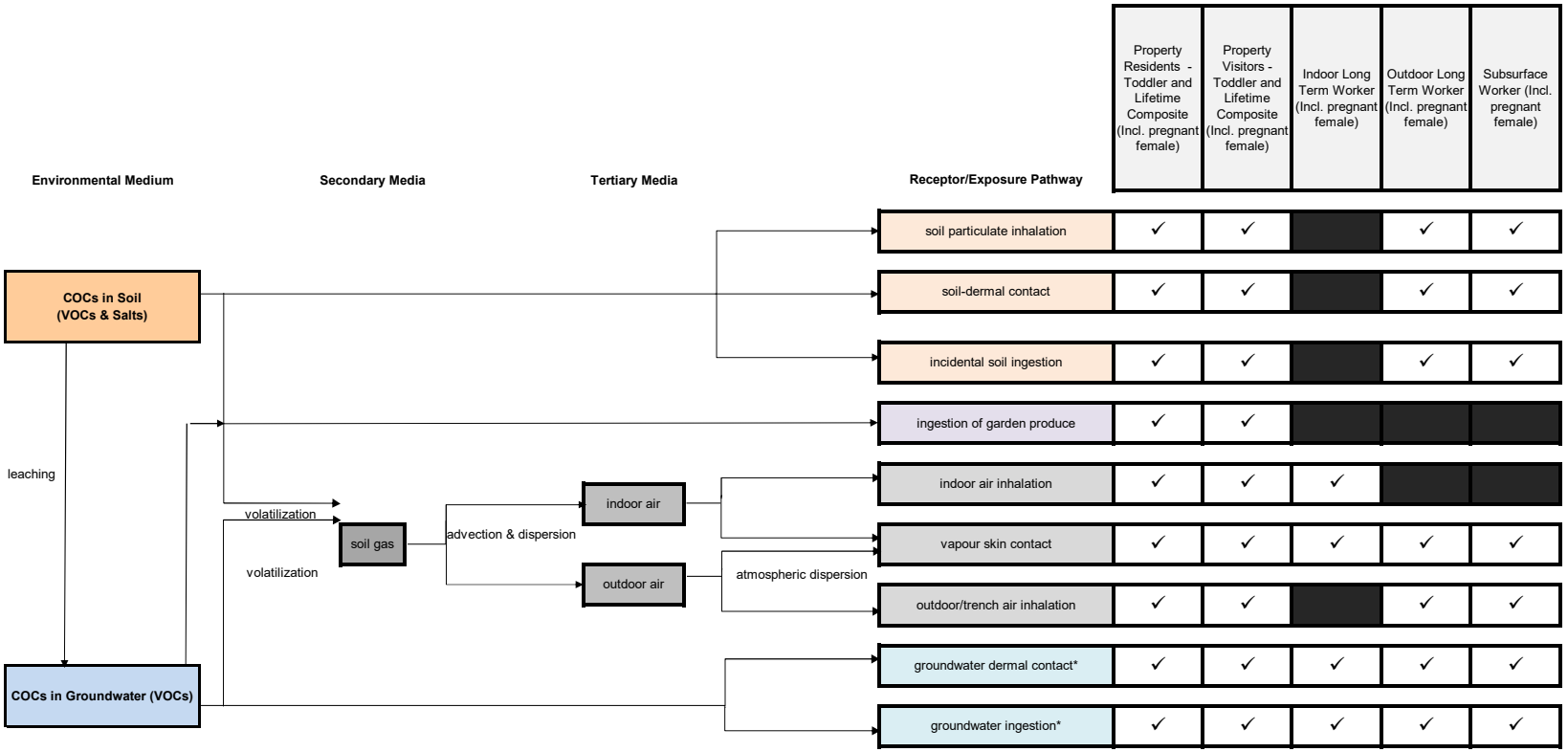
Soil Sample
- Not Analyzed
- Meets Table 2 SCS
- Exceeds Table 2 SCS

Groundwater Sample
- Not Analyzed
- Meets Table 2 SCS
- Exceeds Table 2 SCS

PROJECT TITLE:
PHASE TWO ESA
2421 and 2431 NEW STREET
BURLINGTON, ONTARIO

DRAWING TITLE:
CROSS SECTION D-D'
EC/SAR IN SOIL AND
Na/Cl IN GROUNDWATER

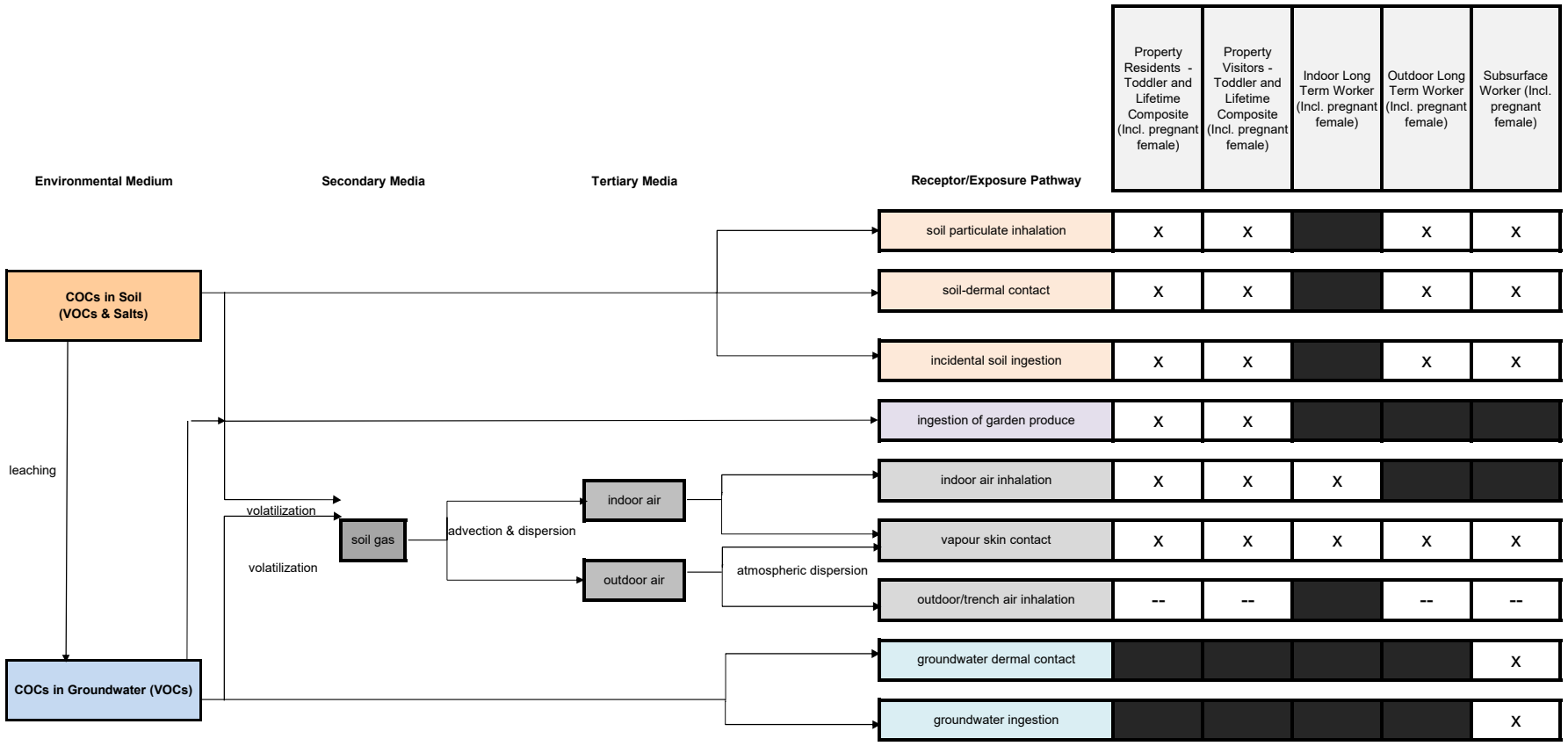
PROJECT No.: HAM-00801287-A0	DWN: AC
SCALE: AS NOTED	CHKD: EE
DATE: FEBRUARY 2018	FIG. No.: 20C



Note:
* Site utilizes Municipal Drinking Water, however Region of Halton has indicated use of Potable Water Standards due to Highly Vulnerable Aquifer

Legend:

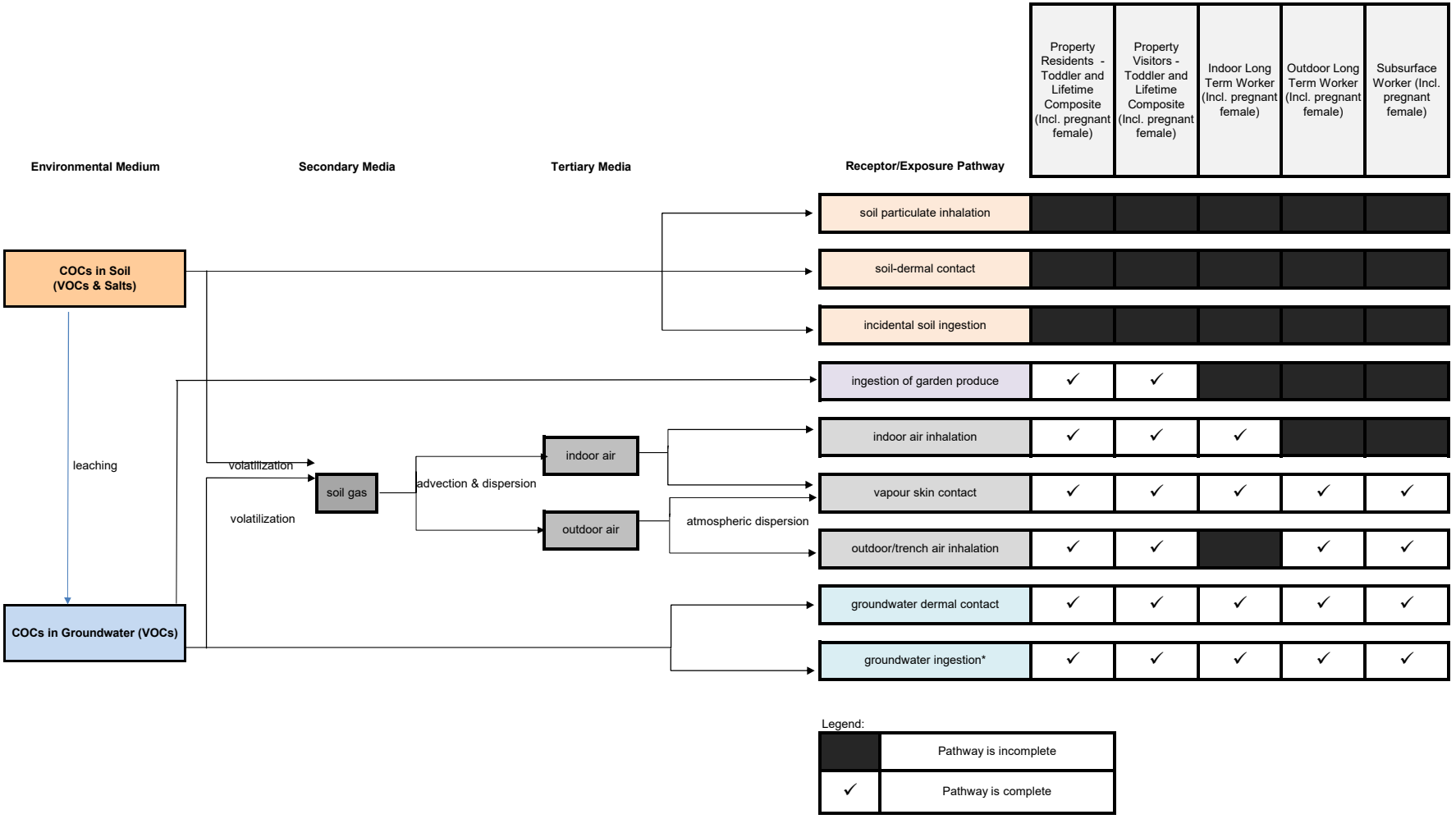
	Pathway is incomplete
✓	Pathway is complete

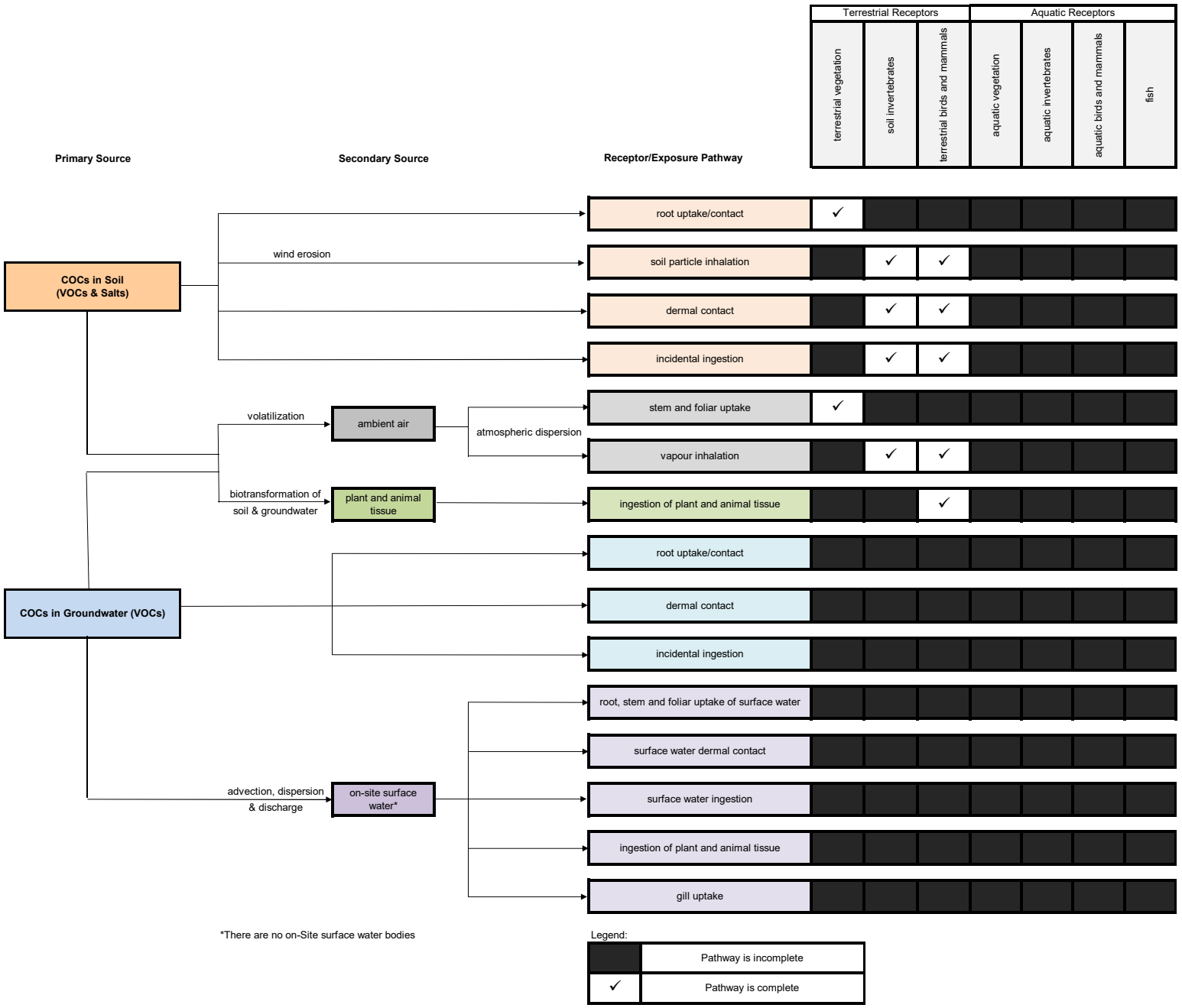


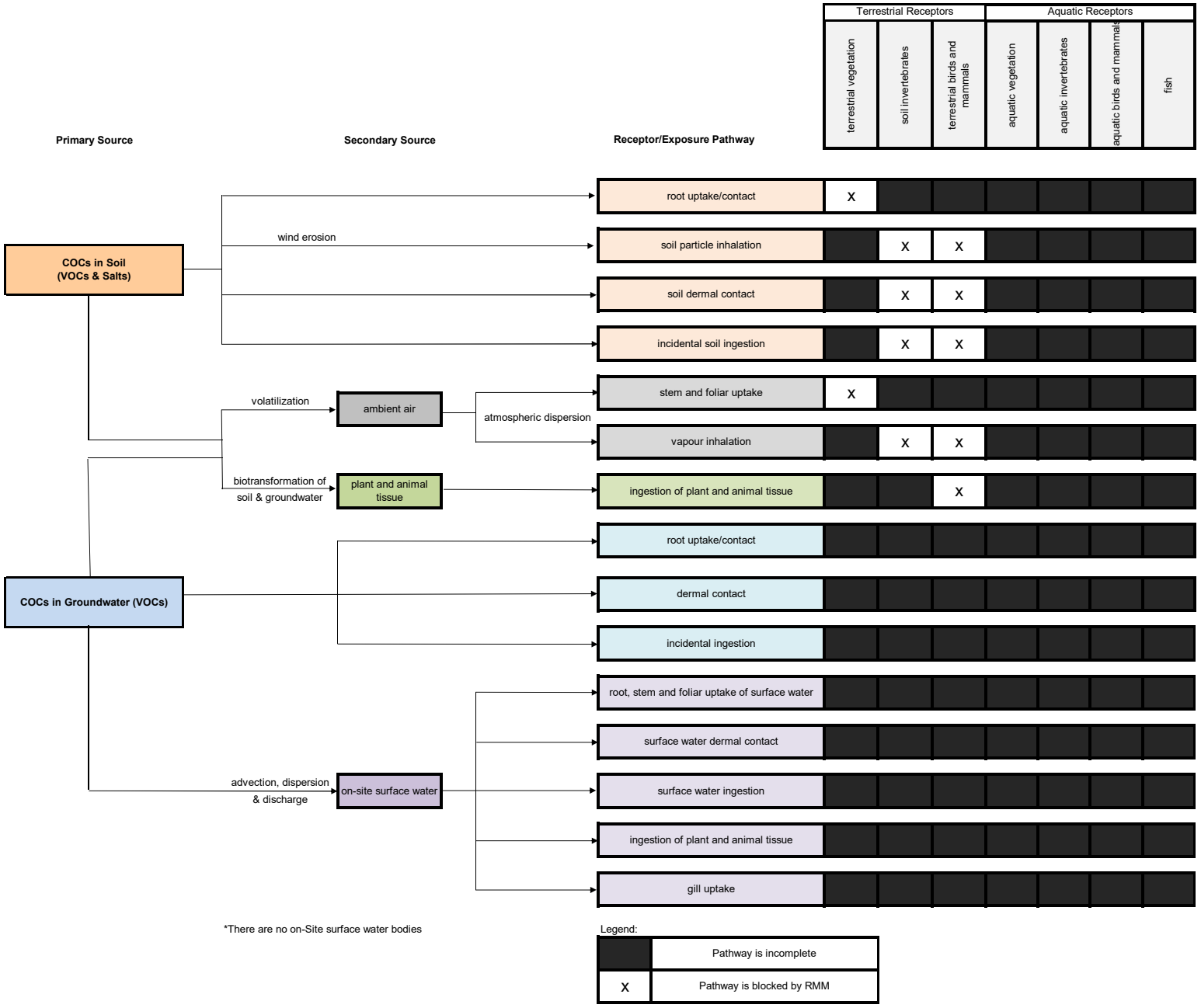
Receptor/Exposure Pathway	Property Residents - Toddler and Lifetime Composite (Incl. pregnant female)	Property Visitors - Toddler and Lifetime Composite (Incl. pregnant female)	Indoor Long Term Worker (Incl. pregnant female)	Outdoor Long Term Worker (Incl. pregnant female)	Subsurface Worker (Incl. pregnant female)
soil particulate inhalation	X	X		X	X
soil-dermal contact	X	X		X	X
incidental soil ingestion	X	X		X	X
ingestion of garden produce	X	X			
indoor air inhalation	X	X	X		
vapour skin contact	X	X	X	X	X
outdoor/trench air inhalation	--	--		--	--
groundwater dermal contact					X
groundwater ingestion					X

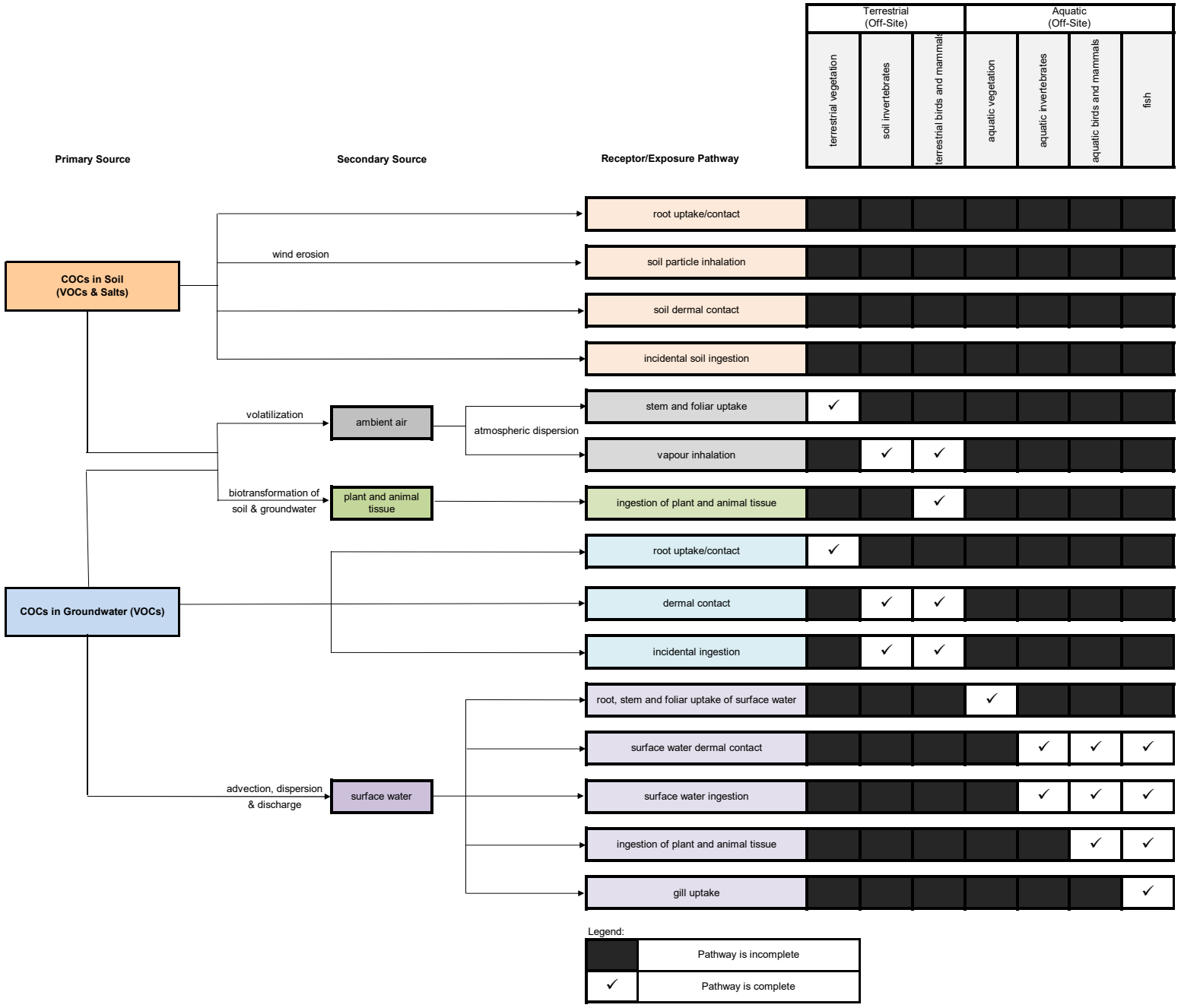
Legend:

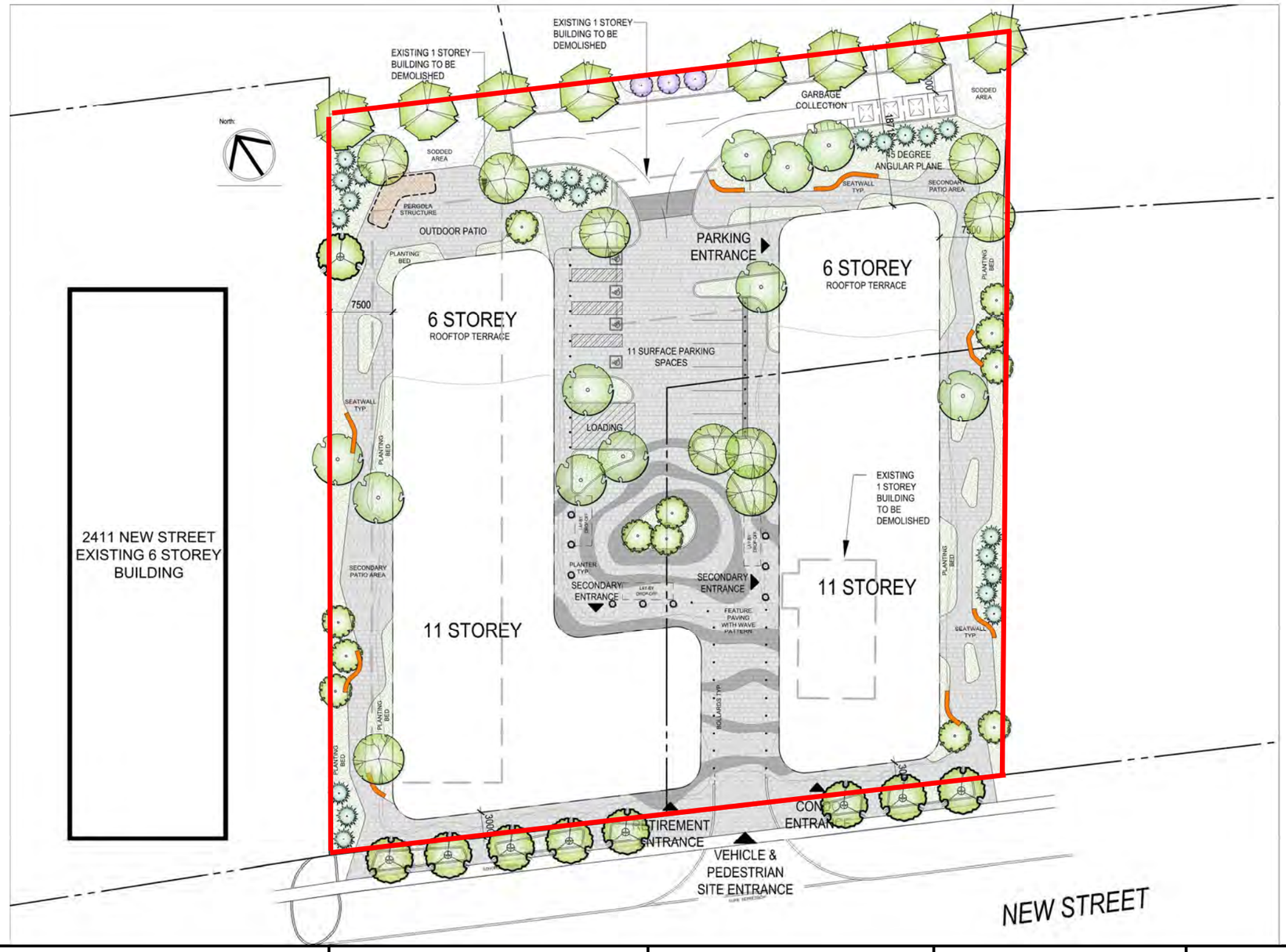
	Pathway is incomplete
X	Pathway is Blocked by RMM
--	Pathway is complete but no potential risk will likely be identified


Environmental Medium
Secondary Media
Tertiary Media
Receptor/Exposure Pathway
Property Residents - Toddler and Lifetime Composite (Incl. pregnant female)
Property Visitors - Toddler and Lifetime Composite (Incl. pregnant female)
Indoor Long Term Worker (Incl. pregnant female)
Outdoor Long Term Worker (Incl. pregnant female)
Subsurface Worker (Incl. pregnant female)
COCs in Soil (VOCs & Salts)
COCs in Groundwater (VOCs)
leaching
volatilization
volatilization
soil gas
advection & dispersion
indoor air
outdoor air
atmospheric dispersion
soil particulate inhalation
soil-dermal contact
incidental soil ingestion
ingestion of garden produce
indoor air inhalation
vapour skin contact
outdoor/trench air inhalation
groundwater dermal contact
groundwater ingestion*
Legend:
Pathway is incomplete
Pathway is complete


Terrestrial Receptors
Aquatic Receptors
terrestrial vegetation
soil invertebrates
terrestrial birds and mammals
aquatic vegetation
aquatic invertebrates
aquatic birds and mammals
fish
Primary Source
Secondary Source
Receptor/Exposure Pathway
COCs in Soil (VOCs & Salts)
wind erosion
volatilization
ambient air
atmospheric dispersion
biotransformation of soil & groundwater
plant and animal tissue
COCs in Groundwater (VOCs)
advection, dispersion & discharge
on-site surface water*
root uptake/contact
soil particle inhalation
dermal contact
incidental ingestion
stem and foliar uptake
vapour inhalation
ingestion of plant and animal tissue
root uptake/contact
dermal contact
incidental ingestion
root, stem and foliar uptake of surface water
surface water dermal contact
surface water ingestion
ingestion of plant and animal tissue
gill uptake
*There are no on-Site surface water bodies
Legend:
Pathway is incomplete
Pathway is complete


Terrestrial Receptors
Aquatic Receptors
terrestrial vegetation
soil invertebrates
terrestrial birds and mammals
aquatic vegetation
aquatic invertebrates
aquatic birds and mammals
fish
Primary Source
Secondary Source
Receptor/Exposure Pathway
COCs in Soil (VOCs & Salts)
COCs in Groundwater (VOCs)
wind erosion
volatilization
ambient air
atmospheric dispersion
biotransformation of soil & groundwater
plant and animal tissue
advection, dispersion & discharge
on-site surface water
root uptake/contact
soil particle inhalation
soil dermal contact
incidental soil ingestion
stem and foliar uptake
vapour inhalation
ingestion of plant and animal tissue
root uptake/contact
dermal contact
incidental ingestion
root, stem and foliar uptake of surface water
surface water dermal contact
surface water ingestion
ingestion of plant and animal tissue
gill uptake
*There are no on-Site surface water bodies
Legend:
Pathway is incomplete
Pathway is blocked by RMM


Terrestrial (Off-Site)
Aquatic (Off-Site)
terrestrial vegetation
soil invertebrates
terrestrial birds and mammals
aquatic vegetation
aquatic invertebrates
aquatic birds and mammals
fish
Primary Source
Secondary Source
Receptor/Exposure Pathway
COCs in Soil (VOCs & Salts)
wind erosion
root uptake/contact
soil particle inhalation
soil dermal contact
incidental soil ingestion
volatilization
ambient air
atmospheric dispersion
stem and foliar uptake
vapour inhalation
biotransformation of soil & groundwater
plant and animal tissue
ingestion of plant and animal tissue
COCs in Groundwater (VOCs)
root uptake/contact
dermal contact
incidental ingestion
advection, dispersion & discharge
surface water
root, stem and foliar uptake of surface water
surface water dermal contact
surface water ingestion
ingestion of plant and animal tissue
gill uptake
Legend:
Pathway is incomplete
Pathway is complete



Phase Two ESA Property Boundary

*figure adapted from Marton Smith Landscape Architects, December 2017

EXP SERVICES INC.
80 BANCROFT STREET
HAMILTON, ONTARIO
L8E 2W5
T: 905-573-4000
F: 905-573-9693

PROPOSED SITE PLAN

PROJ. NO: HAM-00801287-A0

Phase Two ESA
2421-2431 New Street
Burlington, Ontario

SCALE:	NTS
DRAWN:	AC
CHECKED:	EE

FIGURE
23
FEB 2018

Appendix A:
Conceptual Site Model

Phase Two Conceptual Site Model – RSC Property

This section presents the Phase Two Conceptual Site Model (P2CSM) providing a narrative, graphical and tabulated description integrating information related to the Site geologic and hydrogeologic conditions, areas of potential environmental concern/potential contaminating activities, the presence and distribution of potential contaminants of concern, contaminant fate and transport, and potential exposure pathways. The P2CSM was completed in accordance with Ontario Regulation 153/04, as amended (O.Reg.153/04), as defined by the Ontario Ministry of the Environment and Climate Change (MOECC).

1 Introduction

The Site is located on the north side of New Street in Burlington, Ontario (Figures 1 and 2). The Site measures approximately 0.7 hectares (1.7 acres) in area. The Site is currently occupied by a multi-unit retail commercial plaza including three (3) stand-alone buildings. The building situated along the western portion of the Site is a multi-unit single storey commercial building (Building A). Two (2) additional single storey standalone buildings are situated near the northern boundary (Building B) and at the southeast corner of the Site (Building C). Based on the historical review, the buildings were constructed in the early 1970s.

The areas surrounding the Site building consist of asphalt in the parking area.

The Site is located within a commercial and residential area, and the surrounding land use is shown on Figure 2.

Refer to Table 1 for the Site identification information.

Table 1: Site Identification Information

Municipal Address	2421 and 2431 New Street, Burlington, ON
Current Land Use	Commercial
Proposed Land Use	Residential
Universal Transverse Mercator (UTM) coordinates	Zone 17, 598341E 4799036N
Site Area	0.7 hectares (1.7 acres)
Property Owner	TRG (New-Guelph) Inc.
Legal Description	2421 New Street: Pt Lt 16, Con 3 SDS, Pt 1, 20R15030; Burlington 2431 New Street: Pt Lt 16, Con 3 South of Dundas Street, as in 643033; Burlington/Nelson Twp
Property Identification Number (PIN)	07068-0255 (LT), 07068-0208 (LT)
Assessment Roll Number (ARN)	240206061809900, 240206061810100

2 Potentially Contaminating Activities and Areas of Potential Environmental Concern

2.1 Potentially Contaminating Activities

A Phase One ESA, in accordance with O.Reg.153/04, has been conducted by EXP (2017a) for the Site. Several potentially contaminating activities (PCAs) were identified on-Site and within 250 m from the Site boundaries. Each PCA was further evaluated to determine if the activity may be contributing to an area of potential environmental concern (APEC) at the Site.

Refer to Table 2 for the list of PCAs that have occurred within the Phase Two Study Area, which includes the Site and properties within 250 m radius of the Site boundaries, and their rationale for determining whether the identified PCA is considered to contribute to an APEC at the Site.

Table 2: Potentially Contaminating Activities

PCA Identifier	Address	Location of Activity (in relation to Site)[1]	Potentially Contaminating Activity (PCA)[2]	Approximate timeline that PCA occurred	Contributes to APEC (Yes or No)?
1	480 Guelph Line	Off-Site (approx. 45 m north)	37- Operation of Dry Cleaning Equipment (where chemicals are used)	A review of the city directories indicated that the property was occupied by Parker's Cleaners from 1957 to 2011. According to the EcologERIS report, Parker's Cleaners was listed as a registered waste generator of halogenated solvents from 1986 to June 2017.	Yes, given the nature of operations and potential up-gradient location
2A/B	2439 New Street / 448 Guelph Line (south portion of current 458 Guelph Line) (East adjacent property)	Off-Site	28- Gasoline and Associate Products Storage in Fixed Tank 27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	According to the 1971 FIP, the property was occupied by an auto service building with a UST. The city directories indicated that 448 Guelph Line was occupied by Kirby J.W. service station between 1957 and 1961.	Yes (Given close proximity of PCA)
3A-C	458 Guelph Line (East adjacent property)	Off-Site	28- Gasoline and Associate Products Storage in Fixed Tank 27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	According to the 1971 FIP, the property was occupied by an auto service building with a UST. The city directories have the property listed as being occupied by BP Service / Petro Canada from 1957 to 2011. The EcologERIS report indicated that the property was registered for five (5) gasoline single wall USTs installed in 1985 and removed. The property was also registered for three (3) 50,000 L active gasoline double wall USTs installed in 2002. Based on information provided in the	Yes (Given close proximity of PCA)

PCA Identifier	Address	Location of Activity (in relation to Site)[1]	Potentially Contaminating Activity (PCA)[2]	Approximate timeline that PCA occurred	Contributes to APEC (Yes or No)?
			Not listed- Spill incident (PCA-3C)	previous Phase I ESA completed in January 2017, the TSSA report for the Site indicated that a subsurface investigation was completed at the property prior to installation of new USTs. Free phase petroleum product was also identified in one borehole where TPH and BTEX were above the SCS at that time in the soil samples submitted and xylene was above the SCS at one monitoring well location. A spill incident is listed for the property on October 30, 2001 for Petro-Canada where gasoline is noted in the borehole, "investigating further".	
4A/B	457 Guelph Line	Off-Site (approx. 105 m northeast / east of Site)	28- Gasoline and Associate Products Storage in Fixed Tank 27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	According to the 1971 FIP, the property was occupied by an auto service building with a UST. The city directories indicated that the property was occupied by Esso Service from 1957 to 1986. The EcologERIS report has the tenant, Esso Petroleum Canada, listed as a gasoline service station and a generator of other specific inorganics from 1992 to 1998. The city directories indicated that the property was occupied by Sand's Auto & Services in 1991.	No, due to distance from Site and trans-gradient location from Site
5	451 Guelph Line	Off-Site (approx. 230 m northeast / east)	37- Operation of Dry Cleaning Equipment (where chemicals are used)	The city directories indicated that the former tenants (451 Guelph Line) included Star Cleaner from 1957 to 1996 and Roseland Cleaners from 2001 to 2006. According to the 1971 FIP, the property was occupied by a commercial plaza (Roseland Plaza) and occupied by various tenants including "cleaners".	No, due to distance from Site and trans-gradient location from Site
6A/B	433 Guelph Line	Off-Site (approx. 125 m southeast of Site)	28- Gasoline and Associate Products Storage in Fixed Tank 27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	According to the 1971 FIP, the property was occupied by an auto service building with a UST. The city directories have the property listed as a service station / BP auto service from 1957 to 1971.	No, due to distance from Site and down-gradient location from Site
7	490 Guelph Line	Off-Site (approx. 65 m northeast)	27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	A review of the city directories indicated that the property was occupied by Goodyear Certified Auto Service from 1966 to 2011 and Armour Tire and Auto Service Ltd. In 2011. The property is currently occupied by Beverly Auto and Tire.	Yes, given the nature of operations and potential up-gradient location

PCA Identifier	Address	Location of Activity (in relation to Site)[1]	Potentially Contaminating Activity (PCA)[2]	Approximate timeline that PCA occurred	Contributes to APEC (Yes or No)?
8	2440 New Street / 2432 New Street	Off-Site (approx. 75 m southeast)	27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	A review of the city directories indicated that the property was occupied by various automotive establishments from 1966 to 2011including Canadian Tire Service Garage from 1966 to 1971, Burlington Transmission, and Gerrick Tire Service Ltd. A review of the 1971 FIP indicated that the property was occupied by Canadian Tire Corp with a building at the rear of the property listed as “auto reps”.	No, due to the down-gradient location from Site
9A	2421 and 2431 New Street	On-Site	Not listed- Exceedances for cVOCs in soil and groundwater	A review of the previous environmental reports indicated an exceedance for various cVOCs (tetrachloroethylene in soil and tetrachloroethylene, trichloroethylene, chloroform and vinyl chloride) in groundwater. An exceedance of the SCS was noted for PHC fraction F1 in one monitoring well.	Yes (PCA located on-Site)
9B	2431 New Street	On-Site	Not listed- Exceedance of for PHCs in groundwater	A review of the previous environmental reports indicated an exceedance for PHC fraction F1 in one monitoring well.	Yes (PCA located on-Site)
10	466 Guelph Line	Off-Site (East adjacent)	Not listed – Generator of hazardous wastes	According to the EcologERIS report, DRSSL Limited was listed as a registered waste generator of halogenated solvents in 2016 to June 2017. The tenant is listed as a lessor of non-residential and residential buildings.	Yes, given the potential up-gradient location
11	2434 New Street	Off-Site (approx. 35 m east)	54- Textile Manufacturing and Processing	According to the EcologERIS report, DRT Products Inc. is listed in Scott’s Directory as “all other textile product mills, commercial screen printing, etc.”	No, due to the down-gradient location from Site
12	2442 New Street	Off-Site (approx. 65 m east)	Not listed- Former printing establishment	According to the EcologERIS report, Print Three, is listed in the Scott’s Manufacturing Directory, as commercial printing, lithographic; commercial printing, not elsewhere classified. The city directories indicate that Print Three was listed as a tenant from 1991 to 1996.	No, due to the down-gradient location from Site
13	3009 New Street	Off-Site (approx. 115 m north)	Not listed – Generator of hazardous wastes	According to the EcologERIS report, Dr. David Robertson, tenant of Roseland Plaza, was listed as a registered waste generator of halogenated solvents in 2016.	No, due to distance from Site and trans-gradient location from Site
14	417 Guelph Line	Off-Site (approx. 130 m southeast of Site)	39- Paints Manufacturing, Processing and Bulk Storage	A review of the city directories indicated that the property was occupied by Tone Craft Paints Ltd. In 1966.	No, due to distance from Site and down-gradient location from Site
15	415 Guelph Line	Off-Site	37- Operation of Dry Cleaning Equipment (where chemicals are used)	A review of the city directories indicated that the property is occupied by City Laundry and Dry Cleaners from 1957 to 1961.	No, due to distance from Site and down-gradient location from Site

PCA Identifier	Address	Location of Activity (in relation to Site)[1]	Potentially Contaminating Activity (PCA)[2]	Approximate timeline that PCA occurred	Contributes to APEC (Yes or No)?
		(approx. 130 m southeast of Site)			
16	409 Guelph line	Off-Site (approx. 165 m southeast of Site)	Not listed- Former printing establishment	A review of the city directories indicated that the property was occupied by St. Clair Place Plaza whose tenants included Print Three from 2001 to 2011.	No, due to the down-gradient location from Site
17	No address	Off-Site (approx. 175 m south/southeast)	40- Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Application	A review of the 1934 aerial photograph indicated that a small orchards may have been present on properties south of the Site, beyond New Street.	No, due to the down-gradient location from Site
18	3040 New Street	Off-Site (approx. 230 m east of Site)	PCA #37- Operation of Dry Cleaning Equipment (where chemicals are used).	During the Site visit, a unit at address 3040 New Street was occupied by Parkers of Burlington Fire Dry Cleaners & Launderers. This is the new location of the Dry Cleaners, the old location being at 480-482 Guelph Line.	No, due to distance from Site and trans-gradient location from Site
19	3030 New Street	Off-Site (approx. 200 m northeast of Site)	27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles systems.	During the Site visit, 3030 New Street was occupied by Midas Auto Service Experts, an auto service garage.	No, due to distance from Site and trans-gradient location from Site
20	2421 and 2431 New Street	On-Site	Not listed- use of salt for de-icing purposes	The areas surrounding the Site buildings include asphalt parking areas. As such, there is the potential for use of salt for de-icing purposes in the winter months.	Yes (PCA located on-Site)

(1) Distances are approximate. Precise distances are not possible due to the age of some listings and the aggregation and/or loss of addresses.

(2) Potentially contaminating activity means a use or activity set out in Column A of Table 2 of Schedule D (O.Reg 153/04, as amended) that is occurring or has occurred in a phase one Study area.

Refer to Figure 2 for the location of all PCAs that have occurred within the Phase Two Study Area.

2.2 Areas of Potential Environmental Concern

Based on the evaluation of the PCAs located within the Phase One Study Area, the following APECs were identified, as presented in Table 3.

Table 3: Areas of Potential Environmental Concern

Area of Potential Environmental Concern (APEC)[1]	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)[2]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern[3]	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 1A: Exceedances of cVOCs in soil and groundwater	Entire Site	Not listed- Exceedances for cVOCs in soil and groundwater	On-Site	VOCs	Soil and Groundwater
APEC 1B: Use of salt for de-icing purposes	Entire Site	Not listed- use of salt for de-icing purposes	On-Site	Electrical Conductivity, Sodium Adsorption Ratio (soil), Sodium and Chloride (groundwater)	Soil and Groundwater
APEC 2A: Exceedances of PHC in groundwater	Near northeast property boundary	Not listed- Exceedances for PHC groundwater	On-Site	PHCs including BTEX	Groundwater
APEC 2B: Former auto service station with UST on property east of Site (2439 New Street / 448 Guelph Line, now 458 Guelph Line)	Near northeast property boundary	28- Gasoline and Associate Products Storage in Fixed Tank 27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles	Off-Site	PHCs including BTEX	Groundwater
APEC 2C: Former/current service station with UST and spill incident east of Site (458 Guelph Line)	Near northeast property boundary	28- Gasoline and Associate Products Storage in Fixed Tank 27- Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles Not listed- Spill incident	Off-Site	PHCs including BTEX	Groundwater
APEC 2D:	Near northeast	27- Garages and Maintenance and Repair of Railcars,	Off-Site	PHCs including BTEX	Groundwater

Area of Potential Environmental Concern (APEC)[1]	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)[2]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern[3]	Media Potentially Impacted (Groundwater, soil and/or sediment)
Former/current service station northeast of Site (458 Guelph Line)	property boundary	Marine Vehicles and Aviation Vehicles			
APEC 3A: Former dry cleaner northeast of Site (480 Guelph Line)	Near northeast property boundary	37- Operation of Dry Cleaning Equipment (where chemicals are used)	Off-Site	VOCs	Groundwater
APEC 3B: Generator of halogenated solvents (466 Guelph Line)	Near northeast property boundary	Not listed – Generator of hazardous wastes	Off-Site	VOCs	Groundwater

(1) Potentially contaminating activity means a use or activity set out in Column A of Table 2 of Schedule D (O.Reg.153/04, as amended) that is occurring or has occurred in a phase one Study area

Refer to Figure 4 for a Site plan with the location of the APECs; and, to Figure 5A and 5B for a borehole/monitoring well location plan with the location of the APECs. Monitoring wells were advanced within all APECs that identified groundwater as a media of concern.

It should be noted that previous environmental investigations included testing for additional chemical parameters (e.g. metals). Data is incorporated into the P2CSM where applicable.

2.3 Underground Utilities

The approximate locations of known underground utilities are presented on Figure 3.

Potable water is provided to the Site building through the municipal water distribution system and sanitary wastewater is discharged to the municipal sewer system. The water line enters the Site from the southwest corner and runs situated along the west side of Building A (2421 New Street) and enters Building B (north portion of Site) from the northwest corner. The water line for Building C (2431 New Street) is situated on the west and south side of the building. The sanitary water line is situated on the west side of Building A (2421 New Street).

A stormwater line is situated south of Building A (2421 New Street) and runs through the middle of the Site.

The natural gas line enters the Site from the southwest corner and runs along the west side of Building A and continues along the northern boundary to Building B. A natural gas line also enters from southern boundary of the Site to Building C (west side of Building C).

A telecommunication line is located at the northwest corner of the Site.

Given that underground utilities are located on the Site, there is the potential for the distribution and transport of contaminants via the underground utilities.

3 Physical Site Description

3.1 Stratigraphy

The Site is located in the physiographic region described as a Sand Plain. The surficial geology of the Site and surrounding areas are comprised of lacustrine and outwash sand. The bedrock in the general area was part of a group belonging to the Queenston Formation, consisting of shale, limestone, dolostone, and siltstone.

The general stratigraphy at the Site, as revealed in the on-Site borehole logs, consists of asphalt or topsoil at the surface with a layer of sand and gravel fill material overlying native silty sand. The depth to bedrock, as noted in the subsurface investigations completed on Site, was noted to be between 4.8 and 5.8 m bgs. Bedrock consists of red shale of the Queenston formation, and was encountered to the maximum drilled depth of 15.2 m bgs.

The Site stratigraphy characteristics are summarized in Table 4.

Table 4: Site Geological Characteristics

Stratigraphy	Details	Minimum Depth Observed (m bgs)	Maximum Depth Observed (m bgs)	Approximate Elevation Range (m ASL)
Surface	Asphalt / Topsoil	0	0.2	~90.6 to 89.8
	Fill Material (silty sand)	0.2	2.3	~90.4 to 88.2
Overburden	Silty Sand	0.2	5.8	~90.2 to 84.6
Bedrock	Red shale (Queenston Formation)	4.8	15.2	~85.5 to 74.8

The geology of the Site is illustrated on the cross-sections (Figures 17A, 18A, 19A and 20A).

3.2 Hydrogeology

Roseland Creek is situated approximately 555 m northeast of the Site and Lake Ontario is situated approximately 900 m south / southeast of the Site.

Based on groundwater data collected from across the Site, the inferred groundwater flow direction in the overburden is considered to be to the south (Figure 6A) and the groundwater flow direction in the bedrock is considered to be to the southeast (Figure 6B).

Refer to Table 5 for the Site hydrogeology characteristics based on groundwater monitoring observations.

Table 5: Site Hydrogeology Characteristics

Descriptor	Observations
Depth to Groundwater	2.13 to 2.99 m bgs
Groundwater Elevation[(1)]	87.43 m to 88.04 m bgs
Direction of Groundwater Flow	South (overburden) and Southeast (bedrock)
Hydraulic Conductivity (m/s) [(2)]	$1.7x10^{-5}$ to $3.2x10^{-5}$ (overburden) $1.7x10^{-5}$ to $2.6x10^{-6}$ (bedrock)
Horizontal Hydraulic Gradient (m/m)	0.001 to 0.006
Vertical Hydraulic Gradient (m/m)	-0.007 to -0.01

m bgs = meters below ground surface
(1) Geodetic elevation
(2) As measured during EXP Single Well Response Testing

No potable / drinking water wells were identified within the Phase One ESA study area.

3.3 Site Sensitivity

The Site Sensitivity classification with respect to the conditions set out under Section 41 and 43.1 of O.Reg.153/04 were evaluated to determine if the Site is sensitive, as presented in Table 6.

Table 6: Site Sensitivity

Sensitivity	Classification	Does Sensitivity Apply to Site?
Section 41 applies if	(i) property is within an area of natural significance	No
	(ii) property includes or is adjacent to an area of natural significance or part of such an area	No
	(iii) property includes land that is within 30 m of an area of natural significance or part of such an area	No
	(iv) soil at property has a pH value for surface soil less than 5 or greater than 9	No
	(v) soil at property has a pH value for sub-surface soil less than 5 or greater than 11	No
	(vi) a qualified person is of the opinion that, given the characteristics of the property and the certifications the qualified person would be required to make in a record of site condition in relation to the property as specified in Schedule A, it is appropriate to apply this section to the property	No
Section 43.1 applies if	(i) property is a shallow soil property	No
	(ii) property includes all or part of a water body or is adjacent to a water body or includes land that is within 30 m of a water body	No

3.3.1 Soil Importation

Evidence of possible historical soil importation on to the Site is present in the form of fill observed in the boreholes advanced on-Site.

3.4 Land Use

The Site is currently zoned for commercial use and occupied by a commercial plaza and vacant restaurant. The intention is to re-develop the Site for residential land use (Figure 23).

4 Contaminants of Concern

The MOECC (2011a) Table 2: Full Depth Generic Site Condition Standards (SCS) for Residential/Parkland/Institutional Property Use and coarse textured soil were considered applicable for determining contaminants of concern (COCs), based on the reasons presented in Table 7.

Table 7: Site Condition Standards

Descriptor	Site-Specific Condition
Section 41 Site Sensitivity	**Not Applicable** o The soil at the Site has pH values between 5 and 9 for surficial soil; and, between 5 and 11 for subsurface soil. o The Site is not located adjacent to an area of natural significance/an environmentally sensitive area.
Section 43.1 Site Sensitivity	**Not Applicable** o The Site is not considered a shallow soil property, based on the recovered soil cores, which indicated that more than two-thirds of the Site has an overburden thickness in excess of 2 m. o The Site is not located within 30 m of a surface water body; the nearest surface water body, Roseland Creek is situated approximately 555 m northeast of the Site.
Ground Water	o The Site and surrounding properties within 250 m of the Site are supplied by a municipal drinking water system, and no potable water wells are located on the Site or within 250 m of the Site. o However, in a letter from the Region of Halton dated December 8, 2017, regarding the intent of Non-Potable Water Use for the Site, the Region indicated that given the Site is located within a highly vulnerable aquifer, potable water use standards are to be applied to the Site (ie. MOECC Table 2 SCS).
Land Use	**Residential/Parkland/Institutional** o The proposed future use of the Site is for residential use.
Soil Texture	**Coarse-textured** o The predominant texture of soils at the Site is considered to be coarse textured, based on soil characteristics identified in the borehole logs and 75 micron sieve.

Based on the reported analytical results, the parameters that were detected at concentrations above the applicable MOECC Table 2 SCS are presented in Table 8 (soil).

Table 8: Contaminants of Concern in Soil

Parameter Analyzed in Soil	Maximum Concentration (µg/g)	Site Condition Standard (µg/g)	Maximum Concentration Above Applicable SCS?
Volatile Organic Compounds (VOCs)			
Tetrachloroethylene	22	0.28	Yes
Trichloroethylene	0.065	0.061	Yes
Inorganics			
Electrical Conductivity (EC) (mS/cm)	1.4	0.7	Yes

(1) Table 2 Site Condition Standards in Residential property use and coarse textured soil.

Based on the reported analytical results, the parameters that were detected at concentrations above the applicable MOECC Table 2 SCS are presented in Table 9 (groundwater). Due to elevated concentrations of these target analytes, two (2) groundwater samples required dilution at the laboratory. As a result, the laboratory method detection limits (MDLs) were raised and several MDLs were elevated above the Table 2 SCS as shown in Table 9 below.

Table 9: Contaminants of Concern in Groundwater

Parameter Analyzed in Groundwater	Maximum Concentration (µg/L)	Site Condition Standard (1) (µg/L)	Maximum Concentration Above Applicable SCS?
VOCs			
Chloroform	11	2.4	Yes
Cis-1,2-Dichloroethylene	11	1.6	Yes
Tetrachloroethylene	3900	1.6	Yes
Trichloroethylene	110	1.6	Yes
Vinyl chloride	4	0.5	Yes
Bromomethane(2)	<2.5	0.89	Yes
1,4-Dichlorobenzene(2	<2.5	1.0	Yes
1,1,1,2-Tetrachloroethane(2	<2.5	1.1	Yes
1,1,2,2-Tetrachloroethane(2	<2.5	1.0	Yes
1,3-Dichloropropene (cis +trans) (2	<2.5	0.5	Yes

(1) Table 2 Site Condition Standards for All Types of Property Use and coarse textured soil.
(2) Contaminant not detected but laboratory MDL above Table 2 SCS

4.1 Soil and Groundwater Impacts

Samples collected on the Site that meet or exceed the Table 2 SCS are shown in plan view on Figures 7 to 11 for soil, and Figures 12 to 16 for groundwater. Details of the delineation, source and distribution of all impacts are summarized in Tables 10 and 11.

Table 10: Delineation of Soil and Groundwater Impacts

Parameter Group and Media	Horizontal Delineation	Associated Figures	Vertical Delineation	Associated Figures
Electrical Conductivity (EC) in Soil	West portion of Site	11	EC impacts identified in soil within boreholes BH101 and 102 (approx. 0.8 to 1.4 m bgs); vertical delineation completed at BH102 (approx. 3.0 to 3.6 m bgs)	17C, 20C
VOCs in Soil	Northeast and southeast portion of Site	7	Impacts identified between approx. depths of 4.6 to 5.5 m bgs Vertical delineation could not be achieved given the impacted samples were collected just above the bedrock interface ranging between 5.2 m and 5.5 m bgs	17B, 18B, 19B 20B

Parameter Group and Media	Horizontal Delineation	Associated Figures	Vertical Delineation	Associated Figures
VOCs in Groundwater	Overburden – Eastern Half of Site Bedrock - Majority of Site	12B (overburden) 12C (bedrock)	Impacts noted in overburden wells at approx. 1.6 to 4.6 m bgs (BH2B, BH3) and impacts identified in bedrock to maximum drilled depth of 15.2 m bgs*	17B, 18B, 19B 20B

* Vertical delineation of VOCs (specifically tetrachloroethylene) was not achieved after two (2) attempts of borehole drilling and investigation. Based on the information obtained during the Phase Two ESA, the following is noted:

- tetrachloroethylene has been identified as the primary contaminant of concern. The remaining contaminants were vertically delineated successfully;
- the maximum concentrations of contaminants of concern have been identified at the overburden/bedrock interface or shallow fractured bedrock. It has been demonstrated that groundwater quality improves with depth;
- attempts to vertically delineate were completed in the 'worst-case' areas (ie. areas of highest concentrations of target analytes identified in shallow groundwater);
- additional delineation will not lead to an improved understanding of the distribution of contaminants as the majority of the Site is considered impacted within the shallow bedrock. Based on the measured groundwater flow direction in the overburden, the impacts appears to originate from an off-Site source and the Site is in a flow-through scenario; and
- additional vertical delineation in competent bedrock may open additional pathways for contaminant migration into the deep bedrock aquifer.

Table 11: Source and Distribution of Soil and Groundwater Impacts

Parameter Group and Media	Contaminants associated with each group	Source	Distribution	What is known about the impacted area
Salts in Soil	EC	Exceedances likely associated with use of salt for de-icing purposes of parking lot in winter months	Impacts limited to asphalt paved areas on west portion of Site	Exceedances likely associated with use of salt for de-icing purposes of parking lot in winter months (APEC 1B)
VOCs in Soil	PCE TCE	Based on inferred groundwater flow direction, exceedances appear to be associated with former off-Site dry cleaner(s)	Impacts limited to northeast and southeast portion of the Site	Appears to be associated with off-Site dry cleaner(s) to north
VOCs in Groundwater	Chloroform Cis-1,2-DCE PCE TCE Vinyl chloride	Based on inferred groundwater flow direction, exceedances appear to be associated with former off-Site dry cleaner(s)	Overburden- Impacts limited to east portion of the Site Bedrock- Impacts include entire Site	Appears to be associated with off-Site dry cleaner(s) to north

4.2 Contaminant Fate and Transport

4.2.1 Soil Media

The soil COCs found at the Site comprised electrical conductivity (EC), tetrachloroethylene, and trichloroethylene.

Based on the former activities on immediate surrounding properties, the PCE and TCE impacts in soil are likely associated the former dry cleaning operations situated on the north / northeast adjacent properties along Guelph Line.

The EC impacts are likely associated with the use of road salt for de-icing of the asphalt paved areas during the winter months.

A variety of physical, chemical and biochemical mechanisms affect the fate and transport of the potential COCs in soil, the contribution of which is dependent on the soil conditions and the chemical/physical properties of the COCs. Relevant fate and transport mechanisms are natural attenuation mechanisms, including advection mixing, mechanical dispersion/molecular diffusion, phase partitions (i.e. sorption and volatilization), and possibly abiotic or biotic chemical reactions, which effectively reduce COC concentrations.

Concentrations of the COCs in soil will be reduced by the effects of molecular diffusion and the creation of concentration gradients. Volatile chemical constituents (i.e. moderately high Henry's Law Constant and saturated vapour pressure), can volatilize into soil gas and be transported through soil gas under the influence of pressure (e.g. water table fluctuations) and partial pressure gradients in the unsaturated zone. The transport of volatile COCs can also be retarded by sorption on to organic material that may be associated with the soil mineral particles through the overburden material. As non-volatile chemical constituents, metals and EC may undergo abiotic or biotic chemical reactions associated with the soil mineral particles and the micro-organisms present in the overburden material.

As a result of the various natural attenuation mechanisms in the soil environment, the concentrations of COCs in soil are expected to reduce at the Site in the long-term.

There are no known preferential pathways for contaminants present in soil media.

4.2.2 Groundwater Media

The groundwater COCs identified at the Site comprised of chloroform, cis-1,2-dichloroethylene, tetrachloroethylene, trichloroethylene and vinyl chloride.

The source of the cVOCs in groundwater beneath the Site is likely attributed to former off-Site dry cleaner (formerly located north of the Site along Guelph Line).

A variety of physical, chemical and biochemical mechanisms affect the fate and transport of the potential COCs in groundwater, the contribution of which is dependent on the groundwater conditions and the chemical/physical properties of the COCs. Relevant fate and transport mechanisms are advection, dispersion, molecule diffusion, phase partitioning (including adsorption and ion exchange), as well as chemical and biochemical reaction. The relevant physical properties are water solubility, saturated vapour pressure, Henry's Law Constants (as a measure of the potential for partitioning into the vapour phase) and, the sorption partition coefficient (as a measure of the potential for surface interactions or solid phase).

Concentrations of the groundwater COCs are reduced and mass velocities retarded while being transported along the groundwater flow paths by the combined effects of mechanical dispersion and molecular diffusion. Molecular diffusion is mixing arising from concentration gradients and differences in molecule thermal energies and velocities. Mechanical dispersion is mixing arising from differences in fluid velocities both within pores as a result of frictional effects and along flow paths due to differences in pore geometry and orientation. The greater contribution is provided by mechanical dispersion by as much as four (4) orders of

magnitude as compared to molecular diffusion. Concentrations of the COCs are also reduced by bulk mixing of groundwater up-gradient of the source zone with the source zone groundwater.

While migrating along groundwater flow paths, COC groundwater concentrations can be reduced by the volatilization into the air-filled pore spaces of the unsaturated overburden and fill materials. This mechanism is most relevant to the VOCs, which are characterized by moderate vapour pressures/Henry's Law constants and therefore greater tendency for vapour phase partitioning. As a result, and under optimal conditions, these compounds may partition from soil or groundwater into soil gas in the soil unsaturated zone and potentially be transported through soil gas under the influence of pressure and partial pressure gradients to outdoor air or the indoor air of an overlying building.

The movement of COCs can also be retarded by sorption on to organic carbon associated with soil mineral particles. The degree of retardation is dependent on the organic carbon content of the soil mineral particles and the magnitude of the organic carbon partition coefficient of the chemical. In the case of sand, this mechanism may not be significant due to the limited organic material that may be present. Additionally, the VOCs have relatively moderate organic carbon partition coefficients; as such, this mechanism is not considered significant for these COCs.

The VOCs can potentially be degraded by chemical and biochemical reactions in the groundwater environment. Chlorinated aliphatic compounds can be degraded in the groundwater through the successive removal of chlorine atoms by microbial mediated reductive dechlorination, co-metabolism and oxidative processes. In addition to the presence of micro-organisms with the appropriate metabolic pathways, suitable conditions must be present in groundwater to sustain these processes. In the case of reductive dechlorination, a reducing environment must be present as well as an available electron donor and carbon source.

As a result of the physical and chemical processes affecting the fate and transport of COCs at the Site, the mass velocities of these chemical constituents can be expected to be much less than the linear groundwater velocity. Furthermore, the concentrations of COCs in groundwater are expected to reduce at the Site in the long-term.

The preferential pathways for contaminants present in groundwater media include various underground utilities, building footings, bedrock fractures and surface features.

4.2.3 Preferential Pathways

The preferential pathways for contaminants present in soil and groundwater media, include various underground utilities, building footings and subsurface features.

Underground utilities were identified across the Site, as described in Section 2.3. As such, there is a potential for underground utilities to affect the distribution and transport of groundwater and soil vapour contaminants located on the Site.

Details on the preferential pathways for the impacts are summarized in Table 12.

Table 12: Preferential Pathways

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,	Current utilities may affect groundwater and soil vapour migration. Future utilities may affect groundwater and soil vapour migration. Current and future building footings may affect groundwater and soil vapour and migration.

4.2.4 Climatic Conditions

It is noted that climatic or meteorological conditions may influence the distribution and migration of COCs at the Site. Seasonal fluctuations in groundwater due to cyclical increases and decreases in precipitation can affect groundwater recharge. Groundwater levels may be elevated in the spring and fall due to snow melt and/or increases in precipitation; and, groundwater levels may be lowered in the winter and summer due to snow storage and/or increased evaporation. Such fluctuations can increase the vertical distribution of COCs in the capillary zone, as well as alter the direction of groundwater flow paths based on changes in infiltration rates. However, based on the conditions observed at the Site, it is not anticipated that the climatic or meteorological changes will result in significant alterations in the distribution of contaminants.

Details on the climatic or meteorological conditions are summarized in Table 13.

Table 13: Climatic or Meteorological Conditions

H. climatic or meteorological conditions that may have influenced distribution and migration of the contaminants, such as temporal fluctuations in ground water levels, and	Some groundwater fluctuations are expected at the Site, but not significant variation

4.2.5 Soil Vapour Migration

Given the presence of volatile COCs in groundwater, vapour intrusion is a potential contaminant transport mechanism for volatile COCs in groundwater. Intrusion of vapour-phase contaminants into the indoor air occurs from volatilization of chemicals from the dissolved or non-aqueous phases in the subsurface.

The relevant mechanisms for vapour intrusion are soil gas advection and vapour migration from diffusion through the building foundation. Soil gas advection is the dominant mechanism when the pressure gradient is greater than 1 Pascal (MOECC 2011b), as is the case in many residential buildings due to building depressurization. Soil gas advection can occur through any unsealed entry points, cracks or openings present in the building foundation.

Soil vapour flow is greatest within 1 m to 2 m below the building foundation (MOECC 2011b); as such, the soil permeability of backfill beneath the building foundation will affect the soil vapour flow rate. Furthermore, pressure gradients (*i.e.* depressurization of the indoor airspace of the building) created by temperature differences between indoor and outdoor air may affect soil gas flow rate by creating a “stack effect” where, as warm air rises, it is replaced by air infiltrating through doors and windows, and soil gas migrating through the foundation.

As such, in the event that the vapour intrusion pathway is present there may be potential for unacceptable health risks to building occupants via inhalation of indoor air

Details on soil vapour migration are summarized in Table 14.

Table 14: Soil Vapour Migration

I. if applicable, information concerning soil vapour intrusion of the contaminants into buildings including,	There is a potential for soil vapours to be present within the subsurface (sourced from groundwater); to migrate along preferential pathways such as underground utility services; and, eventually to migrate into the atmosphere or overlying buildings.
1. relevant construction features of a building, such as a basement or crawl space,	The Site is currently developed with three (3) single storey commercial buildings (two multi-unit commercial buildings and one vacant restaurant). The proposed future development plans consist of two (2) multi-storey residential / retirement buildings with two (2) levels of underground parking garage. Soil vapours may contact the building slab and migrate through cracks in the basement or floor.

2. building heating, ventilating and air conditioning design and operation, and	The HVAC systems are designed to prevent air from the underground parking garage from entering the above grade structures, through the use of airlocks. Furthermore, the future building will be designed in accordance with the Building Code, which does not allow garage air to enter the above grade building structure.
3. subsurface utilities,	Underground utilities could affect soil vapour migration, given that several lines are currently connected to the on-Site buildings. Underground utilities could affect soil vapour migration, given that several lines will be connected to the future building.

5 Exposure Pathways

5.1 Human Health Receptors and Exposure Pathways

The Site is currently developed with three (3) single storey commercial buildings (two multi-unit commercial buildings and one vacant restaurant). The intention is to re-develop the Site for residential land use. For the purposes of this RA, the proposed future land use is considered to be residential, the most sensitive land use; however, additional receptors may be present on-Site. As such, for the purposes of the HHRA, the proposed human receptors include residents, visitors, long-term (indoor and outdoor) workers and subsurface (construction) workers.

The potentially complete on-Site human receptor exposure pathways for the future residential land use are presented in Table 15.

Table 15: Human Health Conceptual Exposure Model

Scenario	Receptor	Exposure Pathways
Property Residents	Adult (including pregnant female), Teen, Child, Toddler, Infant	Soil ingestion, soil dermal contact (S1) Indoor air inhalation (S-IA, GW2) Outdoor air inhalation Vapour skin contact Ingestion of homegrown produce Soil Odour (S-nose) Groundwater ingestion, groundwater dermal contact (GW1)
Property Visitors	Adult (including pregnant female), Teen, Child, Toddler, Infant	Soil ingestion, soil dermal contact (S1) Indoor air inhalation (S-IA, GW2) Outdoor air inhalation Vapour skin contact Ingestion of homegrown produce Soil Odour (S-nose) Groundwater ingestion, groundwater dermal contact (GW1)
Long-Term Indoor Workers	Adult (including pregnant female)	Indoor air inhalation (S-IA, GW2) Outdoor air inhalation Vapour skin contact Groundwater ingestion, groundwater dermal contact (GW1)
Long-Term Outdoor Workers	Adult (including pregnant female)	Soil ingestion, soil dermal contact (S2) Outdoor air inhalation Vapour skin contact Soil Odour (S-nose) Groundwater ingestion, groundwater dermal contact (GW1)
Subsurface Worker-Construction/Remediation	Adult (including pregnant female)	Soil ingestion, soil dermal contact, and particulate inhalation (S3) Trench air inhalation Vapour skin contact Incidental groundwater ingestion, groundwater dermal contact (GW1)

Refer to Figure 21 for the human health conceptual exposure model.

5.2 Ecological Receptors and Exposure Pathways

The Site is proposed to be developed as residential lands capable of supporting some terrestrial ecological receptors. Consistent with the MOECC (2011b), the potential on-Site ecological receptors that may be present on-Site include terrestrial vegetation such as trees, grasses and shrubs; soil invertebrates such as earthworms; terrestrial birds such as woodcocks and blackbirds; and terrestrial mammals such as voles and shrews.

The shallowest depth to the groundwater table on the Site relative to the ground surface was 2.1 m bgs in February 2018. As such, the direct contact pathways for ecological receptors (i.e. root uptake for terrestrial

plants, dermal contact and ingestion for soil invertebrates and terrestrial mammals and birds) are considered incomplete at the Site. Volatile contaminants may migrate toward the ground surface, where soil invertebrates, mammals and birds may come in contact with vapour via inhalation and skin contact. As such, the indirect contact exposure pathway (i.e. vapour inhalation) relevant to soil and groundwater COCs is considered to be complete for soil invertebrates and terrestrial mammals and birds.

The potentially complete on-Site ecological receptor exposure pathways for the future residential land use are presented in Table 16.

Table 16: Ecological Conceptual Exposure Model

Primary Source	Secondary Source	Receptor	Exposure Route
Impacted soil or groundwater	Impacted soil	Terrestrial vegetation	Root uptake of soil
		Soil invertebrates	Soil dermal contact, soil particulate inhalation, soil ingestion
		Terrestrial birds and mammals	Soil dermal contact, soil particulate inhalation, soil ingestion
	Impacted ambient air	Terrestrial vegetation	Stem and foliar uptake of ambient air
		Soil invertebrates	Vapour inhalation and skin contact
		Terrestrial birds and mammals	Vapour inhalation and skin contact
	Impacted animal tissue	Terrestrial birds and mammals	Tissue residue ingestion

Refer to Figure 22 for the Ecological Conceptual Exposure Model.

The MOECC evaluates exposure to aquatic receptors at properties within 5 km of a surface water body. Given that Lake Ontario is located approximately 0.9 km south of the Site, off-Site aquatic receptors are also considered. Relevant aquatic receptors are aquatic vegetation, aquatic invertebrates, aquatic birds and fish.

The potentially complete off-Site ecological receptor exposure pathways for Lake Ontario are presented in Table 17.

Table 17: Ecological off-Site Conceptual Site Model

Primary Source	Secondary Source	Tertiary Source	Receptor	Exposure Route
Impacted soil	Impacted ground water	Impacted surface water	Aquatic vegetation	Root, stem and foliar uptake of surface water (S-GW3)
			Aquatic invertebrates	Surface water dermal contact, surface water ingestion (S-GW3)
			Aquatic birds and mammals	Surface water dermal contact, surface water ingestion, tissue residue ingestion (S-GW3)
			Fish	Surface water dermal contact, surface water ingestion, tissue residue ingestion, gill uptake (S-GW3)
Impacted groundwater	Impacted surface water		Aquatic vegetation	Root, stem and foliar uptake of surface water (GW3)
			Aquatic invertebrates	Surface water dermal contact, surface water ingestion (GW3)
			Aquatic birds and mammals	Surface water dermal contact, surface water ingestion, tissue residue ingestion (GW3)
			Fish	Surface water dermal contact, surface water ingestion, tissue residue ingestion, gill uptake (GW3)

Appendix B:
Summary of Soil Analytical Data

SOIL ANALYTICAL RESULTS - Legend
Phase Two ESA, 2421 and 2431 New Street, Burlington , ON
HAM-00801287-A0

	All soil concentrations reported in µg/g, unless otherwise noted.
*	Maximum RDL below MOECC (2011) SCS
'<' =	Parameter below detection limit, as indicated
-	Not Analyzed
'NV'=	No value
Bold	Concentration exceeds MOECC (2011) SCS.
	Non-detect but detection limit exceeds the MOECC (2011) SCS.

1. Criteria refers to Ministry of Environment and Climate Change "Soil, Ground Water and and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" March 9, 2004, amended as of July 1, 2011
2. This table represents a summary of the data presented in the Laboratory Certificate of Analysis for convenience purposes only
3. This summary is to be use in conjuction with, not as a replacement of the Laboratory Ceritificate of Analysis which contains all QA/QC information

Table B1 - SOIL ANALYTICAL RESULTS - Volatile Organic Compounds
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	Reporting Detection Limit (RDL)*	**BH1-9**	**BH2-10**	**BH3-9**	**DUP4 (BH3-9)**	**BH4-9**
Lab ID			DSJ818	DSJ823	DSJ868	DSJ744	DSJ872
Sampling Date			5-Jan-17	5-Jan-17	5-Jan-17	5-Jan-17	6-Jan-17
Soil Sample Depth (m)			4.9 - 5.5	5.2 - 5.3	4.6 - 4.9	4.6 - 4.9	4.9 - 5.5
Consultant			S2S	S2S	S2S	S2S	S2S
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Current Status			Remains on site	Remains on site	Remains on site	Remains on site	Remains on site
Acetone	16	0.5	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	0.21	0.02	<0.020	<0.020	<0.020	<0.020	<0.020
Bromodichloromethane	1.5	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	0.27	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon Tetrachloride	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	2.4	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	2.3	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	1.2	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	4.8	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	0.083	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	0.47	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Cis-1,2-Dichloroethylene	1.9	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Trans-1,2-Dichloroethylene	0.084	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	1.1	0.02	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylene Dibromide	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	16	0.5	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	0.1	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Isobutyl Ketone	1.7	0.5	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-t-Butyl Ether	0.75	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	0.7	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane	0.058	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	2.3	0.02	<0.020	<0.020	<0.020	<0.020	<0.020
Tetrachloroethylene	0.28	0.05	<0.050	**1.1**	<0.050	<0.050	0.061
1,1,1-Trichloroethane	0.38	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	0.061	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl Chloride	0.02	0.02	<0.050	<0.050	<0.050	<0.050	<0.050
Total Xylenes	3.1	0.02	<0.020	<0.020	<0.020	<0.020	<0.020
Dichlorodifluoromethane	16	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Hexane(n)	2.8	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane	4	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichloropropene (cis + trans)	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050

Table B1 - SOIL ANALYTICAL RESULTS - Volatile Organic Compounds
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	Reporting Detection Limit (RDL)*	**BH101 SS4**	**BH101 SS7**	**BH102 SS5**	**BH102 SS7**	**BH103 SS2**	**BH103 SS7**	**BH103 SS70 (duplicate of BH103 SS7)**	**BH104 SS7**
Lab ID			FRT287	FRT288	FRT291	FRT292	FRT293	FRT296	FRT297	FRT298
Sampling Date			4-Dec-17	4-Dec-17	4-Dec-17	4-Dec-17	28-Nov-17	28-Nov-17	28-Nov-17	1-Dec-17
Soil Sample Depth (m)			2.3 - 2.9	4.6 - 5.2	3.1 - 3.7	4.6 - 5.2	0.8 - 1.4	4.6 - 5.2	4.6 - 5.2	4.6 - 5.2
Consultant			EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Current Status			Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site
Acetone	16	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	0.21	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Bromodichloromethane	1.5	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	0.27	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon Tetrachloride	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	2.4	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	2.3	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	1.2	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	4.8	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	0.083	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	0.47	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cis-1,2-Dichloroethylene	1.9	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trans-1,2-Dichloroethylene	0.084	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	1.1	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylene Dibromide	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	16	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	0.1	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Isobutyl Ketone	1.7	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-t-Butyl Ether	0.75	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	0.7	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane	0.058	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	2.3	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Tetrachloroethylene	0.28	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	**0.71**	**0.71**	<0.050
1,1,1-Trichloroethane	0.38	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	0.061	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl Chloride	0.02	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Xylenes	3.1	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Dichlorodifluoromethane	16	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Hexane(n)	2.8	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane	4	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichloropropene (cis + trans)	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

Table B1 - SOIL ANALYTICAL RESULTS - Volatile Organic Compounds
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	Reporting Detection Limit (RDL)*	**BH105 SS4**	**BH106 SS8**	**BH107 SS7**	**BH108 SS3**	**BH108 SS7**	**BH109 SS8**	**BH109 SS80 (duplicate of BH109 SS8)**	**BH110 SS7**
Lab ID			FRT300	FRT301	FRT303	FRT304	FRT305	FRT307	FRT309	FRT310
Sampling Date			27-Nov-17	27-Nov-17	27-Nov-17	4-Dec-17	4-Dec-17	30-Nov-17	30-Nov-17	4-Dec-17
Soil Sample Depth (m)			2.3 - 2.9	5.3 - 5.9	4.6 - 5.2	1.5 - 2.1	4.6 - 5.2	5.3 - 5.5	5.3 - 5.5	4.6 - 5.2
Consultant			EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Current Status			Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site
Acetone	16	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	0.21	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Bromodichloromethane	1.5	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	0.27	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon Tetrachloride	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	2.4	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	2.3	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	1.2	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	4.8	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	0.083	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	0.47	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cis-1,2-Dichloroethylene	1.9	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trans-1,2-Dichloroethylene	0.084	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	1.1	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylene Dibromide	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Ethyl Ketone	16	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	0.1	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl Isobutyl Ketone	1.7	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-t-Butyl Ether	0.75	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	0.7	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane	0.058	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Toluene	2.3	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Tetrachloroethylene	0.28	0.05	<0.050	<0.050	**2.3**	<0.050	<0.050	**1.8**	**0.89**	**22**
1,1,1-Trichloroethane	0.38	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	0.061	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**0.065**
Vinyl Chloride	0.02	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Xylenes	3.1	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Dichlorodifluoromethane	16	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Hexane(n)	2.8	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane	4	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichloropropene (cis + trans)	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

Table B2 - SOIL ANALYTICAL RESULTS - Petroleum Hydrocarbons
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	Reported Detection Limit (RDL)*	**BH1-7**	**BH2-4**	**BH3-4**	**BH4-5**	**DUP3 (BH4-5)**	**BH103 SS4**	**BH107 SS4**
Lab ID			DSJ817	DSJ821	DSJ866	DSJ871	DSJ743	FRT294	FRT302
Sampling Date			5-Jan-17	5-Jan-17	5-Jan-17	6-Jan-17	6-Jan-17	28-Nov-17	27-Nov-17
Soil Sample Depth (m)			3.7 - 4.3	1.8 - 2.4	1.8 - 2.4	2.4 - 3.0	2.4 - 3.0	2.3 - 2.9	2.3 - 2.9
Consultant			S2S	S2S	S2S	S2S	S2S	EXP	EXP
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Current status			Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site
Benzene	0.21	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Toluene	2.3	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylbenzene	1.1	0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Xylenes	3.1	0.04	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
F1 (C6-C10)	55	10	<10	<10	<10	<10	<10	<10	<10
F2 (C10-C16)	98	10	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	50	<50	<50	<50	<50	<50	<50	<50
F4 (C34-C50)	2800	50	<50	<50	<50	<50	<50	<50	<50
Reached Baseline at C50	NV	NV	Yes	Yes	Yes	Yes	Yes	YES	YES

Table B2 - SOIL ANALYTICAL RESULTS - Petroleum Hydrocarbons
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	Reported Detection Limit (RDL)*	**BH109 SS4**	**BH109 SS40 (duplicate of BH109 SS4)**	**BH110 SS7**
Lab ID			FRT306	FRT308	FRT310
Sampling Date			30-Nov-17	30-Nov-17	4-Dec-17
Soil Sample Depth (m)			2.3 - 2.9	2.3 - 2.9	4.6 - 5.2
Consultant			EXP	EXP	EXP
Laboratory			Maxxam	Maxxam	Maxxam
Current status			Remains on site	Remains on site	Remains on site
Benzene	0.21	0.02	<0.020	<0.020	-
Toluene	2.3	0.02	<0.020	<0.020	-
Ethylbenzene	1.1	0.02	<0.020	<0.020	-
Total Xylenes	3.1	0.04	<0.040	<0.040	-
F1 (C6-C10)	55	10	<10	<10	<10
F2 (C10-C16)	98	10	<10	<10	<10
F3 (C16-C34)	300	50	<50	<50	<50
F4 (C34-C50)	2800	50	<50	<50	<50
Reached Baseline at C50	NV	NV	YES	YES	YES

Table B3 - SOIL ANALYTICAL RESULTS - Metals and Inorganics
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	Reporting Detection Limit (RDL)*	**BH1 SS5**	**BH2 SS6**	**BH3 SS7**	**BH4 SS6**	**BH1-2**	**DUP1 (BH1-2)**	**BH1-7**	**BH2-2**	**BH2-4**
Lab ID			1486831	1486832	1486833	1486835	DSJ815	DSJ741	DSJ817	DSJ819	DSJ821
Sampling Date			25-Sep-2009	25-Sep-2009	25-Sep-2009	25-Sep-2009	1/5/2017	1/5/2017	1/5/2017	1/5/2017	1/5/2017
Soil Sample Depth (m)			3.0 - 3.6	3.8 - 4.4	4.6 - 5.2	3.8 - 4.4	0.5 - 1.2	0.5 - 1.2	3.7 - 4.3	0.6 - 1.2	1.8 - 2.4
Consultant			Soil Mat	Soil Mat	Soil Mat	Soil Mat	S2S	S2S	S2S	S2S	S2S
Laboratory			AGAT	AGAT	AGAT	AGAT	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Current Status			Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site
Antimony	7.5	0.2	<1.6	<1.6	<1.6	<1.6	<0.20	<0.20	<0.20	<0.20	<0.20
Arsenic	18	1	1.3	1.1	1.7	1.2	1.2	1.2	1.8	4.1	1.1
Barium	390	0.5	15	25.1	36	17.5	20	17	13	82	6.6
Beryllium	4	0.2	<0.4	<0.4	<0.4	<0.4	0.2	0.2	0.23	0.51	<0.20
Boron (Hot Water Soluble)	1.5	0.05	<0.10	<0.10	<0.10	<0.10					
Cadmium	1.2	0.1	<0.4	<0.4	<0.4	<0.4	<0.10	<0.10	<0.10	0.13	<0.10
Chromium	160	1	5.4	4.8	6.9	3.8	8	7.1	6.8	14	4.9
Chromium VI	8	0.2	<0.40	<0.40	<0.40	<0.40					
Cobalt	22	0.1	3.6	3.2	4.6	2.5	2.4	2.4	4.1	8.1	1.8
Copper	140	0.5	12.5	11.4	14.5	9.5	6.4	5.7	12	12	6.6
Lead	120	1	4.3	4.3	5.1	3.8	5.7	4.7	4.2	10	2.5
Mercury	0.27	0.05	<0.011	<0.011	<0.011	<0.011	<0.050	<0.050		<0.050	
Molybdenum	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	0.58	<0.50
Nickel	100	0.5	6.4	5.7	8.5	4.7	4.8	5	8.2	17	3.9
Selenium	2.4	0.5	<0.8	<0.8	<0.8	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50
Silver	20	0.2	<0.4	<0.4	<0.4	<0.4	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	1	0.05	<0.4	<0.4	<0.4	<0.4	<0.050	<0.050	<0.050	0.078	<0.050
Vanadium	86	5	9	9	11.4	6.9	23	16	13	25	13
Zinc	340	5	18	17.1	23.2	12.8	17	17	20	35	11
pH (pH Units)	5 to 9 (<1.5m), 5 to 11 (>1.5m)	-	7.94	7.68	7.98	7.79	7.57	7.56	7.82	7.53	
Conductivity (ms/cm)	0.7	-	0.157	0.115	0.11	0.071	0.17	0.18		0.16	
Sodium Adsorption Ratio	5	-	0.337	0.644	0.26	0.17	1.9	1.7		0.25	
Cyanide, Free	0.051	0.01	<1.0	<1.0	<1.0	<1.0	<0.01	<0.01		<0.01	
Boron (Total)	120	5					<5.0	<5.0	5.1	6.3	<5.0
Uranium	23	0.05					0.25	0.22	0.3	0.46	0.27

Table B3 - SOIL ANALYTICAL RESULTS - Metals and Inorganics
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	Reporting Detection Limit (RDL)*	**BH3-2**	**BH3-4**	**BH4-2**	**BH4-5**	**BH101 SS2**	**BH101 SS20 (duplicate of BH101 SS2)**	**BH101 SS3**	**BH102 SS2**
Lab ID			DSJ824	DSJ866	DSJ869	DSJ871	FRT286	FRT289	FTC255	FRT290
Sampling Date			1/6/2017	1/6/2017	1/5/2017	1/5/2017	12/4/2017	12/4/2017	12/4/2017	12/4/2017
Soil Sample Depth (m)			0.6 - 1.2	1.8 - 2.4	0.6 - 1.2	2.4 - 3.0	0.8 - 1.4	0.8 - 1.4	1.5 - 2.1	0.8 - 1.4
Consultant			S2S	S2S	S2S	S2S	EXP	EXP	EXP	EXP
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Current Status			Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site	Remains on site
Antimony	7.5	0.2	0.27	<0.20	<0.20	<0.20	0.22	<0.20		0.95
Arsenic	18	1	5	1.4	1.7	1.4	7.6	8		8.9
Barium	390	0.5	29	9.8	17	8.5	68	80		47
Beryllium	4	0.2	0.25	<0.20	0.22	<0.20	0.5	0.57		<0.20
Boron (Hot Water Soluble)	1.5	0.05					0.25	0.25		0.72
Cadmium	1.2	0.1	0.23	<0.10	<0.10	<0.10	0.21	0.27		0.18
Chromium	160	1	9.2	6.1	9.9	5.7	16	18		9.7
Chromium VI	8	0.2					<0.2	<0.2		<0.2
Cobalt	22	0.1	2.9	2.6	3.5	2.3	7.5	8.3		2.2
Copper	140	0.5	14	9.6	7.5	8.5	23	24		16
Lead	120	1	36	3.3	4.4	3.1	32	34		64
Mercury	0.27	0.05	0.071		<0.050		0.067	<0.050		0.1
Molybdenum	6.9	0.5	<0.50	<0.50	<0.50	<0.50	0.54	<0.50		<0.50
Nickel	100	0.5	6.8	5.3	5.7	4.5	16	16		4.6
Selenium	2.4	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		<0.50
Silver	20	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		<0.20
Thallium	1	0.05	0.052	<0.050	<0.050	<0.050	0.12	0.14		0.054
Vanadium	86	5	19	15	29	14	27	28		19
Zinc	340	5	40	13	12	11	78	82		44
pH (pH Units)	5 to 9 (<1.5m), 5 to 11 (>1.5m)	-	7.34		7.27		7.65	7.73		7.67
Conductivity (ms/cm)	0.7	-	0.15		0.087		**1.2**	**1.4**	0.52	**0.71**
Sodium Adsorption Ratio	5	-	0.25		2		0.92	0.8	1.5	2.1
Cyanide, Free	0.051	0.01	<0.01		<0.01		<0.01	<0.01		<0.01
Boron (Total)	120	5	<5.0	<5.0	<5.0	<5.0	6.1	6.3		<5.0
Uranium	23	0.05	0.38	0.34	0.3	0.33	0.55	0.56		0.3

Table B3 - SOIL ANALYTICAL RESULTS - Metals and Inorganics
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	Reporting Detection Limit (RDL)*	**BH102 SS3**	**BH102 SS5**	**BH105 SS1**
Lab ID			FTC256	FRT291	FRT299
Sampling Date			12/4/2017	12/4/2017	11/27/2017
Soil Sample Depth (m)			1.5 - 2.1	3.0 - 3.6	0 - 0.6
Consultant			EXP	EXP	EXP
Laboratory			Maxxam	Maxxam	Maxxam
Current Status			Remains on site	Remains on site	Remains on site
Antimony	7.5	0.2			<0.20
Arsenic	18	1			3.2
Barium	390	0.5			28
Beryllium	4	0.2			0.27
Boron (Hot Water Soluble)	1.5	0.05			0.14
Cadmium	1.2	0.1			0.1
Chromium	160	1			12
Chromium VI	8	0.2			<0.2
Cobalt	22	0.1			3.9
Copper	140	0.5			11
Lead	120	1			13
Mercury	0.27	0.05			0.076
Molybdenum	6.9	0.5			<0.50
Nickel	100	0.5			7.5
Selenium	2.4	0.5			<0.50
Silver	20	0.2			<0.20
Thallium	1	0.05			<0.050
Vanadium	86	5			29
Zinc	340	5			29
pH (pH Units)	5 to 9 (<1.5m), 5 to 11 (>1.5m)	-			7.72
Conductivity (ms/cm)	0.7	-	**0.8**	0.15	0.2
Sodium Adsorption Ratio	5	-	1.9	2.1	3.3
Cyanide, Free	0.051	0.01			<0.01
Boron (Total)	120	5			<5.0
Uranium	23	0.05			0.38

Appendix C:
Summary of Groundwater Analytical Data

GROUNDWATER ANALYTICAL RESULTS - Legend
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

	All groundwater concentrations reported in µg/L.
*	Maximum RDL below MOECC (2011) SCS
'<' =	Parameter below detection limit, as indicated
-	Not Analyzed
'NV'=	No value
Bold	Concentration exceeds MOECC (2011) SCS.
	Non-detect but detection limit exceeds the MOECC (2011) SCS.

1. Criteria refers to Ministry of Environment and Climate Change "Soil, Ground Water and and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" March 9, 2004, amended as of July 1, 2011
2. This table represents a summary of the data presented in the Laboratory Certificate of Analysis for convenience purposes only
3. This summary is to be use in conjuction with, not as a replacement of the Laboratory Ceritificate of Analysis which contains all QA/QC information

Table C1 - GROUNDWATER ANALYTICAL RESULTS - Volatile Organic Compounds
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition All Types of Property Use (coarse textured soil)	Reporting Detection Limit (RDL)*	**BH1-SM**	**BH2-SM**	**BH2-SM**	**BH3-SM**	**MW2421D**	**MW2421 (duplicate of MW2421D)**	**MW2421S**	**BH1-S2S**
Lab ID			FPL684	FPL685	GAK616	FPL686	FSO152	FSO153	FSO151	FSO146
Sampling Date			22-Nov-17	22-Nov-17	1-Feb-18	22-Nov-17	7-Dec-17	7-Dec-17	7-Dec-17	5-Dec-17
Screened Interval (m bgs)			3.0 - 6.1	3.0 - 6.1	3.0 - 6.1	3.0 - 6.1	6.0 - 7.6	6.0 - 7.6	3.0 - 4.5	3.4 - 6.4
Consultant			EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Acetone	2700	10	<10	<50	<100	<50	<10	<10	<10	<10
Benzene	5	0.2	<0.20	<1.0	<2.0	<1.0	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	16	0.5	<0.50	<2.5	<5.0	<2.5	<0.50	<0.50	<0.50	<0.50
Bromoform	25	1	<1.0	<5.0	<10	<5.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	0.89	0.5	<0.50	<2.5	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	0.79	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	30	0.2	<0.20	<1.0	<2.0	<1.0	<0.20	<0.20	<0.20	<0.20
Chloroform	2.4	0.2	<0.20	2.2	<2.0	**2.9**	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	25	0.5	<0.50	<2.5	<5.0	<2.5	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	3	0.5	<0.50	<2.5	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	59	0.5	<0.50	<2.5	<5.0	<2.5	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	1	0.5	<0.50	<2.5	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	5	0.2	<0.20	<1.0	<2.0	<1.0	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	1.6	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	1.6	0.2	<0.20	<1.0	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20
Cis-1,2-Dichloroethylene	1.6	0.5	<0.50	**11**	**3.2**	<0.50	<0.50	<0.50	<0.50	<0.50
Trans-1,2-Dichloroethylene	1.6	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	5	0.2	<0.20	<1.0	<2.0	<1.0	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	2.4	0.2	<0.20	<1.0	<2.0	<1.0	<0.20	<0.20	<0.20	<0.20
Ethylene Dibromide	0.2	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl Ethyl Ketone	1800	10	<10	<50	<100	<50	<10	<10	<10	<10
Methylene Chloride	50	2	<2.0	<10	<20	<10	<2.0	<2.0	<2.0	<2.0
Methyl Isobutyl Ketone	640	5	<5.0	<25	<50	<25	<5.0	<5.0	<5.0	<5.0
Methyl-t-Butyl Ether	15	0.5	<0.50	<2.5	<5.0	<2.5	<0.50	<0.50	<0.50	<0.50
Styrene	5.4	0.5	<0.50	<2.5	<5.0	<2.5	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	1.1	0.5	<0.50	<2.5	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	1	0.5	<0.50	<2.5	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50
Toluene	24	0.2	<0.20	<1.0	<2.0	<1.0	<0.20	<0.20	<0.20	<0.20
Tetrachloroethylene	1.6	0.2	<0.20	**1300**	**1800**	**1200**	**120**	**110**	0.53	0.33
1,1,1-Trichloroethane	200	0.2	<0.20	<1.0	<2.0	<1.0	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	4.7	0.5	<0.50	<2.5	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	1.6	0.2	<0.20	**10**	**18**	**4.4**	**6.1**	**5.4**	<0.20	<0.20
Vinyl Chloride	0.5	0.2	<0.20	**4**	**0.76**	<0.20	<0.20	<0.20	<0.20	<0.20
Total Xylenes	300	0.2	<0.20	<1.0	<2.0	<1.0	<0.20	<0.20	<0.20	<0.20
Dichlorodifluoromethane	590	1	<1.0	<5.0	<10	<5.0	<1.0	<1.0	<1.0	<1.0
Hexane(n)	51	1	<1.0	<5.0	<10	<5.0	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	150	0.5	<0.50	<2.5	<5.0	<2.5	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropene (cis + trans)	0.5	0.5	<0.50	<2.5	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50

Table C1 - GROUNDWATER ANALYTICAL RESULTS - Volatile Organic Compounds
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition All Types of Property Use (coarse textured soil)	Reporting Detection Limit (RDL)*	**BH2-S2S**	**BH2-S2S**	**BH2B-S2S**	**BH2B (duplicate of BH2B-S2S)**	**BH2B-S2S**	**BH3-S2S**	**BH4-S2S**	**MW101**
Lab ID			FSO148	GAK613	FSO147	FSO154	GAK614	FSO149	FSO150	FSO133
Sampling Date			7-Dec-17	1-Feb-18	7-Dec-17	7-Dec-17	1-Feb-18	7-Dec-17	5-Dec-17	6-Dec-17
Screened Interval (m bgs)			3.5 - 6.5	3.5 - 6.5	1.6 - 3.6	1.6 - 3.6	1.6 - 3.6	1.7 - 4.7	3.2 - 6.2	3.0 - 4.6
Consultant			EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Acetone	2700	10	<10	<100	<10	<10	<10	<10	<10	<10
Benzene	5	0.2	<0.20	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	16	0.5	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	25	1	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	0.89	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	0.79	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	30	0.2	<0.20	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	2.4	0.2	0.29	<2.0	**5.7**	**5.9**	**11**	<0.20	0.6	<0.20
Dibromochloromethane	25	0.5	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	3	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	59	0.5	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	1	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	5	0.2	<0.20	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	1.6	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	1.6	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cis-1,2-Dichloroethylene	1.6	0.5	1.2	<0.50	<0.50	<0.50	<0.50	0.62	<0.50	<0.50
Trans-1,2-Dichloroethylene	1.6	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	5	0.2	<0.20	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	2.4	0.2	<0.20	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylene Dibromide	0.2	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl Ethyl Ketone	1800	10	<10	<100	<10	<10	<10	<10	<10	<10
Methylene Chloride	50	2	<2.0	<20	<2.0	<2.0	<2.0	<2.0	2.7	<2.0
Methyl Isobutyl Ketone	640	5	<5.0	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl-t-Butyl Ether	15	0.5	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	5.4	0.5	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	1.1	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	1	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	24	0.2	<0.20	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Tetrachloroethylene	1.6	0.2	**1700**	**2700**	**23**	**24**	**6.1**	0.25	0.59	<0.20
1,1,1-Trichloroethane	200	0.2	<0.20	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	4.7	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	1.6	0.2	**52**	**2.9**	0.37	0.38	<0.20	0.22	<0.20	<0.20
Vinyl Chloride	0.5	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Xylenes	300	0.2	<0.20	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorodifluoromethane	590	1	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hexane(n)	51	1	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	150	0.5	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropene (cis + trans)	0.5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Table C1 - GROUNDWATER ANALYTICAL RESULTS - Volatile Organic Compounds
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition All Types of Property Use (coarse textured soil)	Reporting Detection Limit (RDL)*	**MW102**	**MW103S**	**MW103D**	**MW104**	**MW105S**	**MW105D**	**MW106S**	**MW106D**
Lab ID			FSO134	FSO135	FSO136	FSO137	FSO138	FSO139	FSO140	FSO141
Sampling Date			6-Dec-17	7-Dec-17	7-Dec-17	6-Dec-17	6-Dec-17	6-Dec-17	6-Dec-17	6-Dec-17
Screened Interval (m bgs)			3.0 - 4.6	3.0 - 4.6	7.6 - 9.2	3.0 - 4.6	3.0 - 4.6	7.6 - 9.1	3.0 - 4.6	7.4 - 8.9
Consultant			EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Acetone	2700	10	<10	<10	<10	<10	<10	<10	<10	<10
Benzene	5	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	16	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	25	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	0.89	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	0.79	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	30	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	2.4	0.2	<0.20	<0.20	<0.20	1.4	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	25	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	3	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	59	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	1	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	5	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	1.6	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	1.6	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cis-1,2-Dichloroethylene	1.6	0.5	<0.50	<0.50	1.4	<0.50	<0.50	<0.50	<0.50	<0.50
Trans-1,2-Dichloroethylene	1.6	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	5	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	2.4	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylene Dibromide	0.2	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl Ethyl Ketone	1800	10	<10	<10	<10	<10	<10	<10	<10	<10
Methylene Chloride	50	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Methyl Isobutyl Ketone	640	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl-t-Butyl Ether	15	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	5.4	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	1.1	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	1	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	24	0.2	<0.20	<0.20	0.68	<0.20	<0.20	<0.20	<0.20	<0.20
Tetrachloroethylene	1.6	0.2	<0.20	**17**	**360**	**2.6**	1.1	**110**	<0.20	**120**
1,1,1-Trichloroethane	200	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	4.7	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	1.6	0.2	<0.20	<0.20	**35**	<0.20	<0.20	**6.1**	<0.20	**9.2**
Vinyl Chloride	0.5	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Xylenes	300	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorodifluoromethane	590	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hexane(n)	51	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	150	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropene (cis + trans)	0.5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Table C1 - GROUNDWATER ANALYTICAL RESULTS - Volatile Organic Compounds
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition All Types of Property Use (coarse textured soil)	Reporting Detection Limit (RDL)*	**MW107S**	**MW107D**	**MW108**	**MW109**	**MW109**	**MW201**	**MW2201 (field dup of MW201)**	**MW202**
Lab ID			FSO142	FSO143	FSO144	FSO145	GAK615	GAK611	GAK619	GAK612
Sampling Date			6-Dec-17	6-Dec-17	6-Dec-17	7-Dec-17	1-Feb-18	1-Feb-18	1-Feb-18	1-Feb-18
Screened Interval (m bgs)			3.0 - 4.6	7.6 - 9.1	3.0 - 4.6	7.6 - 9.1	7.6 - 9.1	13.7 - 15.2	13.7 - 15.2	13.7 - 15.2
Consultant			EXP	EXP	EXP	EXP	EXP	EXP	EXP	EXP
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Acetone	2700	10	<10	<10	<10	<10	<100	<10	<10	<10
Benzene	5	0.2	<0.20	<0.20	<0.20	<0.20	<2.0	<0.20	<0.20	<0.20
Bromodichloromethane	16	0.5	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50
Bromoform	25	1	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0
Bromomethane	0.89	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	0.79	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	30	0.2	<0.20	<0.20	<0.20	<0.20	<2.0	<0.20	<0.20	<0.20
Chloroform	2.4	0.2	0.24	<0.20	<0.20	<0.20	<2.0	<0.20	<0.20	<0.20
Dibromochloromethane	25	0.5	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	3	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	59	0.5	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	1	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	5	0.2	<0.20	<0.20	<0.20	<0.20	<2.0	<0.20	<0.20	<0.20
1,2-Dichloroethane	1.6	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	1.6	0.2	<0.20	<0.20	<0.20	<0.20	0.32	<0.20	<0.20	<0.20
Cis-1,2-Dichloroethylene	1.6	0.5	<0.50	<0.50	<0.50	1.5	**1.9**	<0.50	<0.50	<0.50
Trans-1,2-Dichloroethylene	1.6	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	5	0.2	<0.20	<0.20	<0.20	<0.20	<2.0	<0.20	<0.20	<0.20
Ethylbenzene	2.4	0.2	<0.20	<0.20	<0.20	<0.20	<2.0	<0.20	<0.20	<0.20
Ethylene Dibromide	0.2	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Methyl Ethyl Ketone	1800	10	<10	<10	<10	<10	<100	<10	<10	<10
Methylene Chloride	50	2	<2.0	<2.0	<2.0	<2.0	<20	<2.0	<2.0	<2.0
Methyl Isobutyl Ketone	640	5	<5.0	<5.0	<5.0	<5.0	<50	<5.0	<5.0	<5.0
Methyl-t-Butyl Ether	15	0.5	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50
Styrene	5.4	0.5	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	1.1	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	1	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	24	0.2	<0.20	0.88	<0.20	<0.20	<2.0	<0.20	<0.20	<0.20
Tetrachloroethylene	1.6	0.2	**3**	<0.20	**4.1**	**1500**	**3900**	**7.8**	**8.8**	**33**
1,1,1-Trichloroethane	200	0.2	<0.20	<0.20	<0.20	<0.20	<2.0	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	4.7	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	1.6	0.2	<0.20	<0.20	<0.20	**65**	**110**	0.56	0.66	0.98
Vinyl Chloride	0.5	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total Xylenes	300	0.2	<0.20	<0.20	<0.20	<0.20	<2.0	<0.20	<0.20	<0.20
Dichlorodifluoromethane	590	1	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0
Hexane(n)	51	1	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0	<1.0
Trichlorofluoromethane	150	0.5	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50
1,3-Dichloropropene (cis + trans)	0.5	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Table C2 - GROUNDWATER ANALYTICAL RESULTS - Petroleum Hydrocarbons
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition All Types of Property Use (coarse textured soil)	Reporting Detection Limit (RDL)*	**BH1-SM**	**BH2-SM**	**BH3-SM**	**MW2421S**	**DUP2 (MW2421S)**	**BH1**	**BH2B**	**BH2B-S2S**	**BH2B (duplicate of BH2B-S2S)**	**BH3**	**BH3-S2S**	**BH4**
Lab ID			FPL684	FPL685	FPL686	DST556	DST618	DST557	DST559	FSO147	FSO154	DST560	FSO149	DST561
Sampling Date			22-Nov-17	22-Nov-17	22-Nov-17	9-Jan-17	9-Jan-17	10-Jan-17	10-Jan-17	7-Dec-17	7-Dec-17	9-Jan-17	7-Dec-17	10-Jan-17
Screened Interval (m bgs)			3.0 - 6.1	3.0 - 6.1	3.0 - 6.1	3.0 - 4.5	3.0 - 4.5	3.4 - 6.4	1.6 - 3.6	1.6 - 3.6	1.6 - 3.6	1.7 - 4.7	1.7 - 4.7	3.2 - 6.2
Consultant			EXP	EXP	EXP	S2S	S2S	S2S	S2S	EXP	EXP	S2S	EXP	S2S
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
F1 (C6-C10)	750	25	<25	390	<25	<25	<25	<25	76	<25	<25	<25	<25	<25
F2 (C10-C16)	150	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
F3 (C16-C34)	500	200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
F4 (C34-C50)	500	200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
Reached Baseline at C50	NV	NV	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table C3 - GROUNDWATER ANALYTICAL RESULTS - Metals and Inorganics
Phase Two ESA, 2421 and 2431 New Street, Burlington, ON
HAM-00801287-A0

Sample ID	MOECC (2011) Table 2: Full Depth SCS in a Potable Groundwater Condition All Types of Property Use (coarse textured soil)	Reporting Detection Limit (RDL)*	**MW2421S**	**BH1**	**BH2B**	**BH3**	**BH4**	**DUP4 (BH4)**	**MW101**	**MW102**	**BH1-SM**	**BH2-SM**
Lab ID			DST556	DST557	DST559	DST560	DST561	DST620	FUI108	FUI109	GBA709	GBA710
Sampling Date			9-Jan-17	10-Jan-17	10-Jan-17	9-Jan-17	10-Jan-17	10-Jan-17	18-Dec-17	18-Dec-17	7-Feb-18	7-Feb-18
Screened Interval (m bgs)			3.0 - 4.5	3.4 - 6.4	1.6 - 3.6	1.7 - 4.7	3.2 - 6.2	3.2 - 6.2	3.0 - 4.6	3.0 - 4.6	3.0 - 6.1	3.0 - 6.1
Consultant			S2S	S2S	S2S	S2S	S2S	S2S	EXP	EXP	EXP	EXP
Laboratory			Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Antimony	6	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50			<0.50	<0.50
Arsenic	25	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			<1.0	1.1
Barium	1000	2	17	40	85	58	50	48			87	66
Beryllium	4	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50			<0.50	<0.50
Boron (Total)	5000	10	23	170	64	24	200	200			16	48
Cadmium	2.7	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			<0.10	<0.10
Chromium (total)	50	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0	<5.0
Chromium VI	25	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50				
Cobalt	3.8	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50			<0.50	<0.50
Copper	87	1	<1.0	<1.0	2.2	<1.0	<1.0	<1.0			1.8	2.9
Lead	10	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50			<0.50	<0.50
Mercury	0.29	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				
Molybdenum	70	0.5	<0.50	2.1	<0.50	<0.50	4.2	4			<0.50	1.2
Nickel	100	1	<1.0	1	<1.0	<1.0	<1.0	<1.0			1.2	2
Sodium	490000	100	23000	53000	11000	12000	110000	100000	78000	95000	66000	360000
Selenium	10	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0			<2.0	<2.0
Silver	1.5	0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10			<0.10	<0.10
Thallium	2	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050			<0.050	<0.050
Vanadium	6.2	0.5	<0.50	<0.50	0.62	<0.50	<0.50	0.59			<0.50	0.72
Zinc	1100	5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0	<5.0
Free Cyanide	66	-	<1	<1	<1	<1	<1	<1				
Chloride	790000	1000	42000	70000	58000	20000	61000	61000	140000	99000	44	280
Uranium	20	0.1	0.13	0.5	0.55	0.83	0.86	0.82			0.64	3.9

Appendix D:
Laboratory Certificates of Analysis

Maxxam
A Bureau Veritas Group Company

Your Project #: HAM-00801287-A0
Site Location: NEW STREET
Your C.O.C. #: 642000-04-01

Attention:Erik Enders

exp Services Inc
Hamilton Branch
80 Bancroft St
Hamilton, ON
L8E 2W5

Report Date: 2017/12/15
Report #: R4911167
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7S2013
Received: 2017/12/13, 14:15

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Conductivity	2	2017/12/14	2017/12/14	CAM SOP-00414	OMOE E3530 v1 m
Sodium Adsorption Ratio (SAR)	2	N/A	2017/12/15	CAM SOP-00102	EPA 6010C

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Deepthi Shaji, Project Manager
Email: dshaji@maxxam.ca
Phone# (905)817-5700 Ext:5807

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B7S2013
Report Date: 2017/12/15

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

RESULTS OF ANALYSES OF SOIL

Maxxam ID		FTC255	FTC256		
Sampling Date		2017/12/04 11:35	2017/12/04 01:35		
COC Number		642000-04-01	642000-04-01		
	UNITS	**BH101 SS3**	**BH102 SS3**	**RDL**	**QC Batch**
Calculated Parameters					
Sodium Adsorption Ratio	N/A	1.5	1.9		5313386
Inorganics					
Conductivity	mS/cm	0.52	0.80	0.002	5315841

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B7S2013
Report Date: 2017/12/15

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

TEST SUMMARY

Maxxam ID: FTC255
Sample ID: BH101 SS3
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5315841	2017/12/14	2017/12/14	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5313386	N/A	2017/12/15	Automated Statchk

Maxxam ID: FTC256
Sample ID: BH102 SS3
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	5315841	2017/12/14	2017/12/14	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5313386	N/A	2017/12/15	Automated Statchk

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Maxxam Job #: B7S2013
Report Date: 2017/12/15

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.0°C

Cooler custody seal was present and intact.

Results relate only to the items tested.

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Maxxam Job #: B7S2013
Report Date: 2017/12/15

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

			SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5315841	Conductivity	2017/12/14	100	90 - 110	<0.002	mS/cm	0.060	10

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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Maxxam Job #: B7S2013
Report Date: 2017/12/15

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Service Specialist

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Maxxam
A Bureau Veritas Group Company

Your Project #: HAM-00801287-A0
Site Location: NEW
Your C.O.C. #: na

Attention:Erik Enders

exp Services Inc
Hamilton Branch
80 Bancroft St
Hamilton, ON
L8E 2W5

Report Date: 2017/12/19
Report #: R4915477
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B7R5062
Received: 2017/12/05, 15:21

Sample Matrix: Soil
Samples Received: 25

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Hot Water Extractable Boron	4	2017/12/08	2017/12/08	CAM SOP-00408	R153 Ana. Prot. 2011
1,3-Dichloropropene Sum	1	N/A	2017/12/08		EPA 8260C m
1,3-Dichloropropene Sum	15	N/A	2017/12/11		EPA 8260C m
Free (WAD) Cyanide	4	2017/12/07	2017/12/08	CAM SOP-00457	OMOE E3015 m
Cyanide (WAD) in Leachates	1	N/A	2017/12/08	CAM SOP-00457	OMOE 3015 m
Conductivity	4	2017/12/08	2017/12/08	CAM SOP-00414	OMOE E3530 v1 m
Conductivity	1	2017/12/18	2017/12/18	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1)	4	2017/12/07	2017/12/08	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydro. CCME F1 & BTEX in Soil (2)	4	N/A	2017/12/07	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (3)	2	2017/12/06	2017/12/07	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (3)	3	2017/12/06	2017/12/08	CAM SOP-00316	CCME CWS m
Fluoride by ISE in Leachates	1	2017/12/08	2017/12/08	CAM SOP-00449	SM 22 4500-F- C m
Mercury (TCLP Leachable) (mg/L)	1	N/A	2017/12/09	CAM SOP-00453	EPA 7470A m
Strong Acid Leachable Metals by ICPMS	4	2017/12/08	2017/12/08	CAM SOP-00447	EPA 6020B m
Total Metals in TCLP Leachate by ICPMS	1	2017/12/08	2017/12/08	CAM SOP-00447	EPA 6020B m
Moisture	15	N/A	2017/12/06	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture	9	N/A	2017/12/07	CAM SOP-00445	Carter 2nd ed 51.2 m
Nitrate(NO3) + Nitrite(NO2) in Leachate	1	N/A	2017/12/11	CAM SOP-00440	SM 22 4500-NO3I/NO2B
pH CaCl2 EXTRACT	5	2017/12/08	2017/12/08	CAM SOP-00413	EPA 9045 D m
Sieve, 75um	1	N/A	2017/12/07	CAM SOP-00467	Carter 2nd ed m
Sodium Adsorption Ratio (SAR)	4	N/A	2017/12/11	CAM SOP-00102	EPA 6010C
Sodium Adsorption Ratio (SAR)	1	N/A	2017/12/18	CAM SOP-00102	EPA 6010C
TCLP - % Solids	1	2017/12/07	2017/12/08	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	1	N/A	2017/12/08	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	1	N/A	2017/12/08	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	1	2017/12/07	2017/12/08	CAM SOP-00430	EPA 1311 m
Volatile Organic Compounds and F1 PHCs	1	N/A	2017/12/07	CAM SOP-00230	EPA 8260C m
VOCs in ZHE Leachates	1	2017/12/08	2017/12/08	CAM SOP-00228	EPA 8260C m
Volatile Organic Compounds in Soil	10	N/A	2017/12/08	CAM SOP-00228	EPA 8260C m

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Your Project #: HAM-00801287-A0
Site Location: NEW
Your C.O.C. #: na

Attention:Erik Enders

exp Services Inc
Hamilton Branch
80 Bancroft St
Hamilton, ON
L8E 2W5

Report Date: 2017/12/19
Report #: R4915477
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B7R5062
Received: 2017/12/05, 15:21

Sample Matrix: Soil
Samples Received: 25

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Volatile Organic Compounds in Soil	5	N/A	2017/12/09	CAM SOP-00228	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Soils are reported on a dry weight basis unless otherwise specified.
(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

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Your Project #: HAM-00801287-A0
Site Location: NEW
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Attention:Erik Enders

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Hamilton Branch
80 Bancroft St
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Report Date: 2017/12/19
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CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B7R5062
Received: 2017/12/05, 15:21

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Deepthi Shaji, Project Manager
Email: dshaji@maxxam.ca
Phone# (905)817-5700 Ext:5807
==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

RESULTS OF ANALYSES OF SOIL

Maxxam ID		FRT286			FRT287	FRT288			FRT289		
Sampling Date		2017/12/04			2017/12/04	2017/12/04			2017/12/04		
COC Number		na			na	na			na		
	UNITS	**BH101 SS2**	**RDL**	**QC Batch**	**BH101 SS4**	**BH101 SS7**	**RDL**	**QC Batch**	**BH101 SS20**	**RDL**	**QC Batch**
Calculated Parameters											
Sodium Adsorption Ratio	N/A	0.92		5301944					0.80		5301944
Inorganics											
Conductivity	mS/cm	1.2	0.002	5305750					1.4	0.002	5305750
Moisture	%	11	1.0	5303513	16	22	1.0	5303228	11	1.0	5303513
Available (CaCl2) pH	pH	7.65		5304058					7.73		5304058
WAD Cyanide (Free)	ug/g	<0.01	0.01	5303701					<0.01	0.01	5303701

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		FRT290			FRT291			FRT292	FRT293		
Sampling Date		2017/12/04			2017/12/04			2017/12/04	2017/11/28		
COC Number		na			na			na	na		
	UNITS	**BH102 SS2**	**RDL**	**QC Batch**	**BH102 SS5**	**RDL**	**QC Batch**	**BH102 SS7**	**BH103 SS2**	**RDL**	**QC Batch**
Calculated Parameters											
Sodium Adsorption Ratio	N/A	2.1		5301944	2.1		5318442				
Inorganics											
Conductivity	mS/cm	0.71	0.002	5305750	0.15	0.002	5320424				
Moisture	%	12	1.0	5303513	18	1.0	5303228	18	9.0	1.0	5303228
Available (CaCl2) pH	pH	7.67		5304058							
WAD Cyanide (Free)	ug/g	<0.01	0.01	5303701							

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

RESULTS OF ANALYSES OF SOIL

Maxxam ID		FRT294			FRT295			FRT296	FRT297		
Sampling Date		2017/11/28			2017/11/28			2017/11/28	2017/11/28		
COC Number		na			na			na	na		
	UNITS	**BH103 SS4**	**RDL**	**QC Batch**	**BH103 SS5**	**RDL**	**QC Batch**	**BH103 SS7**	**BH103 SS70**	**RDL**	**QC Batch**
Inorganics											
Moisture	%	17	1.0	5303513				15	16	1.0	5303228
Available (CaCl2) pH	pH				7.83		5304058				
Miscellaneous Parameters											
Grain Size	%				COARSE	N/A	5302187				
Sieve - #200 (<0.075mm)	%				19	1	5302187				
Sieve - #200 (>0.075mm)	%				81	1	5302187				

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam ID		FRT298			FRT299			FRT300	FRT301		
Sampling Date		2017/12/01			2017/11/27			2017/11/27	2017/11/27		
COC Number		na			na			na	na		
	UNITS	**BH104 SS7**	**RDL**	**QC Batch**	**BH105 SS1**	**RDL**	**QC Batch**	**BH105 SS4**	**BH106 SS8**	**RDL**	**QC Batch**
Calculated Parameters											
Sodium Adsorption Ratio	N/A				3.3		5301944				
Inorganics											
Conductivity	mS/cm				0.20	0.002	5305750				
Moisture	%	15	1.0	5303228	8.7	1.0	5303513	17	16	1.0	5303228
Available (CaCl2) pH	pH				7.72		5304058				
WAD Cyanide (Free)	ug/g				<0.01	0.01	5303701				

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

RESULTS OF ANALYSES OF SOIL

Maxxam ID		FRT302		FRT303	FRT304	FRT305		FRT306		
Sampling Date		2017/11/27		2017/11/27	2017/12/04	2017/12/04		2017/11/30		
COC Number		na		na	na	na		na		
	UNITS	**BH107 SS4**	**QC Batch**	**BH107 SS7**	**BH108 SS3**	**BH108 SS7**	**QC Batch**	**BH109 SS4**	**RDL**	**QC Batch**
Inorganics										
Moisture	%	18	5303513	21	9.0	15	5303228	21	1.0	5303513

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		FRT307		FRT308		FRT309		
Sampling Date		2017/11/30		2017/11/30		2017/11/30		
COC Number		na		na		na		
	UNITS	**BH109 SS8**	**QC Batch**	**BH109 SS40**	**QC Batch**	**BH109 SS80**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	15	5303228	20	5303513	22	1.0	5303228

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

RESULTS OF ANALYSES OF SOIL

Maxxam ID		FRT310		
Sampling Date		2017/12/04		
COC Number		na		
	UNITS	**BH110 SS7**	**RDL**	**QC Batch**
Charge/Prep Analysis				
Amount Extracted (Wet Weight) (g)	N/A	23		5303712
Inorganics				
Final pH	pH	6.29		5305991
Leachable Fluoride (F-)	mg/L	0.21	0.10	5306094
Initial pH	pH	9.28		5305991
Moisture	%	18	1.0	5303513
TCLP - % Solids	%	100	0.2	5305989
TCLP Extraction Fluid	N/A	FLUID I		5305990
Leachable WAD Cyanide (Free)	mg/L	<0.010	0.010	5306098
Leachable Nitrite (N)	mg/L	<0.10	0.10	5306099
Leachable Nitrate (N)	mg/L	<1.0	1.0	5306099
Leachable Nitrate + Nitrite (N)	mg/L	<1.0	1.0	5306099
Metals				
Leachable Mercury (Hg)	mg/L	<0.0010	0.0010	5306002

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		FRT286	FRT289			FRT289			FRT290		
Sampling Date		2017/12/04	2017/12/04			2017/12/04			2017/12/04		
COC Number		na	na			na			na		
	UNITS	**BH101 SS2**	**BH101 SS20**	**RDL**	**QC Batch**	**BH101 SS20 Lab-Dup**	**RDL**	**QC Batch**	**BH102 SS2**	**RDL**	**QC Batch**
Inorganics											
Chromium (VI)	ug/g	<0.2	<0.2	0.2	5303413				<0.2	0.2	5303413
Metals											
Hot Water Ext. Boron (B)	ug/g	0.25	0.25	0.050	5305978				0.72	0.050	5305978
Acid Extractable Antimony (Sb)	ug/g	0.22	<0.20	0.20	5305690	<0.20	0.20	5305690	0.95	0.20	5305690
Acid Extractable Arsenic (As)	ug/g	7.6	8.0	1.0	5305690	7.6	1.0	5305690	8.9	1.0	5305690
Acid Extractable Barium (Ba)	ug/g	68	80	0.50	5305690	77	0.50	5305690	47	0.50	5305690
Acid Extractable Beryllium (Be)	ug/g	0.50	0.57	0.20	5305690	0.57	0.20	5305690	<0.20	0.20	5305690
Acid Extractable Boron (B)	ug/g	6.1	6.3	5.0	5305690	6.3	5.0	5305690	<5.0	5.0	5305690
Acid Extractable Cadmium (Cd)	ug/g	0.21	0.27	0.10	5305690	0.31	0.10	5305690	0.18	0.10	5305690
Acid Extractable Chromium (Cr)	ug/g	16	18	1.0	5305690	18	1.0	5305690	9.7	1.0	5305690
Acid Extractable Cobalt (Co)	ug/g	7.5	8.3	0.10	5305690	8.2	0.10	5305690	2.2	0.10	5305690
Acid Extractable Copper (Cu)	ug/g	23	24	0.50	5305690	24	0.50	5305690	16	0.50	5305690
Acid Extractable Lead (Pb)	ug/g	32	34	1.0	5305690	33	1.0	5305690	64	1.0	5305690
Acid Extractable Molybdenum (Mo)	ug/g	0.54	<0.50	0.50	5305690	0.52	0.50	5305690	<0.50	0.50	5305690
Acid Extractable Nickel (Ni)	ug/g	16	16	0.50	5305690	17	0.50	5305690	4.6	0.50	5305690
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	0.50	5305690	<0.50	0.50	5305690	<0.50	0.50	5305690
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	0.20	5305690	<0.20	0.20	5305690	<0.20	0.20	5305690
Acid Extractable Thallium (Tl)	ug/g	0.12	0.14	0.050	5305690	0.14	0.050	5305690	0.054	0.050	5305690
Acid Extractable Uranium (U)	ug/g	0.55	0.56	0.050	5305690	0.59	0.050	5305690	0.30	0.050	5305690
Acid Extractable Vanadium (V)	ug/g	27	28	5.0	5305690	27	5.0	5305690	19	5.0	5305690
Acid Extractable Zinc (Zn)	ug/g	78	82	5.0	5305690	97	5.0	5305690	44	5.0	5305690
Acid Extractable Mercury (Hg)	ug/g	0.067	<0.050	0.050	5305690	0.098	0.050	5305690	0.10	0.050	5305690

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		FRT299			FRT310		
Sampling Date		2017/11/27			2017/12/04		
COC Number		na			na		
	UNITS	**BH105 SS1**	**RDL**	**QC Batch**	**BH110 SS7**	**RDL**	**QC Batch**
Inorganics							
Chromium (VI)	ug/g	<0.2	0.2	5303413			
Metals							
Hot Water Ext. Boron (B)	ug/g	0.14	0.050	5305978			
Acid Extractable Antimony (Sb)	ug/g	<0.20	0.20	5305690			
Acid Extractable Arsenic (As)	ug/g	3.2	1.0	5305690			
Leachable Arsenic (As)	mg/L				<0.2	0.2	5306003
Acid Extractable Barium (Ba)	ug/g	28	0.50	5305690			
Leachable Barium (Ba)	mg/L				1.3	0.2	5306003
Acid Extractable Beryllium (Be)	ug/g	0.27	0.20	5305690			
Acid Extractable Boron (B)	ug/g	<5.0	5.0	5305690			
Leachable Boron (B)	mg/L				0.1	0.1	5306003
Acid Extractable Cadmium (Cd)	ug/g	0.10	0.10	5305690			
Leachable Cadmium (Cd)	mg/L				<0.05	0.05	5306003
Acid Extractable Chromium (Cr)	ug/g	12	1.0	5305690			
Leachable Chromium (Cr)	mg/L				<0.1	0.1	5306003
Acid Extractable Cobalt (Co)	ug/g	3.9	0.10	5305690			
Acid Extractable Copper (Cu)	ug/g	11	0.50	5305690			
Acid Extractable Lead (Pb)	ug/g	13	1.0	5305690			
Leachable Lead (Pb)	mg/L				<0.1	0.1	5306003
Leachable Selenium (Se)	mg/L				<0.1	0.1	5306003
Acid Extractable Molybdenum (Mo)	ug/g	<0.50	0.50	5305690			
Acid Extractable Nickel (Ni)	ug/g	7.5	0.50	5305690			
Leachable Silver (Ag)	mg/L				<0.01	0.01	5306003
Acid Extractable Selenium (Se)	ug/g	<0.50	0.50	5305690			
Acid Extractable Silver (Ag)	ug/g	<0.20	0.20	5305690			
Acid Extractable Thallium (Tl)	ug/g	<0.050	0.050	5305690			
Leachable Uranium (U)	mg/L				0.04	0.01	5306003
Acid Extractable Uranium (U)	ug/g	0.38	0.050	5305690			
Acid Extractable Vanadium (V)	ug/g	29	5.0	5305690			
Acid Extractable Zinc (Zn)	ug/g	29	5.0	5305690			
Acid Extractable Mercury (Hg)	ug/g	0.076	0.050	5305690			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		FRT287	FRT288	FRT291	FRT292	FRT293		
Sampling Date		2017/12/04	2017/12/04	2017/12/04	2017/12/04	2017/11/28		
COC Number		na	na	na	na	na		
	UNITS	**BH101 SS4**	**BH101 SS7**	**BH102 SS5**	**BH102 SS7**	**BH103 SS2**	**RDL**	**QC Batch**
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5301603
Volatile Organics								
Acetone (2-Propanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5303010
Benzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
Bromodichloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Bromoform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Bromomethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Carbon Tetrachloride	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Chlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Chloroform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Dibromochloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,2-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,2-Dichloropropane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5303010
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	5303010
Ethylbenzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
Ethylene Dibromide	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Hexane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5303010
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5303010
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Styrene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Tetrachloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		FRT287	FRT288	FRT291	FRT292	FRT293		
Sampling Date		2017/12/04	2017/12/04	2017/12/04	2017/12/04	2017/11/28		
COC Number		na	na	na	na	na		
	UNITS	**BH101 SS4**	**BH101 SS7**	**BH102 SS5**	**BH102 SS7**	**BH103 SS2**	**RDL**	**QC Batch**
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Trichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Vinyl Chloride	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
p+m-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
Total Xylenes	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	97	98	96	96	99		5303010
D10-o-Xylene	%	98	87	80	82	83		5303010
D4-1,2-Dichloroethane	%	98	96	105	98	96		5303010
D8-Toluene	%	99	100	100	99	99		5303010

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		FRT296	FRT297	FRT298	FRT300	FRT301		
Sampling Date		2017/11/28	2017/11/28	2017/12/01	2017/11/27	2017/11/27		
COC Number		na	na	na	na	na		
	UNITS	**BH103 SS7**	**BH103 SS70**	**BH104 SS7**	**BH105 SS4**	**BH106 SS8**	**RDL**	**QC Batch**
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5301603
Volatile Organics								
Acetone (2-Propanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5303010
Benzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
Bromodichloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Bromoform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Bromomethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Carbon Tetrachloride	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Chlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Chloroform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Dibromochloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,2-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,2-Dichloropropane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5303010
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	5303010
Ethylbenzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
Ethylene Dibromide	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Hexane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5303010
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5303010
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Styrene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Tetrachloroethylene	ug/g	0.71	0.71	<0.050	<0.050	<0.050	0.050	5303010

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		FRT296	FRT297	FRT298	FRT300	FRT301		
Sampling Date		2017/11/28	2017/11/28	2017/12/01	2017/11/27	2017/11/27		
COC Number		na	na	na	na	na		
	UNITS	**BH103 SS7**	**BH103 SS70**	**BH104 SS7**	**BH105 SS4**	**BH106 SS8**	**RDL**	**QC Batch**
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Trichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Vinyl Chloride	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
p+m-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
Total Xylenes	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	96	97	98	97	98		5303010
D10-o-Xylene	%	82	93	87	83	84		5303010
D4-1,2-Dichloroethane	%	97	98	98	97	101		5303010
D8-Toluene	%	98	98	100	98	98		5303010

RDL = Reportable Detection Limit
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Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		FRT303	FRT304	FRT305	FRT307	FRT309		
Sampling Date		2017/11/27	2017/12/04	2017/12/04	2017/11/30	2017/11/30		
COC Number		na	na	na	na	na		
	UNITS	**BH107 SS7**	**BH108 SS3**	**BH108 SS7**	**BH109 SS8**	**BH109 SS80**	**RDL**	**QC Batch**
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5301603
Volatile Organics								
Acetone (2-Propanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5303010
Benzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
Bromodichloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Bromoform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Bromomethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Carbon Tetrachloride	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Chlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Chloroform	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Dibromochloromethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,2-Dichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,2-Dichloropropane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	<0.030	<0.030	<0.030	0.030	5303010
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	5303010
Ethylbenzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
Ethylene Dibromide	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Hexane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5303010
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5303010
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Styrene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Tetrachloroethylene	ug/g	2.3	<0.050	<0.050	1.8	0.89	0.050	5303010

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		FRT303	FRT304	FRT305	FRT307	FRT309		
Sampling Date		2017/11/27	2017/12/04	2017/12/04	2017/11/30	2017/11/30		
COC Number		na	na	na	na	na		
	UNITS	**BH107 SS7**	**BH108 SS3**	**BH108 SS7**	**BH109 SS8**	**BH109 SS80**	**RDL**	**QC Batch**
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Trichloroethylene	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	5303010
Vinyl Chloride	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
p+m-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
Total Xylenes	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	5303010
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	96	97	96	94	96		5303010
D10-o-Xylene	%	85	82	82	87	102		5303010
D4-1,2-Dichloroethane	%	106	99	98	98	105		5303010
D8-Toluene	%	98	98	99	98	98		5303010

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		FRT310		
Sampling Date		2017/12/04		
COC Number		na		
	UNITS	**BH110 SS7**	**RDL**	**QC Batch**
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	0.050	5301603
Volatile Organics				
Acetone (2-Propanone)	ug/g	<0.50	0.50	5303485
Leachable Benzene	mg/L	<0.020	0.020	5306109
Benzene	ug/g	<0.020	0.020	5303485
Leachable Carbon Tetrachloride	mg/L	<0.020	0.020	5306109
Bromodichloromethane	ug/g	<0.050	0.050	5303485
Leachable Chlorobenzene	mg/L	<0.020	0.020	5306109
Bromoform	ug/g	<0.050	0.050	5303485
Leachable Chloroform	mg/L	<0.020	0.020	5306109
Leachable 1,2-Dichlorobenzene	mg/L	<0.050	0.050	5306109
Bromomethane	ug/g	<0.050	0.050	5303485
Leachable 1,4-Dichlorobenzene	mg/L	<0.050	0.050	5306109
Carbon Tetrachloride	ug/g	<0.050	0.050	5303485
Leachable 1,2-Dichloroethane	mg/L	<0.050	0.050	5306109
Chlorobenzene	ug/g	<0.050	0.050	5303485
Leachable 1,1-Dichloroethylene	mg/L	<0.020	0.020	5306109
Chloroform	ug/g	<0.050	0.050	5303485
Leachable Methylene Chloride(Dichloromethane)	mg/L	<0.20	0.20	5306109
Leachable Methyl Ethyl Ketone (2-Butanone)	mg/L	<1.0	1.0	5306109
Dibromochloromethane	ug/g	<0.050	0.050	5303485
Leachable Tetrachloroethylene	mg/L	0.045	0.020	5306109
1,2-Dichlorobenzene	ug/g	<0.050	0.050	5303485
Leachable Trichloroethylene	mg/L	<0.020	0.020	5306109
1,3-Dichlorobenzene	ug/g	<0.050	0.050	5303485
Leachable Vinyl Chloride	mg/L	<0.020	0.020	5306109
1,4-Dichlorobenzene	ug/g	<0.050	0.050	5303485
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	0.050	5303485
1,1-Dichloroethane	ug/g	<0.050	0.050	5303485
1,2-Dichloroethane	ug/g	<0.050	0.050	5303485
1,1-Dichloroethylene	ug/g	<0.050	0.050	5303485
cis-1,2-Dichloroethylene	ug/g	<0.050	0.050	5303485
trans-1,2-Dichloroethylene	ug/g	<0.050	0.050	5303485
1,2-Dichloropropane	ug/g	<0.050	0.050	5303485

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		FRT310		
Sampling Date		2017/12/04		
COC Number		na		
	UNITS	**BH110 SS7**	**RDL**	**QC Batch**
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	5303485
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	5303485
Ethylbenzene	ug/g	<0.020	0.020	5303485
Ethylene Dibromide	ug/g	<0.050	0.050	5303485
Hexane	ug/g	<0.050	0.050	5303485
Methylene Chloride(Dichloromethane)	ug/g	<0.050	0.050	5303485
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	0.50	5303485
Methyl Isobutyl Ketone	ug/g	<0.50	0.50	5303485
Methyl t-butyl ether (MTBE)	ug/g	<0.050	0.050	5303485
Styrene	ug/g	<0.050	0.050	5303485
1,1,1,2-Tetrachloroethane	ug/g	<0.050	0.050	5303485
1,1,2,2-Tetrachloroethane	ug/g	<0.050	0.050	5303485
Tetrachloroethylene	ug/g	22	0.050	5303485
Toluene	ug/g	<0.020	0.020	5303485
1,1,1-Trichloroethane	ug/g	<0.050	0.050	5303485
1,1,2-Trichloroethane	ug/g	<0.050	0.050	5303485
Trichloroethylene	ug/g	0.065	0.050	5303485
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	0.050	5303485
Vinyl Chloride	ug/g	<0.020	0.020	5303485
p+m-Xylene	ug/g	<0.020	0.020	5303485
o-Xylene	ug/g	<0.020	0.020	5303485
Total Xylenes	ug/g	<0.020	0.020	5303485
F1 (C6-C10)	ug/g	<10	10	5303485
F1 (C6-C10) - BTEX	ug/g	<10	10	5303485
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	93		5303485
D10-o-Xylene	%	85		5303485
D4-1,2-Dichloroethane	%	100		5303485
D8-Toluene	%	99		5303485
Leachable 4-Bromofluorobenzene	%	96		5306109
Leachable D4-1,2-Dichloroethane	%	102		5306109
Leachable D8-Toluene	%	95		5306109

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FRT294	FRT302	FRT306	FRT308			FRT310		
Sampling Date		2017/11/28	2017/11/27	2017/11/30	2017/11/30			2017/12/04		
COC Number		na	na	na	na			na		
	UNITS	**BH103 SS4**	**BH107 SS4**	**BH109 SS4**	**BH109 SS40**	**RDL**	**QC Batch**	**BH110 SS7**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons										
Benzene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	5304615			
Toluene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	5304615			
Ethylbenzene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	5304615			
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	0.020	5304615			
p+m-Xylene	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	5304615			
Total Xylenes	ug/g	<0.040	<0.040	<0.040	<0.040	0.040	5304615			
F1 (C6-C10)	ug/g	<10	<10	<10	<10	10	5304615			
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	10	5304615			
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	<10	10	5302794	<10	10	5302794
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	<50	50	5302794	<50	50	5302794
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	<50	50	5302794	<50	50	5302794
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes		5302794	Yes		5302794
Surrogate Recovery (%)										
1,4-Difluorobenzene	%	107	106	106	106		5304615			
4-Bromofluorobenzene	%	89	84	85	82		5304615			
D10-Ethylbenzene	%	94	100	93	95		5304615			
D4-1,2-Dichloroethane	%	95	96	96	96		5304615			
o-Terphenyl	%	97	99	99	97		5302794	97		5302794

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
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Site Location: NEW
Sampler Initials: KP

TEST SUMMARY

Maxxam ID: FRT286
Sample ID: BH101 SS2
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	5305978	2017/12/08	2017/12/08	Archana Patel
Free (WAD) Cyanide	TECH	5303701	2017/12/07	2017/12/08	Louise Harding
Conductivity	AT	5305750	2017/12/08	2017/12/08	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	5303413	2017/12/07	2017/12/08	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5305690	2017/12/08	2017/12/08	Thao Nguyen
Moisture	BAL	5303513	N/A	2017/12/07	Min Yang
pH CaCl2 EXTRACT	AT	5304058	2017/12/08	2017/12/08	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5301944	N/A	2017/12/11	Automated Statchk

Maxxam ID: FRT287
Sample ID: BH101 SS4
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/08	Anna Gabrielyan

Maxxam ID: FRT288
Sample ID: BH101 SS7
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/08	Anna Gabrielyan

Maxxam ID: FRT289
Sample ID: BH101 SS20
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	5305978	2017/12/08	2017/12/08	Archana Patel
Free (WAD) Cyanide	TECH	5303701	2017/12/07	2017/12/08	Louise Harding
Conductivity	AT	5305750	2017/12/08	2017/12/08	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	5303413	2017/12/07	2017/12/08	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5305690	2017/12/08	2017/12/08	Thao Nguyen
Moisture	BAL	5303513	N/A	2017/12/07	Min Yang
pH CaCl2 EXTRACT	AT	5304058	2017/12/08	2017/12/08	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5301944	N/A	2017/12/11	Automated Statchk

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Maxxam Job #: B7R5062
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Site Location: NEW
Sampler Initials: KP

TEST SUMMARY

Maxxam ID: FRT289 Dup
Sample ID: BH101 SS20
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	5305690	2017/12/08	2017/12/08	Thao Nguyen

Maxxam ID: FRT290
Sample ID: BH102 SS2
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	5305978	2017/12/08	2017/12/08	Archana Patel
Free (WAD) Cyanide	TECH	5303701	2017/12/07	2017/12/08	Louise Harding
Conductivity	AT	5305750	2017/12/08	2017/12/08	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	5303413	2017/12/07	2017/12/08	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5305690	2017/12/08	2017/12/08	Thao Nguyen
Moisture	BAL	5303513	N/A	2017/12/07	Min Yang
pH CaCl2 EXTRACT	AT	5304058	2017/12/08	2017/12/08	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5301944	N/A	2017/12/11	Automated Statchk

Maxxam ID: FRT291
Sample ID: BH102 SS5
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Conductivity	AT	5320424	2017/12/18	2017/12/18	Neil Dassanayake
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Sodium Adsorption Ratio (SAR)	CALC/MET	5318442	N/A	2017/12/18	Automated Statchk
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/08	Anna Gabrielyan

Maxxam ID: FRT292
Sample ID: BH102 SS7
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/08	Anna Gabrielyan

Maxxam ID: FRT293
Sample ID: BH103 SS2
Matrix: Soil

Collected: 2017/11/28
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/08	Anna Gabrielyan

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Maxxam Job #: B7R5062
Report Date: 2017/12/19

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Site Location: NEW
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TEST SUMMARY

Maxxam ID: FRT294 **Collected:** 2017/11/28
Sample ID: BH103 SS4 **Shipped:**
Matrix: Soil **Received:** 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5304615	N/A	2017/12/07	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5302794	2017/12/06	2017/12/07	Margaret Kulczyk-Stanko
Moisture	BAL	5303513	N/A	2017/12/07	Min Yang

Maxxam ID: FRT295 **Collected:** 2017/11/28
Sample ID: BH103 SS5 **Shipped:**
Matrix: Soil **Received:** 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	5304058	2017/12/08	2017/12/08	Surinder Rai
Sieve, 75um	SIEV	5302187	N/A	2017/12/07	Gurpreet Kaur

Maxxam ID: FRT296 **Collected:** 2017/11/28
Sample ID: BH103 SS7 **Shipped:**
Matrix: Soil **Received:** 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/08	Anna Gabrielyan

Maxxam ID: FRT297 **Collected:** 2017/11/28
Sample ID: BH103 SS70 **Shipped:**
Matrix: Soil **Received:** 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/08	Anna Gabrielyan

Maxxam ID: FRT298 **Collected:** 2017/12/01
Sample ID: BH104 SS7 **Shipped:**
Matrix: Soil **Received:** 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/08	Anna Gabrielyan

Maxxam ID: FRT299 **Collected:** 2017/11/27
Sample ID: BH105 SS1 **Shipped:**
Matrix: Soil **Received:** 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	5305978	2017/12/08	2017/12/08	Archana Patel

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Maxxam Job #: B7R5062
Report Date: 2017/12/19

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Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

TEST SUMMARY

Maxxam ID: FRT299
Sample ID: BH105 SS1
Matrix: Soil

Collected: 2017/11/27
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	5303701	2017/12/07	2017/12/08	Louise Harding
Conductivity	AT	5305750	2017/12/08	2017/12/08	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	5303413	2017/12/07	2017/12/08	Sally Coughlin
Strong Acid Leachable Metals by ICPMS	ICP/MS	5305690	2017/12/08	2017/12/08	Thao Nguyen
Moisture	BAL	5303513	N/A	2017/12/07	Min Yang
pH CaCl2 EXTRACT	AT	5304058	2017/12/08	2017/12/08	Surinder Rai
Sodium Adsorption Ratio (SAR)	CALC/MET	5301944	N/A	2017/12/11	Automated Statchk

Maxxam ID: FRT300
Sample ID: BH105 SS4
Matrix: Soil

Collected: 2017/11/27
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/08	Anna Gabrielyan

Maxxam ID: FRT301
Sample ID: BH106 SS8
Matrix: Soil

Collected: 2017/11/27
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/08	Anna Gabrielyan

Maxxam ID: FRT302
Sample ID: BH107 SS4
Matrix: Soil

Collected: 2017/11/27
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5304615	N/A	2017/12/07	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5302794	2017/12/06	2017/12/07	Margaret Kulczyk-Stanko
Moisture	BAL	5303513	N/A	2017/12/07	Min Yang

Maxxam ID: FRT303
Sample ID: BH107 SS7
Matrix: Soil

Collected: 2017/11/27
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/09	Anna Gabrielyan

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Report Date: 2017/12/19

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TEST SUMMARY

Maxxam ID: FRT304
Sample ID: BH108 SS3
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/09	Anna Gabrielyan

Maxxam ID: FRT305
Sample ID: BH108 SS7
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/09	Anna Gabrielyan

Maxxam ID: FRT306
Sample ID: BH109 SS4
Matrix: Soil

Collected: 2017/11/30
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5304615	N/A	2017/12/07	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5302794	2017/12/06	2017/12/08	Margaret Kulczyk-Stanko
Moisture	BAL	5303513	N/A	2017/12/07	Min Yang

Maxxam ID: FRT307
Sample ID: BH109 SS8
Matrix: Soil

Collected: 2017/11/30
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/09	Anna Gabrielyan

Maxxam ID: FRT308
Sample ID: BH109 SS40
Matrix: Soil

Collected: 2017/11/30
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	5304615	N/A	2017/12/07	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5302794	2017/12/06	2017/12/08	Margaret Kulczyk-Stanko
Moisture	BAL	5303513	N/A	2017/12/07	Min Yang

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Report Date: 2017/12/19

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Site Location: NEW
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TEST SUMMARY

Maxxam ID: FRT309
Sample ID: BH109 SS80
Matrix: Soil

Collected: 2017/11/30
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/11	Automated Statchk
Moisture	BAL	5303228	N/A	2017/12/06	Min Yang
Volatile Organic Compounds in Soil	GC/MS	5303010	N/A	2017/12/09	Anna Gabrielyan

Maxxam ID: FRT310
Sample ID: BH110 SS7
Matrix: Soil

Collected: 2017/12/04
Shipped:
Received: 2017/12/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5301603	N/A	2017/12/08	Automated Statchk
Cyanide (WAD) in Leachates	SKAL/CN	5306098	N/A	2017/12/08	Xuanhong Qiu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	5302794	2017/12/06	2017/12/08	Margaret Kulczyk-Stanko
Fluoride by ISE in Leachates	ISE	5306094	2017/12/08	2017/12/08	Surinder Rai
Mercury (TCLP Leachable) (mg/L)	CV/AA	5306002	N/A	2017/12/09	Ron Morrison
Total Metals in TCLP Leachate by ICPMS	ICP1/MS	5306003	2017/12/08	2017/12/08	Matthew Ritenburg
Moisture	BAL	5303513	N/A	2017/12/07	Min Yang
Nitrate(NO3) + Nitrite(NO2) in Leachate	LACH	5306099	N/A	2017/12/11	Sarabjit Raina
TCLP - % Solids	BAL	5305989	2017/12/07	2017/12/08	Jian (Ken) Wang
TCLP - Extraction Fluid		5305990	N/A	2017/12/08	Jian (Ken) Wang
TCLP - Initial and final pH	PH	5305991	N/A	2017/12/08	Jian (Ken) Wang
TCLP Zero Headspace Extraction		5303712	2017/12/07	2017/12/08	Walt Wang
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5303485	N/A	2017/12/07	Denis Reid
VOCs in ZHE Leachates	GC/MS	5306109	2017/12/08	2017/12/08	Mariana Cojocar

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Sampler Initials: KP

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	8.0°C

Revised Report[2017/12/19] - Addtional analysis included as per client request.
Cooler custody seal was present and intact.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS	% Recovery	QC Limits
5302794	o-Terphenyl	2017/12/07	99	60 - 130	98	60 - 130	101	%						
5303010	4-Bromofluorobenzene	2017/12/08	98	60 - 140	101	60 - 140	99	%						
5303010	D10-o-Xylene	2017/12/08	91	60 - 130	94	60 - 130	78	%						
5303010	D4-1,2-Dichloroethane	2017/12/08	101	60 - 140	101	60 - 140	99	%						
5303010	D8-Toluene	2017/12/08	106	60 - 140	102	60 - 140	96	%						
5303485	4-Bromofluorobenzene	2017/12/07	100	60 - 140	101	60 - 140	95	%						
5303485	D10-o-Xylene	2017/12/07	83	60 - 130	97	60 - 130	85	%						
5303485	D4-1,2-Dichloroethane	2017/12/07	98	60 - 140	97	60 - 140	99	%						
5303485	D8-Toluene	2017/12/07	102	60 - 140	102	60 - 140	99	%						
5304615	1,4-Difluorobenzene	2017/12/07	105	60 - 140	102	60 - 140	106	%						
5304615	4-Bromofluorobenzene	2017/12/07	109	60 - 140	112	60 - 140	89	%						
5304615	D10-Ethylbenzene	2017/12/07	108	60 - 140	99	60 - 140	92	%						
5304615	D4-1,2-Dichloroethane	2017/12/07	95	60 - 140	91	60 - 140	94	%						
5306109	Leachable 4-Bromofluorobenzene	2017/12/08	85	70 - 130	101	70 - 130	81	%						
5306109	Leachable D4-1,2-Dichloroethane	2017/12/08	99	70 - 130	100	70 - 130	100	%						
5306109	Leachable D8-Toluene	2017/12/08	101	70 - 130	102	70 - 130	95	%						
5302187	Sieve - #200 (<0.075mm)	2017/12/07							0.26	20			56	53 - 58
5302187	Sieve - #200 (>0.075mm)	2017/12/07							2.9	20			44	42 - 47
5302794	F2 (C10-C16 Hydrocarbons)	2017/12/07	113	50 - 130	112	80 - 120	<10	ug/g	NC	30				
5302794	F3 (C16-C34 Hydrocarbons)	2017/12/07	109	50 - 130	105	80 - 120	<50	ug/g	NC	30				
5302794	F4 (C34-C50 Hydrocarbons)	2017/12/07	103	50 - 130	98	80 - 120	<50	ug/g	NC	30				
5303010	1,1,1,2-Tetrachloroethane	2017/12/09	99	60 - 140	101	60 - 130	<0.050	ug/g	NC	50				
5303010	1,1,1-Trichloroethane	2017/12/09	92	60 - 140	104	60 - 130	<0.050	ug/g	NC	50				
5303010	1,1,2,2-Tetrachloroethane	2017/12/09	97	60 - 140	102	60 - 130	<0.050	ug/g	NC	50				
5303010	1,1,2-Trichloroethane	2017/12/09	94	60 - 140	99	60 - 130	<0.050	ug/g	NC	50				
5303010	1,1-Dichloroethane	2017/12/09	99	60 - 140	103	60 - 130	<0.050	ug/g	NC	50				
5303010	1,1-Dichloroethylene	2017/12/09	105	60 - 140	106	60 - 130	<0.050	ug/g	NC	50				
5303010	1,2-Dichlorobenzene	2017/12/09	89	60 - 140	99	60 - 130	<0.050	ug/g	NC	50				
5303010	1,2-Dichloroethane	2017/12/09	90	60 - 140	96	60 - 130	<0.050	ug/g	NC	50				
5303010	1,2-Dichloropropane	2017/12/09	90	60 - 140	101	60 - 130	<0.050	ug/g	NC	50				

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Maxxam Job #: B7R5062
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QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS	% Recovery	QC Limits
5303010	1,3-Dichlorobenzene	2017/12/09	92	60 - 140	103	60 - 130	<0.050	ug/g	NC	50				
5303010	1,4-Dichlorobenzene	2017/12/09	90	60 - 140	103	60 - 130	<0.050	ug/g	NC	50				
5303010	Acetone (2-Propanone)	2017/12/09	90	60 - 140	98	60 - 140	<0.50	ug/g	NC	50				
5303010	Benzene	2017/12/09	97	60 - 140	103	60 - 130	<0.020	ug/g	NC	50				
5303010	Bromodichloromethane	2017/12/09	92	60 - 140	101	60 - 130	<0.050	ug/g	NC	50				
5303010	Bromoform	2017/12/09	97	60 - 140	100	60 - 130	<0.050	ug/g	NC	50				
5303010	Bromomethane	2017/12/09	95	60 - 140	106	60 - 140	<0.050	ug/g	NC	50				
5303010	Carbon Tetrachloride	2017/12/09	93	60 - 140	106	60 - 130	<0.050	ug/g	NC	50				
5303010	Chlorobenzene	2017/12/09	92	60 - 140	101	60 - 130	<0.050	ug/g	NC	50				
5303010	Chloroform	2017/12/09	92	60 - 140	102	60 - 130	<0.050	ug/g	NC	50				
5303010	cis-1,2-Dichloroethylene	2017/12/09	91	60 - 140	102	60 - 130	<0.050	ug/g	NC	50				
5303010	cis-1,3-Dichloropropene	2017/12/09	88	60 - 140	101	60 - 130	<0.030	ug/g	NC	50				
5303010	Dibromochloromethane	2017/12/09	97	60 - 140	101	60 - 130	<0.050	ug/g	NC	50				
5303010	Dichlorodifluoromethane (FREON 12)	2017/12/09	93	60 - 140	109	60 - 140	<0.050	ug/g	NC	50				
5303010	Ethylbenzene	2017/12/09	92	60 - 140	102	60 - 130	<0.020	ug/g	NC	50				
5303010	Ethylene Dibromide	2017/12/09	98	60 - 140	102	60 - 130	<0.050	ug/g	NC	50				
5303010	Hexane	2017/12/09	108	60 - 140	110	60 - 130	<0.050	ug/g	NC	50				
5303010	Methyl Ethyl Ketone (2-Butanone)	2017/12/09	91	60 - 140	102	60 - 140	<0.50	ug/g	NC	50				
5303010	Methyl Isobutyl Ketone	2017/12/09	92	60 - 140	105	60 - 130	<0.50	ug/g	NC	50				
5303010	Methyl t-butyl ether (MTBE)	2017/12/09	91	60 - 140	100	60 - 130	<0.050	ug/g	NC	50				
5303010	Methylene Chloride(Dichloromethane)	2017/12/09	84	60 - 140	95	60 - 130	<0.050	ug/g	NC	50				
5303010	o-Xylene	2017/12/09	89	60 - 140	98	60 - 130	<0.020	ug/g	NC	50				
5303010	p+m-Xylene	2017/12/09	92	60 - 140	99	60 - 130	<0.020	ug/g	NC	50				
5303010	Styrene	2017/12/09	93	60 - 140	106	60 - 130	<0.050	ug/g	NC	50				
5303010	Tetrachloroethylene	2017/12/09	89	60 - 140	104	60 - 130	<0.050	ug/g	NC	50				
5303010	Toluene	2017/12/09	89	60 - 140	97	60 - 130	<0.020	ug/g	NC	50				
5303010	Total Xylenes	2017/12/09					<0.020	ug/g	NC	50				
5303010	trans-1,2-Dichloroethylene	2017/12/09	93	60 - 140	104	60 - 130	<0.050	ug/g	NC	50				
5303010	trans-1,3-Dichloropropene	2017/12/09	99	60 - 140	106	60 - 130	<0.040	ug/g	NC	50				
5303010	Trichloroethylene	2017/12/09	86	60 - 140	101	60 - 130	<0.050	ug/g	NC	50				

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QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS	% Recovery	QC Limits
5303010	Trichlorofluoromethane (FREON 11)	2017/12/09	93	60 - 140	104	60 - 130	<0.050	ug/g	NC	50				
5303010	Vinyl Chloride	2017/12/09	95	60 - 140	109	60 - 130	<0.020	ug/g	NC	50				
5303228	Moisture	2017/12/06							7.2	20				
5303413	Chromium (VI)	2017/12/08	66 (1)	75 - 125	89	80 - 120	<0.2	ug/g	NC	35				
5303485	1,1,1,2-Tetrachloroethane	2017/12/07	101	60 - 140	101	60 - 130	<0.050	ug/g	NC	50				
5303485	1,1,1-Trichloroethane	2017/12/07	96	60 - 140	95	60 - 130	<0.050	ug/g	NC	50				
5303485	1,1,2,2-Tetrachloroethane	2017/12/07	101	60 - 140	101	60 - 130	<0.050	ug/g	NC	50				
5303485	1,1,2-Trichloroethane	2017/12/07	99	60 - 140	98	60 - 130	<0.050	ug/g	NC	50				
5303485	1,1-Dichloroethane	2017/12/07	108	60 - 140	107	60 - 130	<0.050	ug/g	NC	50				
5303485	1,1-Dichloroethylene	2017/12/07	112	60 - 140	112	60 - 130	<0.050	ug/g	NC	50				
5303485	1,2-Dichlorobenzene	2017/12/07	96	60 - 140	95	60 - 130	<0.050	ug/g	NC	50				
5303485	1,2-Dichloroethane	2017/12/07	96	60 - 140	95	60 - 130	<0.050	ug/g	NC	50				
5303485	1,2-Dichloropropane	2017/12/07	100	60 - 140	99	60 - 130	<0.050	ug/g	NC	50				
5303485	1,3-Dichlorobenzene	2017/12/07	104	60 - 140	104	60 - 130	<0.050	ug/g	NC	50				
5303485	1,4-Dichlorobenzene	2017/12/07	100	60 - 140	101	60 - 130	<0.050	ug/g	NC	50				
5303485	Acetone (2-Propanone)	2017/12/07	101	60 - 140	103	60 - 140	<0.50	ug/g	NC	50				
5303485	Benzene	2017/12/07	105	60 - 140	104	60 - 130	<0.020	ug/g	NC	50				
5303485	Bromodichloromethane	2017/12/07	94	60 - 140	94	60 - 130	<0.050	ug/g	NC	50				
5303485	Bromoform	2017/12/07	96	60 - 140	97	60 - 130	<0.050	ug/g	NC	50				
5303485	Bromomethane	2017/12/07	104	60 - 140	104	60 - 140	<0.050	ug/g	NC	50				
5303485	Carbon Tetrachloride	2017/12/07	96	60 - 140	95	60 - 130	<0.050	ug/g	NC	50				
5303485	Chlorobenzene	2017/12/07	98	60 - 140	97	60 - 130	<0.050	ug/g	NC	50				
5303485	Chloroform	2017/12/07	99	60 - 140	98	60 - 130	<0.050	ug/g	NC	50				
5303485	cis-1,2-Dichloroethylene	2017/12/07	102	60 - 140	101	60 - 130	<0.050	ug/g	NC	50				
5303485	cis-1,3-Dichloropropene	2017/12/07	90	60 - 140	92	60 - 130	<0.030	ug/g	NC	50				
5303485	Dibromochloromethane	2017/12/07	97	60 - 140	98	60 - 130	<0.050	ug/g	NC	50				
5303485	Dichlorodifluoromethane (FREON 12)	2017/12/07	87	60 - 140	90	60 - 140	<0.050	ug/g	NC	50				
5303485	Ethylbenzene	2017/12/07	95	60 - 140	95	60 - 130	<0.020	ug/g	NC	50				
5303485	Ethylene Dibromide	2017/12/07	101	60 - 140	101	60 - 130	<0.050	ug/g	NC	50				
5303485	F1 (C6-C10) - BTEX	2017/12/07					<10	ug/g	NC	30				

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QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS	% Recovery	QC Limits
5303485	F1 (C6-C10)	2017/12/07	100	60 - 140	91	80 - 120	<10	ug/g	NC	30				
5303485	Hexane	2017/12/07	109	60 - 140	109	60 - 130	<0.050	ug/g	NC	50				
5303485	Methyl Ethyl Ketone (2-Butanone)	2017/12/07	94	60 - 140	96	60 - 140	<0.50	ug/g	NC	50				
5303485	Methyl Isobutyl Ketone	2017/12/07	89	60 - 140	91	60 - 130	<0.50	ug/g	NC	50				
5303485	Methyl t-butyl ether (MTBE)	2017/12/07	93	60 - 140	94	60 - 130	<0.050	ug/g	NC	50				
5303485	Methylene Chloride(Dichloromethane)	2017/12/07	94	60 - 140	93	60 - 130	<0.050	ug/g	NC	50				
5303485	o-Xylene	2017/12/07	95	60 - 140	95	60 - 130	<0.020	ug/g	NC	50				
5303485	p+m-Xylene	2017/12/07	97	60 - 140	96	60 - 130	<0.020	ug/g	NC	50				
5303485	Styrene	2017/12/07	91	60 - 140	91	60 - 130	<0.050	ug/g	NC	50				
5303485	Tetrachloroethylene	2017/12/07	99	60 - 140	98	60 - 130	<0.050	ug/g	NC	50				
5303485	Toluene	2017/12/07	94	60 - 140	93	60 - 130	<0.020	ug/g	NC	50				
5303485	Total Xylenes	2017/12/07					<0.020	ug/g	NC	50				
5303485	trans-1,2-Dichloroethylene	2017/12/07	107	60 - 140	106	60 - 130	<0.050	ug/g	NC	50				
5303485	trans-1,3-Dichloropropene	2017/12/07	93	60 - 140	95	60 - 130	<0.040	ug/g	NC	50				
5303485	Trichloroethylene	2017/12/07	100	60 - 140	99	60 - 130	<0.050	ug/g	NC	50				
5303485	Trichlorofluoromethane (FREON 11)	2017/12/07	100	60 - 140	100	60 - 130	<0.050	ug/g	NC	50				
5303485	Vinyl Chloride	2017/12/07	107	60 - 140	107	60 - 130	<0.020	ug/g	NC	50				
5303513	Moisture	2017/12/07							18	20				
5303701	WAD Cyanide (Free)	2017/12/08	100	75 - 125	99	80 - 120	<0.01	ug/g	NC	35				
5304058	Available (CaCl2) pH	2017/12/08			100	97 - 103			0.055	N/A				
5304615	Benzene	2017/12/07	90	60 - 140	97	60 - 140	<0.020	ug/g	NC	50				
5304615	Ethylbenzene	2017/12/07	105	60 - 140	111	60 - 140	<0.020	ug/g	NC	50				
5304615	F1 (C6-C10) - BTEX	2017/12/07					<10	ug/g	NC	30				
5304615	F1 (C6-C10)	2017/12/07	104	60 - 140	101	80 - 120	<10	ug/g	NC	30				
5304615	o-Xylene	2017/12/07	105	60 - 140	114	60 - 140	<0.020	ug/g	NC	50				
5304615	p+m-Xylene	2017/12/07	111	60 - 140	117	60 - 140	<0.040	ug/g	NC	50				
5304615	Toluene	2017/12/07	95	60 - 140	102	60 - 140	<0.020	ug/g	NC	50				
5304615	Total Xylenes	2017/12/07					<0.040	ug/g	NC	50				
5305690	Acid Extractable Antimony (Sb)	2017/12/08	91	75 - 125	103	80 - 120	<0.20	ug/g	NC	30				
5305690	Acid Extractable Arsenic (As)	2017/12/08	95	75 - 125	100	80 - 120	<1.0	ug/g	5.0	30				

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QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
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			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS	% Recovery	QC Limits
5305690	Acid Extractable Barium (Ba)	2017/12/08	NC	75 - 125	97	80 - 120	<0.50	ug/g	4.1	30				
5305690	Acid Extractable Beryllium (Be)	2017/12/08	102	75 - 125	99	80 - 120	<0.20	ug/g	0.82	30				
5305690	Acid Extractable Boron (B)	2017/12/08	95	75 - 125	95	80 - 120	<5.0	ug/g	0.94	30				
5305690	Acid Extractable Cadmium (Cd)	2017/12/08	102	75 - 125	99	80 - 120	<0.10	ug/g	13	30				
5305690	Acid Extractable Chromium (Cr)	2017/12/08	100	75 - 125	100	80 - 120	<1.0	ug/g	0.38	30				
5305690	Acid Extractable Cobalt (Co)	2017/12/08	98	75 - 125	98	80 - 120	<0.10	ug/g	0.95	30				
5305690	Acid Extractable Copper (Cu)	2017/12/08	96	75 - 125	98	80 - 120	<0.50	ug/g	0.31	30				
5305690	Acid Extractable Lead (Pb)	2017/12/08	NC	75 - 125	99	80 - 120	<1.0	ug/g	2.0	30				
5305690	Acid Extractable Mercury (Hg)	2017/12/08	98	75 - 125	103	80 - 120	<0.050	ug/g	NC	30				
5305690	Acid Extractable Molybdenum (Mo)	2017/12/08	99	75 - 125	98	80 - 120	<0.50	ug/g	4.0	30				
5305690	Acid Extractable Nickel (Ni)	2017/12/08	97	75 - 125	101	80 - 120	<0.50	ug/g	2.6	30				
5305690	Acid Extractable Selenium (Se)	2017/12/08	99	75 - 125	99	80 - 120	<0.50	ug/g	NC	30				
5305690	Acid Extractable Silver (Ag)	2017/12/08	98	75 - 125	101	80 - 120	<0.20	ug/g	NC	30				
5305690	Acid Extractable Thallium (Tl)	2017/12/08	98	75 - 125	99	80 - 120	<0.050	ug/g	4.2	30				
5305690	Acid Extractable Uranium (U)	2017/12/08	100	75 - 125	99	80 - 120	<0.050	ug/g	6.0	30				
5305690	Acid Extractable Vanadium (V)	2017/12/08	NC	75 - 125	100	80 - 120	<5.0	ug/g	3.2	30				
5305690	Acid Extractable Zinc (Zn)	2017/12/08	NC	75 - 125	98	80 - 120	<5.0	ug/g	17	30				
5305750	Conductivity	2017/12/08			99	90 - 110	<0.002	mS/cm	0.33	10				
5305978	Hot Water Ext. Boron (B)	2017/12/08	101	75 - 125	99	75 - 125	<0.050	ug/g	12	40				
5306002	Leachable Mercury (Hg)	2017/12/09	109	75 - 125	103	80 - 120	<0.0010	mg/L	NC	25	<0.0010	mg/L		
5306003	Leachable Arsenic (As)	2017/12/08	94	80 - 120	97	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L		
5306003	Leachable Barium (Ba)	2017/12/08	96	80 - 120	97	80 - 120	<0.2	mg/L	NC	35	<0.2	mg/L		
5306003	Leachable Boron (B)	2017/12/08	94	80 - 120	97	80 - 120	<0.1	mg/L	6.6	35	<0.1	mg/L		
5306003	Leachable Cadmium (Cd)	2017/12/08	99	80 - 120	97	80 - 120	<0.05	mg/L	NC	35	<0.05	mg/L		
5306003	Leachable Chromium (Cr)	2017/12/08	92	80 - 120	96	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L		
5306003	Leachable Lead (Pb)	2017/12/08	93	80 - 120	95	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L		
5306003	Leachable Selenium (Se)	2017/12/08	98	80 - 120	99	80 - 120	<0.1	mg/L	NC	35	<0.1	mg/L		
5306003	Leachable Silver (Ag)	2017/12/08	95	80 - 120	96	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L		
5306003	Leachable Uranium (U)	2017/12/08	92	80 - 120	93	80 - 120	<0.01	mg/L	NC	35	<0.01	mg/L		
5306094	Leachable Fluoride (F-)	2017/12/08	100	80 - 120	99	80 - 120	<0.10	mg/L	NC	25	<0.10	mg/L		

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QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS	% Recovery	QC Limits
5306098	Leachable WAD Cyanide (Free)	2017/12/08	83	80 - 120	105	80 - 120	<0.0020	mg/L	NC	20	<0.010	mg/L		
5306099	Leachable Nitrate (N)	2017/12/11	74 (2)	80 - 120	100	80 - 120	<1.0	mg/L	NC	25	<1.0	mg/L		
5306099	Leachable Nitrate + Nitrite (N)	2017/12/11	77 (2)	80 - 120	100	80 - 120	<1.0	mg/L	NC	25	<1.0	mg/L		
5306099	Leachable Nitrite (N)	2017/12/11	88	80 - 120	101	80 - 120	<0.10	mg/L	NC	25	<0.10	mg/L		
5306109	Leachable 1,1-Dichloroethylene	2017/12/08	112	70 - 130	102	70 - 130	<0.020	mg/L	NC	30				
5306109	Leachable 1,2-Dichlorobenzene	2017/12/08	97	70 - 130	99	70 - 130	<0.050	mg/L	NC	30				
5306109	Leachable 1,2-Dichloroethane	2017/12/08	97	70 - 130	92	70 - 130	<0.050	mg/L	NC	30				
5306109	Leachable 1,4-Dichlorobenzene	2017/12/08	98	70 - 130	100	70 - 130	<0.050	mg/L	NC	30				
5306109	Leachable Benzene	2017/12/08	114	70 - 130	108	70 - 130	<0.020	mg/L	NC	30				
5306109	Leachable Carbon Tetrachloride	2017/12/08	97	70 - 130	98	70 - 130	<0.020	mg/L	NC	30				
5306109	Leachable Chlorobenzene	2017/12/08	98	70 - 130	97	70 - 130	<0.020	mg/L	NC	30				
5306109	Leachable Chloroform	2017/12/08	98	70 - 130	98	70 - 130	<0.020	mg/L	NC	30				
5306109	Leachable Methyl Ethyl Ketone (2-Butanone)	2017/12/08	105	60 - 140	93	60 - 140	<1.0	mg/L	NC	30				
5306109	Leachable Methylene Chloride(Dichloromethane)	2017/12/08	93	70 - 130	95	70 - 130	<0.20	mg/L	NC	30				
5306109	Leachable Tetrachloroethylene	2017/12/08	95	70 - 130	98	70 - 130	<0.020	mg/L	NC	30				
5306109	Leachable Trichloroethylene	2017/12/08	99	70 - 130	99	70 - 130	<0.020	mg/L	NC	30				
5306109	Leachable Vinyl Chloride	2017/12/08	100	70 - 130	108	70 - 130	<0.020	mg/L	NC	30				

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Maxxam Job #: B7R5062
Report Date: 2017/12/19

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS	% Recovery	QC Limits
5320424	Conductivity	2017/12/18			99	90 - 110	<0.002	mS/cm	1.5	10				

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) The matrix spike recovery was below the lower control limit. This may be due in part to the reducing environment of the sample. The matrix spike was reanalyzed to confirm result.

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Maxxam Job #: B7R5062
Report Date: 2017/12/19

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere, Scientific Service Specialist

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam
A Bureau Veritas Group Company

Your P.O. #: HAM-ENV
Your Project #: HAM-00801287-B0
Site Location: NEW STREET
Your C.O.C. #: 633873-01-01

Attention:Erik Enders

exp Services Inc
Hamilton Branch
80 Bancroft St
Hamilton, ON
L8E 2W5

Report Date: 2017/11/27
Report #: R4877777
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7Q3549
Received: 2017/11/22, 16:02

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	3	N/A	2017/11/27		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1)	3	2017/11/23	2017/11/24	CAM SOP-00316	CCME PHC-CWS m
Volatile Organic Compounds and F1 PHCs	3	N/A	2017/11/24	CAM SOP-00230	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported: unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

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Your P.O. #: HAM-ENV
Your Project #: HAM-00801287-B0
Site Location: NEW STREET
Your C.O.C. #: 633873-01-01

Attention:Erik Enders

exp Services Inc
Hamilton Branch
80 Bancroft St
Hamilton, ON
L8E 2W5

Report Date: 2017/11/27
Report #: R4877777
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7Q3549
Received: 2017/11/22, 16:02

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Deepthi Shaji, Project Manager
Email: dshaji@maxxam.ca
Phone# (905)817-5700 Ext:5807

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B7Q3549
Report Date: 2017/11/27

exp Services Inc
Client Project #: HAM-00801287-B0
Site Location: NEW STREET
Your P.O. #: HAM-ENV
Sampler Initials: JH

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FPL684		FPL685		FPL686		
Sampling Date		2017/11/22 09:10		2017/11/22 09:30		2017/11/22 10:10		
COC Number		633873-01-01		633873-01-01		633873-01-01		
	UNITS	**BH1-SM**	**RDL**	**BH2-SM**	**RDL**	**BH3-SM**	**RDL**	**QC Batch**
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5278414
Volatile Organics								
Acetone (2-Propanone)	ug/L	<10	10	<50	50	<50	50	5280450
Benzene	ug/L	<0.20	0.20	<1.0	1.0	<1.0	1.0	5280450
Bromodichloromethane	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5280450
Bromoform	ug/L	<1.0	1.0	<5.0	5.0	<5.0	5.0	5280450
Bromomethane	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5280450
Carbon Tetrachloride	ug/L	<0.20	0.20	<0.20	0.20	<0.20	0.20	5280450
Chlorobenzene	ug/L	<0.20	0.20	<1.0	1.0	<1.0	1.0	5280450
Chloroform	ug/L	<0.20	0.20	2.2	1.0	2.9	1.0	5280450
Dibromochloromethane	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5280450
1,2-Dichlorobenzene	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5280450
1,3-Dichlorobenzene	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5280450
1,4-Dichlorobenzene	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5280450
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	<5.0	5.0	<5.0	5.0	5280450
1,1-Dichloroethane	ug/L	<0.20	0.20	<1.0	1.0	<1.0	1.0	5280450
1,2-Dichloroethane	ug/L	<0.50	0.50	<0.50	0.50	<0.50	0.50	5280450
1,1-Dichloroethylene	ug/L	<0.20	0.20	<1.0	1.0	<1.0	1.0	5280450
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	11	2.5	<0.50	0.50	5280450
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	<0.50	0.50	<0.50	0.50	5280450
1,2-Dichloropropane	ug/L	<0.20	0.20	<1.0	1.0	<1.0	1.0	5280450
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	<1.5	1.5	<1.5	1.5	5280450
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	<2.0	2.0	<2.0	2.0	5280450
Ethylbenzene	ug/L	<0.20	0.20	<1.0	1.0	<1.0	1.0	5280450
Ethylene Dibromide	ug/L	<0.20	0.20	<0.20	0.20	<0.20	0.20	5280450
Hexane	ug/L	<1.0	1.0	<5.0	5.0	<5.0	5.0	5280450
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	<10	10	<10	10	5280450
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	<50	50	<50	50	5280450
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	<25	25	<25	25	5280450
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5280450
Styrene	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5280450
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5280450
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5280450

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7Q3549
Report Date: 2017/11/27

exp Services Inc
Client Project #: HAM-00801287-B0
Site Location: NEW STREET
Your P.O. #: HAM-ENV
Sampler Initials: JH

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FPL684		FPL685		FPL686		
Sampling Date		2017/11/22 09:10		2017/11/22 09:30		2017/11/22 10:10		
COC Number		633873-01-01		633873-01-01		633873-01-01		
	UNITS	**BH1-SM**	**RDL**	**BH2-SM**	**RDL**	**BH3-SM**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	<0.20	0.20	1300	1.0	1200	1.0	5280450
Toluene	ug/L	<0.20	0.20	<1.0	1.0	<1.0	1.0	5280450
1,1,1-Trichloroethane	ug/L	<0.20	0.20	<1.0	1.0	<1.0	1.0	5280450
1,1,2-Trichloroethane	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5280450
Trichloroethylene	ug/L	<0.20	0.20	10	1.0	4.4	1.0	5280450
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	<2.5	2.5	<2.5	2.5	5280450
Vinyl Chloride	ug/L	<0.20	0.20	4.0	1.0	<0.20	0.20	5280450
p+m-Xylene	ug/L	<0.20	0.20	<1.0	1.0	<1.0	1.0	5280450
o-Xylene	ug/L	<0.20	0.20	<1.0	1.0	<1.0	1.0	5280450
Total Xylenes	ug/L	<0.20	0.20	<1.0	1.0	<1.0	1.0	5280450
F1 (C6-C10)	ug/L	<25	25	390 (1)	130	350 (1)	130	5280450
F1 (C6-C10) - BTEX	ug/L	<25	25	390	130	350	130	5280450
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	98		96		97		5280450
D4-1,2-Dichloroethane	%	97		99		98		5280450
D8-Toluene	%	99		102		102		5280450

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Result reported was due to chlorinated compounds eluting inside the F1 range.

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Maxxam Job #: B7Q3549
Report Date: 2017/11/27

exp Services Inc
Client Project #: HAM-00801287-B0
Site Location: NEW STREET
Your P.O. #: HAM-ENV
Sampler Initials: JH

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FPL684	FPL685	FPL686		
Sampling Date		2017/11/22 09:10	2017/11/22 09:30	2017/11/22 10:10		
COC Number		633873-01-01	633873-01-01	633873-01-01		
	UNITS	**BH1-SM**	**BH2-SM**	**BH3-SM**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	100	5281600
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	<200	200	5281600
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	200	5281600
Reached Baseline at C50	ug/L	Yes	Yes	Yes		5281600
Surrogate Recovery (%)						
o-Terphenyl	%	98	98	98		5281600

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7Q3549
Report Date: 2017/11/27

exp Services Inc
Client Project #: HAM-00801287-B0
Site Location: NEW STREET
Your P.O. #: HAM-ENV
Sampler Initials: JH

TEST SUMMARY

Maxxam ID: FPL684 **Collected:** 2017/11/22
Sample ID: BH1-SM **Shipped:**
Matrix: Water **Received:** 2017/11/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5278414	N/A	2017/11/27	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5281600	2017/11/23	2017/11/24	Zhiyue (Frank) Zhu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5280450	N/A	2017/11/24	Manpreet Sarao

Maxxam ID: FPL685 **Collected:** 2017/11/22
Sample ID: BH2-SM **Shipped:**
Matrix: Water **Received:** 2017/11/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5278414	N/A	2017/11/27	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5281600	2017/11/23	2017/11/24	Zhiyue (Frank) Zhu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5280450	N/A	2017/11/24	Manpreet Sarao

Maxxam ID: FPL686 **Collected:** 2017/11/22
Sample ID: BH3-SM **Shipped:**
Matrix: Water **Received:** 2017/11/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5278414	N/A	2017/11/27	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5281600	2017/11/23	2017/11/24	Zhiyue (Frank) Zhu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5280450	N/A	2017/11/24	Manpreet Sarao

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Maxxam Job #: B7Q3549
Report Date: 2017/11/27

exp Services Inc
Client Project #: HAM-00801287-B0
Site Location: NEW STREET
Your P.O. #: HAM-ENV
Sampler Initials: JH

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.0°C

Cooler custody seal was present and intact.

Sample FPL685 [BH2-SM] : VOCF1 Analysis: Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly. In order to meet required regulatory criteria, results for selected compounds (obtained by a separate analysis using an appropriate low dilution) are included in the report.

Sample FPL686 [BH3-SM] : VOCF1 Analysis: Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly. In order to meet required regulatory criteria, results for selected compounds (obtained by a separate analysis using an appropriate low dilution) are included in the report.

Results relate only to the items tested.

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Maxxam Job #: B7Q3549
Report Date: 2017/11/27

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: HAM-00801287-B0
Site Location: NEW STREET
Your P.O. #: HAM-ENV
Sampler Initials: JH

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5280450	4-Bromofluorobenzene	2017/11/24	103	70 - 130	102	70 - 130	96	%		
5280450	D4-1,2-Dichloroethane	2017/11/24	95	70 - 130	95	70 - 130	94	%		
5280450	D8-Toluene	2017/11/24	100	70 - 130	101	70 - 130	100	%		
5281600	o-Terphenyl	2017/11/23	103	60 - 130	104	60 - 130	98	%		
5280450	1,1,1,2-Tetrachloroethane	2017/11/24	101	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
5280450	1,1,1-Trichloroethane	2017/11/24	93	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5280450	1,1,2,2-Tetrachloroethane	2017/11/24	100	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5280450	1,1,2-Trichloroethane	2017/11/24	97	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5280450	1,1-Dichloroethane	2017/11/24	99	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
5280450	1,1-Dichloroethylene	2017/11/24	104	70 - 130	111	70 - 130	<0.20	ug/L	NC	30
5280450	1,2-Dichlorobenzene	2017/11/24	95	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5280450	1,2-Dichloroethane	2017/11/24	94	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5280450	1,2-Dichloropropane	2017/11/24	93	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5280450	1,3-Dichlorobenzene	2017/11/24	100	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
5280450	1,4-Dichlorobenzene	2017/11/24	98	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5280450	Acetone (2-Propanone)	2017/11/24	98	60 - 140	93	60 - 140	<10	ug/L	NC	30
5280450	Benzene	2017/11/24	97	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5280450	Bromodichloromethane	2017/11/24	91	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5280450	Bromoform	2017/11/24	100	70 - 130	96	70 - 130	<1.0	ug/L	NC	30
5280450	Bromomethane	2017/11/24	93	60 - 140	99	60 - 140	<0.50	ug/L	NC	30
5280450	Carbon Tetrachloride	2017/11/24	92	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5280450	Chlorobenzene	2017/11/24	96	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5280450	Chloroform	2017/11/24	94	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5280450	cis-1,2-Dichloroethylene	2017/11/24	96	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5280450	cis-1,3-Dichloropropene	2017/11/24	89	70 - 130	91	70 - 130	<0.30	ug/L	NC	30
5280450	Dibromochloromethane	2017/11/24	99	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5280450	Dichlorodifluoromethane (FREON 12)	2017/11/24	76	60 - 140	83	60 - 140	<1.0	ug/L	NC	30
5280450	Ethylbenzene	2017/11/24	95	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5280450	Ethylene Dibromide	2017/11/24	101	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5280450	F1 (C6-C10) - BTEX	2017/11/24					<25	ug/L	NC	30

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Maxxam Job #: B7Q3549
Report Date: 2017/11/27

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: HAM-00801287-B0
Site Location: NEW STREET
Your P.O. #: HAM-ENV
Sampler Initials: JH

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5280450	F1 (C6-C10)	2017/11/24	96	60 - 140	105	60 - 140	<25	ug/L	NC	30
5280450	Hexane	2017/11/24	99	70 - 130	107	70 - 130	<1.0	ug/L	NC	30
5280450	Methyl Ethyl Ketone (2-Butanone)	2017/11/24	90	60 - 140	86	60 - 140	<10	ug/L	NC	30
5280450	Methyl Isobutyl Ketone	2017/11/24	86	70 - 130	82	70 - 130	<5.0	ug/L	NC	30
5280450	Methyl t-butyl ether (MTBE)	2017/11/24	93	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5280450	Methylene Chloride(Dichloromethane)	2017/11/24	87	70 - 130	89	70 - 130	<2.0	ug/L	NC	30
5280450	o-Xylene	2017/11/24	95	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5280450	p+m-Xylene	2017/11/24	98	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5280450	Styrene	2017/11/24	92	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5280450	Tetrachloroethylene	2017/11/24	96	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5280450	Toluene	2017/11/24	92	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5280450	Total Xylenes	2017/11/24					<0.20	ug/L	NC	30
5280450	trans-1,2-Dichloroethylene	2017/11/24	99	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
5280450	trans-1,3-Dichloropropene	2017/11/24	93	70 - 130	93	70 - 130	<0.40	ug/L	NC	30
5280450	Trichloroethylene	2017/11/24	95	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5280450	Trichlorofluoromethane (FREON 11)	2017/11/24	94	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5280450	Vinyl Chloride	2017/11/24	93	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5281600	F2 (C10-C16 Hydrocarbons)	2017/11/24	101	50 - 130	104	60 - 130	<100	ug/L	NC	30
5281600	F3 (C16-C34 Hydrocarbons)	2017/11/24	109	50 - 130	112	60 - 130	<200	ug/L	NC	30
5281600	F4 (C34-C50 Hydrocarbons)	2017/11/24	113	50 - 130	115	60 - 130	<200	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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Maxxam Job #: B7Q3549
Report Date: 2017/11/27

exp Services Inc
Client Project #: HAM-00801287-B0
Site Location: NEW STREET
Your P.O. #: HAM-ENV
Sampler Initials: JH

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Service Specialist

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Maxxam
A Bureau Veritas Group Company

Your Project #: HAM-00801287-A0
Site Location: NEW STREET
Your C.O.C. #: 642000-01-01

Attention:Erik Enders

exp Services Inc
Hamilton Branch
80 Bancroft St
Hamilton, ON
L8E 2W5

Report Date: 2017/12/14
Report #: R4909777
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7R9168
Received: 2017/12/08, 15:30

Sample Matrix: Water
Samples Received: 24

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	23	N/A	2017/12/13		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1)	5	2017/12/11	2017/12/12	CAM SOP-00316	CCME PHC-CWS m
Volatile Organic Compounds and F1 PHCs	5	N/A	2017/12/12	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Water	1	N/A	2017/12/12	CAM SOP-00228	EPA 8260C m
Volatile Organic Compounds in Water	18	N/A	2017/12/13	CAM SOP-00228	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

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Your Project #: HAM-00801287-A0
Site Location: NEW STREET
Your C.O.C. #: 642000-01-01

Attention:Erik Enders

exp Services Inc
Hamilton Branch
80 Bancroft St
Hamilton, ON
L8E 2W5

Report Date: 2017/12/14
Report #: R4909777
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7R9168
Received: 2017/12/08, 15:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Deepthi Shaji, Project Manager
Email: dshaji@maxxam.ca
Phone# (905)817-5700 Ext:5807
==========
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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO133			FSO133			FSO134		
Sampling Date		2017/12/06 13:35			2017/12/06 13:35			2017/12/06 13:00		
COC Number		642000-01-01			642000-01-01			642000-01-01		
	UNITS	**MW101**	**RDL**	**QC Batch**	**MW101 Lab-Dup**	**RDL**	**QC Batch**	**MW102**	**RDL**	**QC Batch**
Calculated Parameters										
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	5308164				<0.50	0.50	5308164
Volatile Organics										
Acetone (2-Propanone)	ug/L	<10	10	5309556	<10	10	5309556	<10	10	5309556
Benzene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
Bromodichloromethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
Bromoform	ug/L	<1.0	1.0	5309556	<1.0	1.0	5309556	<1.0	1.0	5309556
Bromomethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
Carbon Tetrachloride	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
Chlorobenzene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
Chloroform	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
Dibromochloromethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
1,2-Dichlorobenzene	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
1,3-Dichlorobenzene	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
1,4-Dichlorobenzene	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	5309556	<1.0	1.0	5309556	<1.0	1.0	5309556
1,1-Dichloroethane	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
1,2-Dichloroethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
1,1-Dichloroethylene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
1,2-Dichloropropane	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	5309556	<0.30	0.30	5309556	<0.30	0.30	5309556
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	5309556	<0.40	0.40	5309556	<0.40	0.40	5309556
Ethylbenzene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
Ethylene Dibromide	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
Hexane	ug/L	<1.0	1.0	5309556	<1.0	1.0	5309556	<1.0	1.0	5309556
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	5309556	<2.0	2.0	5309556	<2.0	2.0	5309556
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	5309556	<10	10	5309556	<10	10	5309556
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	5309556	<5.0	5.0	5309556	<5.0	5.0	5309556
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
Styrene	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO133			FSO133			FSO134		
Sampling Date		2017/12/06 13:35			2017/12/06 13:35			2017/12/06 13:00		
COC Number		642000-01-01			642000-01-01			642000-01-01		
	UNITS	**MW101**	**RDL**	**QC Batch**	**MW101 Lab-Dup**	**RDL**	**QC Batch**	**MW102**	**RDL**	**QC Batch**
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
Tetrachloroethylene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
Toluene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
1,1,1-Trichloroethane	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
1,1,2-Trichloroethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
Trichloroethylene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	5309556	<0.50	0.50	5309556	<0.50	0.50	5309556
Vinyl Chloride	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
p+m-Xylene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
o-Xylene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
Total Xylenes	ug/L	<0.20	0.20	5309556	<0.20	0.20	5309556	<0.20	0.20	5309556
Surrogate Recovery (%)										
4-Bromofluorobenzene	%	102		5309556	102		5309556	101		5309556
D4-1,2-Dichloroethane	%	94		5309556	94		5309556	94		5309556
D8-Toluene	%	96		5309556	96		5309556	95		5309556

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO135	FSO136	FSO137	FSO138	FSO139		
Sampling Date		2017/12/07 12:40	2017/12/07 13:05	2017/12/06 15:30	2017/12/06 14:45	2017/12/06 14:40		
COC Number		642000-01-01	642000-01-01	642000-01-01	642000-01-01	642000-01-01		
	UNITS	**MW103S**	**MW103D**	**MW104**	**MW105S**	**MW105D**	**RDL**	**QC Batch**
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5308164
Volatile Organics								
Acetone (2-Propanone)	ug/L	<10	<10	<10	<10	<10	10	5309556
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
Bromoform	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5309556
Bromomethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Chloroform	ug/L	<0.20	<0.20	1.4	<0.20	<0.20	0.20	5309556
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5309556
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,1-Dichloroethylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
cis-1,2-Dichloroethylene	ug/L	<0.50	1.4	<0.50	<0.50	<0.50	0.50	5309556
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	5309556
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	5309556
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Hexane	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5309556
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5309556
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	<10	<10	10	5309556
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	5309556
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
Styrene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO135	FSO136	FSO137	FSO138	FSO139		
Sampling Date		2017/12/07 12:40	2017/12/07 13:05	2017/12/06 15:30	2017/12/06 14:45	2017/12/06 14:40		
COC Number		642000-01-01	642000-01-01	642000-01-01	642000-01-01	642000-01-01		
	UNITS	**MW103S**	**MW103D**	**MW104**	**MW105S**	**MW105D**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	17	360	2.6	1.1	110	0.20	5309556
Toluene	ug/L	<0.20	0.68	<0.20	<0.20	<0.20	0.20	5309556
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
Trichloroethylene	ug/L	<0.20	35	<0.20	<0.20	6.1	0.20	5309556
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	102	100	102	102	101		5309556
D4-1,2-Dichloroethane	%	94	96	94	95	95		5309556
D8-Toluene	%	95	95	96	96	94		5309556

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO140	FSO141	FSO142	FSO143	FSO144		
Sampling Date		2017/12/06 11:30	2017/12/06 11:50	2017/12/06 10:15	2017/12/06 10:50	2017/12/06 16:15		
COC Number		642000-01-01	642000-01-01	642000-01-01	642000-01-01	642000-01-01		
	UNITS	**MW106S**	**MW106D**	**MW107S**	**MW107D**	**MW108**	**RDL**	**QC Batch**
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5308164
Volatile Organics								
Acetone (2-Propanone)	ug/L	<10	<10	<10	<10	<10	10	5309556
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
Bromoform	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5309556
Bromomethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Chloroform	ug/L	<0.20	<0.20	0.24	<0.20	<0.20	0.20	5309556
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5309556
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,1-Dichloroethylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	5309556
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	5309556
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Hexane	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5309556
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5309556
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	<10	<10	10	5309556
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	5309556
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
Styrene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO140	FSO141	FSO142	FSO143	FSO144		
Sampling Date		2017/12/06 11:30	2017/12/06 11:50	2017/12/06 10:15	2017/12/06 10:50	2017/12/06 16:15		
COC Number		642000-01-01	642000-01-01	642000-01-01	642000-01-01	642000-01-01		
	UNITS	**MW106S**	**MW106D**	**MW107S**	**MW107D**	**MW108**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	<0.20	120	3.0	<0.20	4.1	0.20	5309556
Toluene	ug/L	<0.20	<0.20	<0.20	0.88	<0.20	0.20	5309556
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
Trichloroethylene	ug/L	<0.20	9.2	<0.20	<0.20	<0.20	0.20	5309556
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5309556
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	5309556
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	102	101	101	101	102		5309556
D4-1,2-Dichloroethane	%	94	95	96	95	94		5309556
D8-Toluene	%	96	94	96	96	97		5309556

RDL = Reportable Detection Limit
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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO145		FSO146			FSO147		
Sampling Date		2017/12/07 10:40		2017/12/05 15:25			2017/12/07 11:10		
COC Number		642000-01-01		642000-01-01			642000-01-01		
	UNITS	**MW109**	**RDL**	**BH1-S2S**	**RDL**	**QC Batch**	**BH2B-S2S**	**RDL**	**QC Batch**
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	<0.50	0.50	5308164	<0.50	0.50	5308164
Volatile Organics									
Acetone (2-Propanone)	ug/L	<10	10	<10	10	5309556	<10	10	5308969
Benzene	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
Bromodichloromethane	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
Bromoform	ug/L	<1.0	1.0	<1.0	1.0	5309556	<1.0	1.0	5308969
Bromomethane	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
Carbon Tetrachloride	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
Chlorobenzene	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
Chloroform	ug/L	<0.20	0.20	<0.20	0.20	5309556	5.7	0.20	5308969
Dibromochloromethane	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,2-Dichlorobenzene	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,3-Dichlorobenzene	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,4-Dichlorobenzene	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	<1.0	1.0	5309556	<1.0	1.0	5308969
1,1-Dichloroethane	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
1,2-Dichloroethane	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,1-Dichloroethylene	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
cis-1,2-Dichloroethylene	ug/L	1.5	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,2-Dichloropropane	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	<0.30	0.30	5309556	<0.30	0.30	5308969
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	<0.40	0.40	5309556	<0.40	0.40	5308969
Ethylbenzene	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
Ethylene Dibromide	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
Hexane	ug/L	<1.0	1.0	<1.0	1.0	5309556	<1.0	1.0	5308969
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	<2.0	2.0	5309556	<2.0	2.0	5308969
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	<10	10	5309556	<10	10	5308969
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	<5.0	5.0	5309556	<5.0	5.0	5308969
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
Styrene	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO145		FSO146			FSO147		
Sampling Date		2017/12/07 10:40		2017/12/05 15:25			2017/12/07 11:10		
COC Number		642000-01-01		642000-01-01			642000-01-01		
	UNITS	**MW109**	**RDL**	**BH1-S2S**	**RDL**	**QC Batch**	**BH2B-S2S**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	1500	2.0	0.33	0.20	5309556	23	0.20	5308969
Toluene	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
1,1,1-Trichloroethane	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
1,1,2-Trichloroethane	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
Trichloroethylene	ug/L	65	0.20	<0.20	0.20	5309556	0.37	0.20	5308969
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
Vinyl Chloride	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
p+m-Xylene	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
o-Xylene	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
Total Xylenes	ug/L	<0.20	0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
F1 (C6-C10)	ug/L						<25	25	5308969
F1 (C6-C10) - BTEX	ug/L						<25	25	5308969
Surrogate Recovery (%)									
4-Bromofluorobenzene	%						96		5308969
D4-1,2-Dichloroethane	%						97		5308969
D8-Toluene	%						96		5308969
4-Bromofluorobenzene	%	100		102		5309556			
D4-1,2-Dichloroethane	%	94		94		5309556			
D8-Toluene	%	93		96		5309556			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO148			FSO149			FSO150		
Sampling Date		2017/12/07 11:45			2017/12/07 14:00			2017/12/05 16:15		
COC Number		642000-01-01			642000-01-01			642000-01-01		
	UNITS	**BH2-S2S**	**RDL**	**QC Batch**	**BH3-S2S**	**RDL**	**QC Batch**	**BH4-S2S**	**RDL**	**QC Batch**
Calculated Parameters										
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	5308164	<0.50	0.50	5308164	<0.50	0.50	5308164
Volatile Organics										
Acetone (2-Propanone)	ug/L	<10	10	5309556	<10	10	5308969	<10	10	5309556
Benzene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
Bromodichloromethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
Bromoform	ug/L	<1.0	1.0	5309556	<1.0	1.0	5308969	<1.0	1.0	5309556
Bromomethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
Carbon Tetrachloride	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
Chlorobenzene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
Chloroform	ug/L	0.29	0.20	5309556	<0.20	0.20	5308969	0.60	0.20	5309556
Dibromochloromethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
1,2-Dichlorobenzene	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
1,3-Dichlorobenzene	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
1,4-Dichlorobenzene	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	5309556	<1.0	1.0	5308969	<1.0	1.0	5309556
1,1-Dichloroethane	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
1,2-Dichloroethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
1,1-Dichloroethylene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
cis-1,2-Dichloroethylene	ug/L	1.2	0.50	5309556	0.62	0.50	5308969	<0.50	0.50	5309556
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
1,2-Dichloropropane	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	5309556	<0.30	0.30	5308969	<0.30	0.30	5309556
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	5309556	<0.40	0.40	5308969	<0.40	0.40	5309556
Ethylbenzene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
Ethylene Dibromide	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
Hexane	ug/L	<1.0	1.0	5309556	<1.0	1.0	5308969	<1.0	1.0	5309556
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	5309556	<2.0	2.0	5308969	2.7	2.0	5309556
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	5309556	<10	10	5308969	<10	10	5309556
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	5309556	<5.0	5.0	5308969	<5.0	5.0	5309556
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
Styrene	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO148			FSO149			FSO150		
Sampling Date		2017/12/07 11:45			2017/12/07 14:00			2017/12/05 16:15		
COC Number		642000-01-01			642000-01-01			642000-01-01		
	UNITS	**BH2-S2S**	**RDL**	**QC Batch**	**BH3-S2S**	**RDL**	**QC Batch**	**BH4-S2S**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	1700	2.0	5309556	0.25	0.20	5308969	0.59	0.20	5309556
Toluene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
1,1,1-Trichloroethane	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
1,1,2-Trichloroethane	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
Trichloroethylene	ug/L	52	0.20	5309556	0.22	0.20	5308969	<0.20	0.20	5309556
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	5309556	<0.50	0.50	5308969	<0.50	0.50	5309556
Vinyl Chloride	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
p+m-Xylene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
o-Xylene	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
Total Xylenes	ug/L	<0.20	0.20	5309556	<0.20	0.20	5308969	<0.20	0.20	5309556
F1 (C6-C10)	ug/L				<25	25	5308969			
F1 (C6-C10) - BTEX	ug/L				<25	25	5308969			
Surrogate Recovery (%)										
4-Bromofluorobenzene	%				95		5308969			
D4-1,2-Dichloroethane	%				97		5308969			
D8-Toluene	%				98		5308969			
4-Bromofluorobenzene	%	100		5309556				101		5309556
D4-1,2-Dichloroethane	%	95		5309556				95		5309556
D8-Toluene	%	93		5309556				95		5309556

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO151	FSO152	FSO153			FSO154		
Sampling Date		2017/12/07 09:40	2017/12/07 10:05	2017/12/07 10:05			2017/12/07 11:10		
COC Number		642000-01-01	642000-01-01	642000-01-01			642000-01-01		
	UNITS	**MW2421S**	**MW2421D**	**MW2421**	**RDL**	**QC Batch**	**BH2B**	**RDL**	**QC Batch**
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	0.50	5308164	<0.50	0.50	5308164
Volatile Organics									
Acetone (2-Propanone)	ug/L	<10	<10	<10	10	5309556	<10	10	5308969
Benzene	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
Bromoform	ug/L	<1.0	<1.0	<1.0	1.0	5309556	<1.0	1.0	5308969
Bromomethane	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
Chloroform	ug/L	<0.20	<0.20	<0.20	0.20	5309556	5.9	0.20	5308969
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	1.0	5309556	<1.0	1.0	5308969
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,1-Dichloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	0.30	5309556	<0.30	0.30	5308969
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	0.40	5309556	<0.40	0.40	5308969
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
Hexane	ug/L	<1.0	<1.0	<1.0	1.0	5309556	<1.0	1.0	5308969
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	2.0	5309556	<2.0	2.0	5308969
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	10	5309556	<10	10	5308969
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	5.0	5309556	<5.0	5.0	5308969
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
Styrene	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO151	FSO152	FSO153			FSO154		
Sampling Date		2017/12/07 09:40	2017/12/07 10:05	2017/12/07 10:05			2017/12/07 11:10		
COC Number		642000-01-01	642000-01-01	642000-01-01			642000-01-01		
	UNITS	**MW2421S**	**MW2421D**	**MW2421**	**RDL**	**QC Batch**	**BH2B**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	0.53	120	110	0.20	5309556	24	0.20	5308969
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
Trichloroethylene	ug/L	<0.20	6.1	5.4	0.20	5309556	0.38	0.20	5308969
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	0.50	5309556	<0.50	0.50	5308969
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
Total Xylenes	ug/L	<0.20	<0.20	<0.20	0.20	5309556	<0.20	0.20	5308969
F1 (C6-C10)	ug/L						<25	25	5308969
F1 (C6-C10) - BTEX	ug/L						<25	25	5308969
Surrogate Recovery (%)									
4-Bromofluorobenzene	%						95		5308969
D4-1,2-Dichloroethane	%						100		5308969
D8-Toluene	%						98		5308969
4-Bromofluorobenzene	%	102	101	101		5309556			
D4-1,2-Dichloroethane	%	94	95	94		5309556			
D8-Toluene	%	95	94	95		5309556			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO155			FSO156		
Sampling Date							
COC Number		642000-01-01			642000-01-01		
	UNITS	**TRIP SPIKE**	**RDL**	**QC Batch**	**TRIP BLANK**	**RDL**	**QC Batch**
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/L				<0.50	0.50	5308164
Volatile Organics							
Acetone (2-Propanone)	ug/L	100	10	5308969	<10	10	5308969
Benzene	ug/L	100	0.20	5308969	<0.20	0.20	5308969
Bromodichloromethane	ug/L	90	0.50	5308969	<0.50	0.50	5308969
Bromoform	ug/L	95	1.0	5308969	<1.0	1.0	5308969
Bromomethane	ug/L	95	0.50	5308969	<0.50	0.50	5308969
Carbon Tetrachloride	ug/L	90	0.20	5308969	<0.20	0.20	5308969
Chlorobenzene	ug/L	95	0.20	5308969	<0.20	0.20	5308969
Chloroform	ug/L	95	0.20	5308969	<0.20	0.20	5308969
Dibromochloromethane	ug/L	95	0.50	5308969	<0.50	0.50	5308969
1,2-Dichlorobenzene	ug/L	95	0.50	5308969	<0.50	0.50	5308969
1,3-Dichlorobenzene	ug/L	95	0.50	5308969	<0.50	0.50	5308969
1,4-Dichlorobenzene	ug/L	85	0.50	5308969	<0.50	0.50	5308969
Dichlorodifluoromethane (FREON 12)	ug/L	80	1.0	5308969	<1.0	1.0	5308969
1,1-Dichloroethane	ug/L	110	0.20	5308969	<0.20	0.20	5308969
1,2-Dichloroethane	ug/L	95	0.50	5308969	<0.50	0.50	5308969
1,1-Dichloroethylene	ug/L	100	0.20	5308969	<0.20	0.20	5308969
cis-1,2-Dichloroethylene	ug/L	100	0.50	5308969	<0.50	0.50	5308969
trans-1,2-Dichloroethylene	ug/L	95	0.50	5308969	<0.50	0.50	5308969
1,2-Dichloropropane	ug/L	95	0.20	5308969	<0.20	0.20	5308969
cis-1,3-Dichloropropene	ug/L	70	0.30	5308969	<0.30	0.30	5308969
trans-1,3-Dichloropropene	ug/L	70	0.40	5308969	<0.40	0.40	5308969
Ethylbenzene	ug/L	85	0.20	5308969	<0.20	0.20	5308969
Ethylene Dibromide	ug/L	110	0.20	5308969	<0.20	0.20	5308969
Hexane	ug/L	55	1.0	5308969	<1.0	1.0	5308969
Methylene Chloride(Dichloromethane)	ug/L	95	2.0	5308969	<2.0	2.0	5308969
Methyl Ethyl Ketone (2-Butanone)	ug/L	90	10	5308969	<10	10	5308969
Methyl Isobutyl Ketone	ug/L	75	5.0	5308969	<5.0	5.0	5308969
Methyl t-butyl ether (MTBE)	ug/L	90	0.50	5308969	<0.50	0.50	5308969
Styrene	ug/L	80	0.50	5308969	<0.50	0.50	5308969
1,1,1,2-Tetrachloroethane	ug/L	100	0.50	5308969	<0.50	0.50	5308969
1,1,2,2-Tetrachloroethane	ug/L	100	0.50	5308969	<0.50	0.50	5308969

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		FSO155			FSO156		
Sampling Date							
COC Number		642000-01-01			642000-01-01		
	UNITS	**TRIP SPIKE**	**RDL**	**QC Batch**	**TRIP BLANK**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	90	0.20	5308969	<0.20	0.20	5308969
Toluene	ug/L	90	0.20	5308969	<0.20	0.20	5308969
1,1,1-Trichloroethane	ug/L	90	0.20	5308969	<0.20	0.20	5308969
1,1,2-Trichloroethane	ug/L	100	0.50	5308969	<0.50	0.50	5308969
Trichloroethylene	ug/L	95	0.20	5308969	<0.20	0.20	5308969
Trichlorofluoromethane (FREON 11)	ug/L	95	0.50	5308969	<0.50	0.50	5308969
Vinyl Chloride	ug/L	75	0.20	5308969	<0.20	0.20	5308969
p+m-Xylene	ug/L	85	0.20	5308969	<0.20	0.20	5308969
o-Xylene	ug/L	90	0.20	5308969	<0.20	0.20	5308969
Total Xylenes	ug/L				<0.20	0.20	5308969
F1 (C6-C10)	ug/L				<25	25	5308969
F1 (C6-C10) - BTEX	ug/L				<25	25	5308969
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	98		5308969	96		5308969
D4-1,2-Dichloroethane	%	98		5308969	100		5308969
D8-Toluene	%	101		5308969	98		5308969

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FSO147	FSO149	FSO154		FSO155	FSO156		
Sampling Date		2017/12/07 11:10	2017/12/07 14:00	2017/12/07 11:10					
COC Number		642000-01-01	642000-01-01	642000-01-01		642000-01-01	642000-01-01		
	UNITS	**BH2B-S2S**	**BH3-S2S**	**BH2B**	**RDL**	**TRIP SPIKE**	**TRIP BLANK**	**RDL**	**QC Batch**
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	100	82	<100	100	5309751
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	<200	200	86	<200	200	5309751
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	200	81	<200	200	5309751
Reached Baseline at C50	ug/L	Yes	Yes	Yes		Yes	Yes		5309751
Surrogate Recovery (%)									
o-Terphenyl	%	97	97	98		97	97		5309751

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

TEST SUMMARY

Maxxam ID: FSO133 **Collected:** 2017/12/06
Sample ID: MW101 **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO133 Dup **Collected:** 2017/12/06
Sample ID: MW101 **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO134 **Collected:** 2017/12/06
Sample ID: MW102 **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO135 **Collected:** 2017/12/07
Sample ID: MW103S **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO136 **Collected:** 2017/12/07
Sample ID: MW103D **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO137 **Collected:** 2017/12/06
Sample ID: MW104 **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

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Maxxam Job #: B7R9168
Report Date: 2017/12/14

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

TEST SUMMARY

Maxxam ID: FSO138 **Collected:** 2017/12/06
Sample ID: MW105S **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO139 **Collected:** 2017/12/06
Sample ID: MW105D **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO140 **Collected:** 2017/12/06
Sample ID: MW106S **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO141 **Collected:** 2017/12/06
Sample ID: MW106D **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO142 **Collected:** 2017/12/06
Sample ID: MW107S **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO143 **Collected:** 2017/12/06
Sample ID: MW107D **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam Job #: B7R9168
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exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

TEST SUMMARY

Maxxam ID: FSO144 **Collected:** 2017/12/06
Sample ID: MW108 **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO145 **Collected:** 2017/12/07
Sample ID: MW109 **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO146 **Collected:** 2017/12/05
Sample ID: BH1-S2S **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO147 **Collected:** 2017/12/07
Sample ID: BH2B-S2S **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5309751	2017/12/11	2017/12/12	Zhiyue (Frank) Zhu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5308969	N/A	2017/12/12	John Wu

Maxxam ID: FSO148 **Collected:** 2017/12/07
Sample ID: BH2-S2S **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO149 **Collected:** 2017/12/07
Sample ID: BH3-S2S **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5309751	2017/12/11	2017/12/12	Zhiyue (Frank) Zhu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5308969	N/A	2017/12/12	John Wu

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exp Services Inc
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Sampler Initials: KP

TEST SUMMARY

Maxxam ID: FSO150 **Collected:** 2017/12/05
Sample ID: BH4-S2S **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO151 **Collected:** 2017/12/07
Sample ID: MW2421S **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO152 **Collected:** 2017/12/07
Sample ID: MW2421D **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/13	Xueming Jiang

Maxxam ID: FSO153 **Collected:** 2017/12/07
Sample ID: MW2421 **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5309556	N/A	2017/12/12	Xueming Jiang

Maxxam ID: FSO154 **Collected:** 2017/12/07
Sample ID: BH2B **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5309751	2017/12/11	2017/12/12	Zhiyue (Frank) Zhu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5308969	N/A	2017/12/12	John Wu

Maxxam ID: FSO155 **Collected:**
Sample ID: TRIP SPIKE **Shipped:**
Matrix: Water **Received:** 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5309751	2017/12/11	2017/12/12	Zhiyue (Frank) Zhu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5308969	N/A	2017/12/12	John Wu

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Sampler Initials: KP

TEST SUMMARY

Maxxam ID: FSO156
Sample ID: TRIP BLANK
Matrix: Water

Collected:
Shipped:
Received: 2017/12/08

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5308164	N/A	2017/12/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	5309751	2017/12/11	2017/12/12	Zhiyue (Frank) Zhu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	5308969	N/A	2017/12/12	John Wu

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.0°C

Cooler custody seal was present and intact.

Sample FSO145 [MW109] : VOC Analysis: Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly. In order to meet required regulatory criteria, results for selected compounds (obtained by a separate analysis using an appropriate low dilution) are included in the report.

Sample FSO148 [BH2-S2S] : VOC Analysis: Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly. In order to meet required regulatory criteria, results for selected compounds (obtained by a separate analysis using an appropriate low dilution) are included in the report.

Sample FSO155 [TRIP SPIKE] : F24FID Analysis: Trip spike results are expressed as percentage of the spiked amounts.

VOCF1 Analysis: Trip Spike results are expressed as percent recoveries.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
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			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5308969	4-Bromofluorobenzene	2017/12/12	101	70 - 130	102	70 - 130	98	%		
5308969	D4-1,2-Dichloroethane	2017/12/12	96	70 - 130	95	70 - 130	95	%		
5308969	D8-Toluene	2017/12/12	101	70 - 130	102	70 - 130	99	%		
5309556	4-Bromofluorobenzene	2017/12/13	104	70 - 130	103	70 - 130	103	%		
5309556	D4-1,2-Dichloroethane	2017/12/13	94	70 - 130	95	70 - 130	98	%		
5309556	D8-Toluene	2017/12/13	99	70 - 130	99	70 - 130	96	%		
5309751	o-Terphenyl	2017/12/12	101	60 - 130	103	60 - 130	101	%		
5308969	1,1,1,2-Tetrachloroethane	2017/12/12	92	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5308969	1,1,1-Trichloroethane	2017/12/12	93	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5308969	1,1,2,2-Tetrachloroethane	2017/12/12	90	70 - 130	90	70 - 130	<0.50	ug/L	NC	30
5308969	1,1,2-Trichloroethane	2017/12/12	92	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5308969	1,1-Dichloroethane	2017/12/12	95	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5308969	1,1-Dichloroethylene	2017/12/12	95	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5308969	1,2-Dichlorobenzene	2017/12/12	93	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5308969	1,2-Dichloroethane	2017/12/12	87	70 - 130	86	70 - 130	<0.50	ug/L	NC	30
5308969	1,2-Dichloropropane	2017/12/12	94	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5308969	1,3-Dichlorobenzene	2017/12/12	97	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5308969	1,4-Dichlorobenzene	2017/12/12	95	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5308969	Acetone (2-Propanone)	2017/12/12	92	60 - 140	90	60 - 140	<10	ug/L	NC	30
5308969	Benzene	2017/12/12	93	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
5308969	Bromodichloromethane	2017/12/12	89	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
5308969	Bromoform	2017/12/12	87	70 - 130	87	70 - 130	<1.0	ug/L	NC	30
5308969	Bromomethane	2017/12/12	99	60 - 140	98	60 - 140	<0.50	ug/L	NC	30
5308969	Carbon Tetrachloride	2017/12/12	93	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5308969	Chlorobenzene	2017/12/12	93	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5308969	Chloroform	2017/12/12	94	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5308969	cis-1,2-Dichloroethylene	2017/12/12	97	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5308969	cis-1,3-Dichloropropene	2017/12/12	86	70 - 130	85	70 - 130	<0.30	ug/L	NC	30
5308969	Dibromochloromethane	2017/12/12	90	70 - 130	89	70 - 130	<0.50	ug/L	NC	30
5308969	Dichlorodifluoromethane (FREON 12)	2017/12/12	97	60 - 140	98	60 - 140	<1.0	ug/L	NC	30
5308969	Ethylbenzene	2017/12/12	90	70 - 130	91	70 - 130	<0.20	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: HAM-00801287-A0
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Sampler Initials: KP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5308969	Ethylene Dibromide	2017/12/12	93	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
5308969	F1 (C6-C10) - BTEX	2017/12/12					<25	ug/L	NC	30
5308969	F1 (C6-C10)	2017/12/12	103	60 - 140	105	60 - 140	<25	ug/L	NC	30
5308969	Hexane	2017/12/12	94	70 - 130	94	70 - 130	<1.0	ug/L	NC	30
5308969	Methyl Ethyl Ketone (2-Butanone)	2017/12/12	85	60 - 140	84	60 - 140	<10	ug/L	NC	30
5308969	Methyl Isobutyl Ketone	2017/12/12	79	70 - 130	80	70 - 130	<5.0	ug/L	NC	30
5308969	Methyl t-butyl ether (MTBE)	2017/12/12	90	70 - 130	89	70 - 130	<0.50	ug/L	NC	30
5308969	Methylene Chloride(Dichloromethane)	2017/12/12	91	70 - 130	90	70 - 130	<2.0	ug/L	NC	30
5308969	o-Xylene	2017/12/12	89	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
5308969	p+m-Xylene	2017/12/12	89	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
5308969	Styrene	2017/12/12	87	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
5308969	Tetrachloroethylene	2017/12/12	98	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5308969	Toluene	2017/12/12	89	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
5308969	Total Xylenes	2017/12/12					<0.20	ug/L	NC	30
5308969	trans-1,2-Dichloroethylene	2017/12/12	98	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5308969	trans-1,3-Dichloropropene	2017/12/12	86	70 - 130	84	70 - 130	<0.40	ug/L	NC	30
5308969	Trichloroethylene	2017/12/12	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5308969	Trichlorofluoromethane (FREON 11)	2017/12/12	98	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5308969	Vinyl Chloride	2017/12/12	102	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5309556	1,1,1,2-Tetrachloroethane	2017/12/13	94	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
5309556	1,1,1-Trichloroethane	2017/12/13	88	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5309556	1,1,2,2-Tetrachloroethane	2017/12/13	89	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5309556	1,1,2-Trichloroethane	2017/12/13	83	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5309556	1,1-Dichloroethane	2017/12/13	83	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5309556	1,1-Dichloroethylene	2017/12/13	83	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5309556	1,2-Dichlorobenzene	2017/12/13	87	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5309556	1,2-Dichloroethane	2017/12/13	80	70 - 130	89	70 - 130	<0.50	ug/L	NC	30
5309556	1,2-Dichloropropane	2017/12/13	83	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5309556	1,3-Dichlorobenzene	2017/12/13	86	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5309556	1,4-Dichlorobenzene	2017/12/13	87	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
5309556	Acetone (2-Propanone)	2017/12/13	78	60 - 140	76	60 - 140	<10	ug/L	NC	30

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exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW STREET
Sampler Initials: KP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5309556	Benzene	2017/12/13	83	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5309556	Bromodichloromethane	2017/12/13	87	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5309556	Bromoform	2017/12/13	99	70 - 130	109	70 - 130	<1.0	ug/L	NC	30
5309556	Bromomethane	2017/12/13	84	60 - 140	96	60 - 140	<0.50	ug/L	NC	30
5309556	Carbon Tetrachloride	2017/12/13	92	70 - 130	105	70 - 130	<0.20	ug/L	NC	30
5309556	Chlorobenzene	2017/12/13	88	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5309556	Chloroform	2017/12/13	85	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5309556	cis-1,2-Dichloroethylene	2017/12/13	82	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5309556	cis-1,3-Dichloropropene	2017/12/13	77	70 - 130	84	70 - 130	<0.30	ug/L	NC	30
5309556	Dibromochloromethane	2017/12/13	93	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
5309556	Dichlorodifluoromethane (FREON 12)	2017/12/13	79	60 - 140	97	60 - 140	<1.0	ug/L	NC	30
5309556	Ethylbenzene	2017/12/13	84	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5309556	Ethylene Dibromide	2017/12/13	90	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5309556	Hexane	2017/12/13	79	70 - 130	95	70 - 130	<1.0	ug/L	NC	30
5309556	Methyl Ethyl Ketone (2-Butanone)	2017/12/13	87	60 - 140	87	60 - 140	<10	ug/L	NC	30
5309556	Methyl Isobutyl Ketone	2017/12/13	81	70 - 130	87	70 - 130	<5.0	ug/L	NC	30
5309556	Methyl t-butyl ether (MTBE)	2017/12/13	83	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5309556	Methylene Chloride(Dichloromethane)	2017/12/13	83	70 - 130	93	70 - 130	<2.0	ug/L	NC	30
5309556	o-Xylene	2017/12/13	84	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5309556	p+m-Xylene	2017/12/13	85	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
5309556	Styrene	2017/12/13	86	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
5309556	Tetrachloroethylene	2017/12/13	88	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5309556	Toluene	2017/12/13	84	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
5309556	Total Xylenes	2017/12/13					<0.20	ug/L	NC	30
5309556	trans-1,2-Dichloroethylene	2017/12/13	82	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
5309556	trans-1,3-Dichloropropene	2017/12/13	80	70 - 130	85	70 - 130	<0.40	ug/L	NC	30
5309556	Trichloroethylene	2017/12/13	88	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5309556	Trichlorofluoromethane (FREON 11)	2017/12/13	86	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5309556	Vinyl Chloride	2017/12/13	82	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
5309751	F2 (C10-C16 Hydrocarbons)	2017/12/12	102	50 - 130	104	60 - 130	<100	ug/L	1.2	30
5309751	F3 (C16-C34 Hydrocarbons)	2017/12/12	108	50 - 130	108	60 - 130	<200	ug/L	NC	30

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exp Services Inc
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Site Location: NEW STREET
Sampler Initials: KP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5309751	F4 (C34-C50 Hydrocarbons)	2017/12/12	107	50 - 130	103	60 - 130	<200	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Service Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Your Project #: HAM-00801287-A0
Site#: PHASE TWO
Site Location: NEW
Your C.O.C. #: 642000-06-01

Attention: Erik Enders

exp Services Inc
Hamilton Branch
80 Bancroft St
Hamilton, ON
L8E 2W5

Report Date: 2017/12/27
Report #: R4922692
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B7S7637
Received: 2017/12/19, 17:00

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Chloride by Automated Colourimetry	2	N/A	2017/12/21	CAM SOP-00463	EPA 325.2 m
Dissolved Metals Analysis by ICP	2	2017/12/20	2017/12/22	CAM SOP-00408	EPA 6010D m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Deepthi Shaji, Project Manager
Email: dshaji@maxxam.ca
Phone# (905)817-5700 Ext:5807

==========

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Maxxam Job #: B7S7637
Report Date: 2017/12/27

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

RESULTS OF ANALYSES OF WATER

Maxxam ID		FUI108	FUI109		
Sampling Date		2017/12/18 12:55	2017/12/18 12:45		
COC Number		642000-06-01	642000-06-01		
	UNITS	**MW101**	**MW102**	**RDL**	**QC Batch**
Inorganics					
Dissolved Chloride (Cl)	mg/L	140	99	1.0	5325442

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B7S7637
Report Date: 2017/12/27

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		FUI108	FUI109	FUI109		
Sampling Date		2017/12/18 12:55	2017/12/18 12:45	2017/12/18 12:45		
COC Number		642000-06-01	642000-06-01	642000-06-01		
	UNITS	**MW101**	**MW102**	**MW102 Lab-Dup**	**RDL**	**QC Batch**
Metals						
Dissolved Sodium (Na)	ug/L	78000	95000	95000	500	5325383

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B7S7637
Report Date: 2017/12/27

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

TEST SUMMARY

Maxxam ID: FUI108
Sample ID: MW101
Matrix: Water

Collected: 2017/12/18
Shipped:
Received: 2017/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	5325442	N/A	2017/12/21	Alina Dobreanu
Dissolved Metals Analysis by ICP	ICP	5325383	2017/12/20	2017/12/22	Azita Fazaeli

Maxxam ID: FUI109
Sample ID: MW102
Matrix: Water

Collected: 2017/12/18
Shipped:
Received: 2017/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	5325442	N/A	2017/12/21	Alina Dobreanu
Dissolved Metals Analysis by ICP	ICP	5325383	2017/12/20	2017/12/22	Azita Fazaeli

Maxxam ID: FUI109 Dup
Sample ID: MW102
Matrix: Water

Collected: 2017/12/18
Shipped:
Received: 2017/12/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Metals Analysis by ICP	ICP	5325383	2017/12/20	2017/12/22	Azita Fazaeli

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Maxxam Job #: B7S7637
Report Date: 2017/12/27

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.3°C

Results relate only to the items tested.

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Maxxam Job #: B7S7637
Report Date: 2017/12/27

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5325383	Dissolved Sodium (Na)	2017/12/22	NC	80 - 120	103	80 - 120	<500	ug/L	0.042	25
5325442	Dissolved Chloride (Cl)	2017/12/21	107	80 - 120	105	80 - 120	<1.0	mg/L	1.3	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

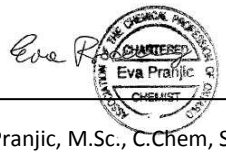
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Maxxam Job #: B7S7637
Report Date: 2017/12/27

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Sampler Initials: KP

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

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Your Project #: HAM-801287-A0
Site Location: NEW ST
Your C.O.C. #: 648746-01-01

Attention: Erik Enders

exp Services Inc
Hamilton Branch
80 Bancroft St
Hamilton, ON
L8E 2W5

Report Date: 2018/02/08
Report #: R4976169
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B825866
Received: 2018/02/02, 15:50

Sample Matrix: Water
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	5	N/A	2018/02/07		EPA 8260C m
1,3-Dichloropropene Sum	3	N/A	2018/02/08		EPA 8260C m
Volatile Organic Compounds in Water	9	N/A	2018/02/06	CAM SOP-00228	EPA 8260C m

Remarks:

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Results relate to samples tested.
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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: HAM-801287-A0
Site Location: NEW ST
Your C.O.C. #: 648746-01-01

Attention: Erik Enders

exp Services Inc
Hamilton Branch
80 Bancroft St
Hamilton, ON
L8E 2W5

Report Date: 2018/02/08
Report #: R4976169
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B825866
Received: 2018/02/02, 15:50

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Deepthi Shaji, Project Manager
Email: dshaji@maxxam.ca
Phone# (905)817-5700 Ext:5807

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Maxxam Job #: B825866
Report Date: 2018/02/08

exp Services Inc
Client Project #: HAM-801287-A0
Site Location: NEW ST
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		GAK611	GAK612		GAK613		GAK614		
Sampling Date		2018/02/01 11:15	2018/02/01 12:50		2018/02/01 13:25		2018/02/01 13:55		
COC Number		648746-01-01	648746-01-01		648746-01-01		648746-01-01		
	UNITS	**MW201**	**MW202**	**RDL**	**BH2-S2S**	**RDL**	**BH2B-S2S**	**RDL**	**QC Batch**
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5383632
Volatile Organics									
Acetone (2-Propanone)	ug/L	<10	<10	10	<100	100	<10	10	5384857
Benzene	ug/L	<0.20	<0.20	0.20	<2.0	2.0	<0.20	0.20	5384857
Bromodichloromethane	ug/L	<0.50	<0.50	0.50	<5.0	5.0	<0.50	0.50	5384857
Bromoform	ug/L	<1.0	<1.0	1.0	<10	10	<1.0	1.0	5384857
Bromomethane	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5384857
Carbon Tetrachloride	ug/L	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5384857
Chlorobenzene	ug/L	<0.20	<0.20	0.20	<2.0	2.0	<0.20	0.20	5384857
Chloroform	ug/L	<0.20	<0.20	0.20	<2.0	2.0	11	0.20	5384857
Dibromochloromethane	ug/L	<0.50	<0.50	0.50	<5.0	5.0	<0.50	0.50	5384857
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5384857
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	<5.0	5.0	<0.50	0.50	5384857
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5384857
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	1.0	<10	10	<1.0	1.0	5384857
1,1-Dichloroethane	ug/L	<0.20	<0.20	0.20	<2.0	2.0	<0.20	0.20	5384857
1,2-Dichloroethane	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5384857
1,1-Dichloroethylene	ug/L	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5384857
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5384857
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5384857
1,2-Dichloropropane	ug/L	<0.20	<0.20	0.20	<2.0	2.0	<0.20	0.20	5384857
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	0.30	<0.30	0.30	<0.30	0.30	5384857
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	0.40	<0.40	0.40	<0.40	0.40	5384857
Ethylbenzene	ug/L	<0.20	<0.20	0.20	<2.0	2.0	<0.20	0.20	5384857
Ethylene Dibromide	ug/L	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5384857
Hexane	ug/L	<1.0	<1.0	1.0	<10	10	<1.0	1.0	5384857
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	<20	20	<2.0	2.0	5384857
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	10	<100	100	<10	10	5384857
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	5.0	<50	50	<5.0	5.0	5384857
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	0.50	<5.0	5.0	<0.50	0.50	5384857
Styrene	ug/L	<0.50	<0.50	0.50	<5.0	5.0	<0.50	0.50	5384857
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5384857
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5384857

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B825866
Report Date: 2018/02/08

exp Services Inc
Client Project #: HAM-801287-A0
Site Location: NEW ST
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		GAK611	GAK612		GAK613		GAK614		
Sampling Date		2018/02/01 11:15	2018/02/01 12:50		2018/02/01 13:25		2018/02/01 13:55		
COC Number		648746-01-01	648746-01-01		648746-01-01		648746-01-01		
	UNITS	**MW201**	**MW202**	**RDL**	**BH2-S2S**	**RDL**	**BH2B-S2S**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	7.8	33	0.20	2700	2.0	6.1	0.20	5384857
Toluene	ug/L	<0.20	<0.20	0.20	<2.0	2.0	<0.20	0.20	5384857
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	0.20	<2.0	2.0	<0.20	0.20	5384857
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	0.50	<0.50	0.50	<0.50	0.50	5384857
Trichloroethylene	ug/L	0.56	0.98	0.20	2.9	2.0	<0.20	0.20	5384857
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	0.50	<5.0	5.0	<0.50	0.50	5384857
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	<0.20	0.20	<0.20	0.20	5384857
p+m-Xylene	ug/L	<0.20	<0.20	0.20	<2.0	2.0	<0.20	0.20	5384857
o-Xylene	ug/L	<0.20	<0.20	0.20	<2.0	2.0	<0.20	0.20	5384857
Total Xylenes	ug/L	<0.20	<0.20	0.20	<2.0	2.0	<0.20	0.20	5384857
Surrogate Recovery (%)									
4-Bromofluorobenzene	%	101	101		102		101		5384857
D4-1,2-Dichloroethane	%	100	98		97		98		5384857
D8-Toluene	%	97	99		98		98		5384857

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B825866
Report Date: 2018/02/08

exp Services Inc
Client Project #: HAM-801287-A0
Site Location: NEW ST
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		GAK615	GAK616			GAK617		
Sampling Date		2018/02/01 14:20	2018/02/01 12:00			2018/02/01		
COC Number		648746-01-01	648746-01-01			648746-01-01		
	UNITS	**MW109**	**BH2-SM**	**RDL**	**QC Batch**	**TRIP SPIKE**	**RDL**	**QC Batch**
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	0.50	5383632			
Volatile Organics								
Acetone (2-Propanone)	ug/L	<100	<100	100	5384857	100	10	5384857
Benzene	ug/L	<2.0	<2.0	2.0	5384857	110	0.20	5384857
Bromodichloromethane	ug/L	<5.0	<5.0	5.0	5384857	110	0.50	5384857
Bromoform	ug/L	<10	<10	10	5384857	110	1.0	5384857
Bromomethane	ug/L	<0.50	<0.50	0.50	5384857	110	0.50	5384857
Carbon Tetrachloride	ug/L	<0.20	<0.20	0.20	5384857	110	0.20	5384857
Chlorobenzene	ug/L	<2.0	<2.0	2.0	5384857	110	0.20	5384857
Chloroform	ug/L	<2.0	<2.0	2.0	5384857	110	0.20	5384857
Dibromochloromethane	ug/L	<5.0	<5.0	5.0	5384857	110	0.50	5384857
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	5384857	110	0.50	5384857
1,3-Dichlorobenzene	ug/L	<5.0	<5.0	5.0	5384857	100	0.50	5384857
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	5384857	100	0.50	5384857
Dichlorodifluoromethane (FREON 12)	ug/L	<10	<10	10	5384857	100	1.0	5384857
1,1-Dichloroethane	ug/L	<2.0	<2.0	2.0	5384857	110	0.20	5384857
1,2-Dichloroethane	ug/L	<0.50	<0.50	0.50	5384857	100	0.50	5384857
1,1-Dichloroethylene	ug/L	0.32	<0.20	0.20	5384857	100	0.20	5384857
cis-1,2-Dichloroethylene	ug/L	1.9	3.2	0.50	5384857	110	0.50	5384857
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	5384857	110	0.50	5384857
1,2-Dichloropropane	ug/L	<2.0	<2.0	2.0	5384857	110	0.20	5384857
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	0.30	5384857	90	0.30	5384857
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	0.40	5384857	90	0.40	5384857
Ethylbenzene	ug/L	<2.0	<2.0	2.0	5384857	100	0.20	5384857
Ethylene Dibromide	ug/L	<0.20	<0.20	0.20	5384857	110	0.20	5384857
Hexane	ug/L	<10	<10	10	5384857	65	1.0	5384857
Methylene Chloride(Dichloromethane)	ug/L	<20	<20	20	5384857	110	2.0	5384857
Methyl Ethyl Ketone (2-Butanone)	ug/L	<100	<100	100	5384857	100	10	5384857
Methyl Isobutyl Ketone	ug/L	<50	<50	50	5384857	110	5.0	5384857
Methyl t-butyl ether (MTBE)	ug/L	<5.0	<5.0	5.0	5384857	110	0.50	5384857
Styrene	ug/L	<5.0	<5.0	5.0	5384857	95	0.50	5384857
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	5384857	110	0.50	5384857
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	5384857	110	0.50	5384857

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B825866
Report Date: 2018/02/08

exp Services Inc
Client Project #: HAM-801287-A0
Site Location: NEW ST
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		GAK615	GAK616			GAK617		
Sampling Date		2018/02/01 14:20	2018/02/01 12:00			2018/02/01		
COC Number		648746-01-01	648746-01-01			648746-01-01		
	UNITS	**MW109**	**BH2-SM**	**RDL**	**QC Batch**	**TRIP SPIKE**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	3900	1800	2.0	5384857	100	0.20	5384857
Toluene	ug/L	<2.0	<2.0	2.0	5384857	100	0.20	5384857
1,1,1-Trichloroethane	ug/L	<2.0	<2.0	2.0	5384857	110	0.20	5384857
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	0.50	5384857	100	0.50	5384857
Trichloroethylene	ug/L	110	18	2.0	5384857	110	0.20	5384857
Trichlorofluoromethane (FREON 11)	ug/L	<5.0	<5.0	5.0	5384857	100	0.50	5384857
Vinyl Chloride	ug/L	<0.20	0.76	0.20	5384857	100	0.20	5384857
p+m-Xylene	ug/L	<2.0	<2.0	2.0	5384857	100	0.20	5384857
o-Xylene	ug/L	<2.0	<2.0	2.0	5384857	100	0.20	5384857
Total Xylenes	ug/L	<2.0	<2.0	2.0	5384857			
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	101	101		5384857	102		5384857
D4-1,2-Dichloroethane	%	98	98		5384857	99		5384857
D8-Toluene	%	98	99		5384857	99		5384857

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B825866
Report Date: 2018/02/08

exp Services Inc
Client Project #: HAM-801287-A0
Site Location: NEW ST
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		GAK618	GAK619		
Sampling Date		2018/02/01	2018/02/01 11:15		
COC Number		648746-01-01	648746-01-01		
	UNITS	**TRIP BLANK**	**MW2201**	**RDL**	**QC Batch**
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	0.50	5383632
Volatile Organics					
Acetone (2-Propanone)	ug/L	<10	<10	10	5384857
Benzene	ug/L	<0.20	<0.20	0.20	5384857
Bromodichloromethane	ug/L	<0.50	<0.50	0.50	5384857
Bromoform	ug/L	<1.0	<1.0	1.0	5384857
Bromomethane	ug/L	<0.50	<0.50	0.50	5384857
Carbon Tetrachloride	ug/L	<0.20	<0.20	0.20	5384857
Chlorobenzene	ug/L	<0.20	<0.20	0.20	5384857
Chloroform	ug/L	<0.20	<0.20	0.20	5384857
Dibromochloromethane	ug/L	<0.50	<0.50	0.50	5384857
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	5384857
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	5384857
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	5384857
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	1.0	5384857
1,1-Dichloroethane	ug/L	<0.20	<0.20	0.20	5384857
1,2-Dichloroethane	ug/L	<0.50	<0.50	0.50	5384857
1,1-Dichloroethylene	ug/L	<0.20	<0.20	0.20	5384857
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	5384857
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	5384857
1,2-Dichloropropane	ug/L	<0.20	<0.20	0.20	5384857
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	0.30	5384857
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	0.40	5384857
Ethylbenzene	ug/L	<0.20	<0.20	0.20	5384857
Ethylene Dibromide	ug/L	<0.20	<0.20	0.20	5384857
Hexane	ug/L	<1.0	<1.0	1.0	5384857
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	5384857
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	10	5384857
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	5.0	5384857
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	0.50	5384857
Styrene	ug/L	<0.50	<0.50	0.50	5384857
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	5384857
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	5384857

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B825866
Report Date: 2018/02/08

exp Services Inc
Client Project #: HAM-801287-A0
Site Location: NEW ST
Sampler Initials: KP

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		GAK618	GAK619		
Sampling Date		2018/02/01	2018/02/01 11:15		
COC Number		648746-01-01	648746-01-01		
	UNITS	**TRIP BLANK**	**MW2201**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	<0.20	8.8	0.20	5384857
Toluene	ug/L	<0.20	<0.20	0.20	5384857
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	0.20	5384857
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	0.50	5384857
Trichloroethylene	ug/L	<0.20	0.66	0.20	5384857
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	0.50	5384857
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	5384857
p+m-Xylene	ug/L	<0.20	<0.20	0.20	5384857
o-Xylene	ug/L	<0.20	<0.20	0.20	5384857
Total Xylenes	ug/L	<0.20	<0.20	0.20	5384857
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	102	102		5384857
D4-1,2-Dichloroethane	%	97	100		5384857
D8-Toluene	%	97	96		5384857

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B825866
Report Date: 2018/02/08

exp Services Inc
Client Project #: HAM-801287-A0
Site Location: NEW ST
Sampler Initials: KP

TEST SUMMARY

Maxxam ID: GAK611
Sample ID: MW201
Matrix: Water

Collected: 2018/02/01
Shipped:
Received: 2018/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5383632	N/A	2018/02/07	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5384857	N/A	2018/02/06	Juan Pangilinan

Maxxam ID: GAK612
Sample ID: MW202
Matrix: Water

Collected: 2018/02/01
Shipped:
Received: 2018/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5383632	N/A	2018/02/07	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5384857	N/A	2018/02/06	Juan Pangilinan

Maxxam ID: GAK613
Sample ID: BH2-S2S
Matrix: Water

Collected: 2018/02/01
Shipped:
Received: 2018/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5383632	N/A	2018/02/08	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5384857	N/A	2018/02/06	Juan Pangilinan

Maxxam ID: GAK614
Sample ID: BH2B-S2S
Matrix: Water

Collected: 2018/02/01
Shipped:
Received: 2018/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5383632	N/A	2018/02/07	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5384857	N/A	2018/02/06	Juan Pangilinan

Maxxam ID: GAK615
Sample ID: MW109
Matrix: Water

Collected: 2018/02/01
Shipped:
Received: 2018/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5383632	N/A	2018/02/08	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5384857	N/A	2018/02/06	Juan Pangilinan

Maxxam ID: GAK616
Sample ID: BH2-SM
Matrix: Water

Collected: 2018/02/01
Shipped:
Received: 2018/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5383632	N/A	2018/02/08	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5384857	N/A	2018/02/06	Juan Pangilinan

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Maxxam Job #: B825866
Report Date: 2018/02/08

exp Services Inc
Client Project #: HAM-801287-A0
Site Location: NEW ST
Sampler Initials: KP

TEST SUMMARY

Maxxam ID: GAK617
Sample ID: TRIP SPIKE
Matrix: Water

Collected: 2018/02/01
Shipped:
Received: 2018/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds in Water	GC/MS	5384857	N/A	2018/02/06	Juan Pangilinan

Maxxam ID: GAK618
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2018/02/01
Shipped:
Received: 2018/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5383632	N/A	2018/02/07	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5384857	N/A	2018/02/06	Juan Pangilinan

Maxxam ID: GAK619
Sample ID: MW2201
Matrix: Water

Collected: 2018/02/01
Shipped:
Received: 2018/02/02

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5383632	N/A	2018/02/07	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5384857	N/A	2018/02/06	Juan Pangilinan

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Maxxam Job #: B825866
Report Date: 2018/02/08

exp Services Inc
Client Project #: HAM-801287-A0
Site Location: NEW ST
Sampler Initials: KP

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	0.7°C

Cooler custody seal was present and intact.

VOC Analysis: Due to high concentrations of target analytes, some samples required dilution. Detection limits were adjusted accordingly. In order to meet required regulatory criteria, results for selected compounds (obtained by a separate analysis using an appropriate low dilution) are included in the report.

Sample GAK617 [TRIP SPIKE] : VOC Analysis: Trip Spike results are expressed as percent recoveries.

Results relate only to the items tested.

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Maxxam Job #: B825866
Report Date: 2018/02/08

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: HAM-801287-A0
Site Location: NEW ST
Sampler Initials: KP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5384857	4-Bromofluorobenzene	2018/02/06	102	70 - 130	102	70 - 130	102	%		
5384857	D4-1,2-Dichloroethane	2018/02/06	103	70 - 130	92	70 - 130	92	%		
5384857	D8-Toluene	2018/02/06	98	70 - 130	100	70 - 130	99	%		
5384857	1,1,1,2-Tetrachloroethane	2018/02/06	99	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
5384857	1,1,1-Trichloroethane	2018/02/06	95	70 - 130	104	70 - 130	<0.20	ug/L	4.9	30
5384857	1,1,2,2-Tetrachloroethane	2018/02/06	101	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5384857	1,1,2-Trichloroethane	2018/02/06	96	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
5384857	1,1-Dichloroethane	2018/02/06	96	70 - 130	100	70 - 130	<0.20	ug/L	4.3	30
5384857	1,1-Dichloroethylene	2018/02/06	94	70 - 130	101	70 - 130	<0.20	ug/L	4.2	30
5384857	1,2-Dichlorobenzene	2018/02/06	96	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
5384857	1,2-Dichloroethane	2018/02/06	92	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
5384857	1,2-Dichloropropane	2018/02/06	99	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5384857	1,3-Dichlorobenzene	2018/02/06	96	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
5384857	1,4-Dichlorobenzene	2018/02/06	97	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
5384857	Acetone (2-Propanone)	2018/02/06	110	60 - 140	99	60 - 140	<10	ug/L	NC	30
5384857	Benzene	2018/02/06	96	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5384857	Bromodichloromethane	2018/02/06	99	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5384857	Bromoform	2018/02/06	103	70 - 130	103	70 - 130	<1.0	ug/L	NC	30
5384857	Bromomethane	2018/02/06	103	60 - 140	93	60 - 140	<0.50	ug/L	NC	30
5384857	Carbon Tetrachloride	2018/02/06	96	70 - 130	105	70 - 130	<0.20	ug/L	NC	30
5384857	Chlorobenzene	2018/02/06	98	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5384857	Chloroform	2018/02/06	97	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5384857	cis-1,2-Dichloroethylene	2018/02/06	100	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
5384857	cis-1,3-Dichloropropene	2018/02/06	110	70 - 130	94	70 - 130	<0.30	ug/L	NC	30
5384857	Dibromochloromethane	2018/02/06	100	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5384857	Dichlorodifluoromethane (FREON 12)	2018/02/06	86	60 - 140	94	60 - 140	<1.0	ug/L	NC	30
5384857	Ethylbenzene	2018/02/06	95	70 - 130	105	70 - 130	<0.20	ug/L	NC	30
5384857	Ethylene Dibromide	2018/02/06	102	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5384857	Hexane	2018/02/06	94	70 - 130	102	70 - 130	<1.0	ug/L	NC	30
5384857	Methyl Ethyl Ketone (2-Butanone)	2018/02/06	106	60 - 140	97	60 - 140	<10	ug/L	NC	30
5384857	Methyl Isobutyl Ketone	2018/02/06	103	70 - 130	98	70 - 130	<5.0	ug/L	NC	30

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Maxxam Job #: B825866
Report Date: 2018/02/08

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: HAM-801287-A0
Site Location: NEW ST
Sampler Initials: KP

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5384857	Methyl t-butyl ether (MTBE)	2018/02/06	94	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5384857	Methylene Chloride(Dichloromethane)	2018/02/06	99	70 - 130	98	70 - 130	<2.0	ug/L	NC	30
5384857	o-Xylene	2018/02/06	95	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
5384857	p+m-Xylene	2018/02/06	96	70 - 130	107	70 - 130	<0.20	ug/L	NC	30
5384857	Styrene	2018/02/06	100	70 - 130	108	70 - 130	<0.50	ug/L	NC	30
5384857	Tetrachloroethylene	2018/02/06	97	70 - 130	107	70 - 130	<0.20	ug/L	NC	30
5384857	Toluene	2018/02/06	92	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5384857	Total Xylenes	2018/02/06					<0.20	ug/L	NC	30
5384857	trans-1,2-Dichloroethylene	2018/02/06	98	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
5384857	trans-1,3-Dichloropropene	2018/02/06	113	70 - 130	87	70 - 130	<0.40	ug/L	NC	30
5384857	Trichloroethylene	2018/02/06	100	70 - 130	107	70 - 130	<0.20	ug/L	NC	30
5384857	Trichlorofluoromethane (FREON 11)	2018/02/06	94	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5384857	Vinyl Chloride	2018/02/06	94	70 - 130	98	70 - 130	<0.20	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

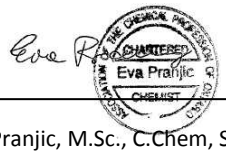
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Maxxam Job #: B825866
Report Date: 2018/02/08

exp Services Inc
Client Project #: HAM-801287-A0
Site Location: NEW ST
Sampler Initials: KP

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam
A Bureau Veritas Group Company

Your P.O. #: HAM-ENV
Your Project #: HAM-00801287-A0
Site Location: NEW
Your C.O.C. #: n/a

Attention: Erik Enders

exp Services Inc
Hamilton Branch
80 Bancroft St
Hamilton, ON
L8E 2W5

Report Date: 2018/02/12
Report #: R4982696
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B829009
Received: 2018/02/07, 16:19

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Chloride by Automated Colourimetry	2	N/A	2018/02/08	CAM SOP-00463	EPA 325.2 m
Dissolved Metals by ICPMS	2	N/A	2018/02/09	CAM SOP-00447	EPA 6020B m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Deepthi Shaji, Project Manager
Email: dshaji@maxxam.ca
Phone# (905)817-5700 Ext:5807

==========

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Maxxam Job #: B829009
Report Date: 2018/02/12

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Your P.O. #: HAM-ENV
Sampler Initials: JH

RESULTS OF ANALYSES OF WATER

Maxxam ID		GBA709		GBA710		
Sampling Date		2018/02/07		2018/02/07		
COC Number		n/a		n/a		
	UNITS	**BH1-SM**	**RDL**	**BH2-SM**	**RDL**	**QC Batch**
Inorganics						
Dissolved Chloride (Cl)	mg/L	44	1.0	280	3.0	5389822

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B829009
Report Date: 2018/02/12

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Your P.O. #: HAM-ENV
Sampler Initials: JH

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		GBA709	GBA710		
Sampling Date		2018/02/07	2018/02/07		
COC Number		n/a	n/a		
	UNITS	**BH1-SM**	**BH2-SM**	**RDL**	**QC Batch**
Metals					
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	0.50	5391277
Dissolved Arsenic (As)	ug/L	<1.0	1.1	1.0	5391277
Dissolved Barium (Ba)	ug/L	87	66	2.0	5391277
Dissolved Beryllium (Be)	ug/L	<0.50	<0.50	0.50	5391277
Dissolved Boron (B)	ug/L	16	48	10	5391277
Dissolved Cadmium (Cd)	ug/L	<0.10	<0.10	0.10	5391277
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	5.0	5391277
Dissolved Cobalt (Co)	ug/L	<0.50	<0.50	0.50	5391277
Dissolved Copper (Cu)	ug/L	1.8	2.9	1.0	5391277
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.50	5391277
Dissolved Molybdenum (Mo)	ug/L	<0.50	1.2	0.50	5391277
Dissolved Nickel (Ni)	ug/L	1.2	2.0	1.0	5391277
Dissolved Selenium (Se)	ug/L	<2.0	<2.0	2.0	5391277
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	0.10	5391277
Dissolved Sodium (Na)	ug/L	66000	360000	100	5391277
Dissolved Thallium (Tl)	ug/L	<0.050	<0.050	0.050	5391277
Dissolved Uranium (U)	ug/L	0.64	3.9	0.10	5391277
Dissolved Vanadium (V)	ug/L	<0.50	0.72	0.50	5391277
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	5.0	5391277

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B829009
Report Date: 2018/02/12

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Your P.O. #: HAM-ENV
Sampler Initials: JH

TEST SUMMARY

Maxxam ID: GBA709
Sample ID: BH1-SM
Matrix: Water

Collected: 2018/02/07
Shipped:
Received: 2018/02/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	5389822	N/A	2018/02/08	Alina Dobreanu
Dissolved Metals by ICPMS	ICP/MS	5391277	N/A	2018/02/09	Thao Nguyen

Maxxam ID: GBA710
Sample ID: BH2-SM
Matrix: Water

Collected: 2018/02/07
Shipped:
Received: 2018/02/07

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	KONE	5389822	N/A	2018/02/08	Alina Dobreanu
Dissolved Metals by ICPMS	ICP/MS	5391277	N/A	2018/02/09	Thao Nguyen

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Maxxam Job #: B829009
Report Date: 2018/02/12

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Your P.O. #: HAM-ENV
Sampler Initials: JH

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.3°C

Results relate only to the items tested.

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Maxxam Job #: B829009
Report Date: 2018/02/12

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Your P.O. #: HAM-ENV
Sampler Initials: JH

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5389822	Dissolved Chloride (Cl)	2018/02/08	NC	80 - 120	103	80 - 120	<1.0	mg/L	0.62	20
5391277	Dissolved Antimony (Sb)	2018/02/12	100	80 - 120	102	80 - 120	<0.50	ug/L	NC	20
5391277	Dissolved Arsenic (As)	2018/02/12	97	80 - 120	101	80 - 120	<1.0	ug/L	5.7	20
5391277	Dissolved Barium (Ba)	2018/02/12	97	80 - 120	99	80 - 120	<2.0	ug/L	0.73	20
5391277	Dissolved Beryllium (Be)	2018/02/12	97	80 - 120	98	80 - 120	<0.50	ug/L	NC	20
5391277	Dissolved Boron (B)	2018/02/12	96	80 - 120	102	80 - 120	<10	ug/L	0.029	20
5391277	Dissolved Cadmium (Cd)	2018/02/12	97	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
5391277	Dissolved Chromium (Cr)	2018/02/12	94	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
5391277	Dissolved Cobalt (Co)	2018/02/12	92	80 - 120	97	80 - 120	<0.50	ug/L	4.7	20
5391277	Dissolved Copper (Cu)	2018/02/12	94	80 - 120	99	80 - 120	<1.0	ug/L	1.3	20
5391277	Dissolved Lead (Pb)	2018/02/12	89	80 - 120	93	80 - 120	<0.50	ug/L	NC	20
5391277	Dissolved Molybdenum (Mo)	2018/02/12	99	80 - 120	98	80 - 120	<0.50	ug/L	4.1	20
5391277	Dissolved Nickel (Ni)	2018/02/12	91	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
5391277	Dissolved Selenium (Se)	2018/02/12	97	80 - 120	101	80 - 120	<2.0	ug/L	NC	20
5391277	Dissolved Silver (Ag)	2018/02/12	87	80 - 120	93	80 - 120	<0.10	ug/L	NC	20
5391277	Dissolved Sodium (Na)	2018/02/12	NC	80 - 120	102	80 - 120	<100	ug/L	0.34	20
5391277	Dissolved Thallium (Tl)	2018/02/12	89	80 - 120	92	80 - 120	<0.050	ug/L	NC	20
5391277	Dissolved Uranium (U)	2018/02/12	91	80 - 120	94	80 - 120	<0.10	ug/L	4.3	20
5391277	Dissolved Vanadium (V)	2018/02/12	95	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
5391277	Dissolved Zinc (Zn)	2018/02/12	87	80 - 120	89	80 - 120	<5.0	ug/L	NC	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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Maxxam Job #: B829009
Report Date: 2018/02/12

exp Services Inc
Client Project #: HAM-00801287-A0
Site Location: NEW
Your P.O. #: HAM-ENV
Sampler Initials: JH

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Appendix E:
Borehole Logs

Log of Borehole BH101

Project No. HAM-00801287-A0 | Drawing No. 1

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

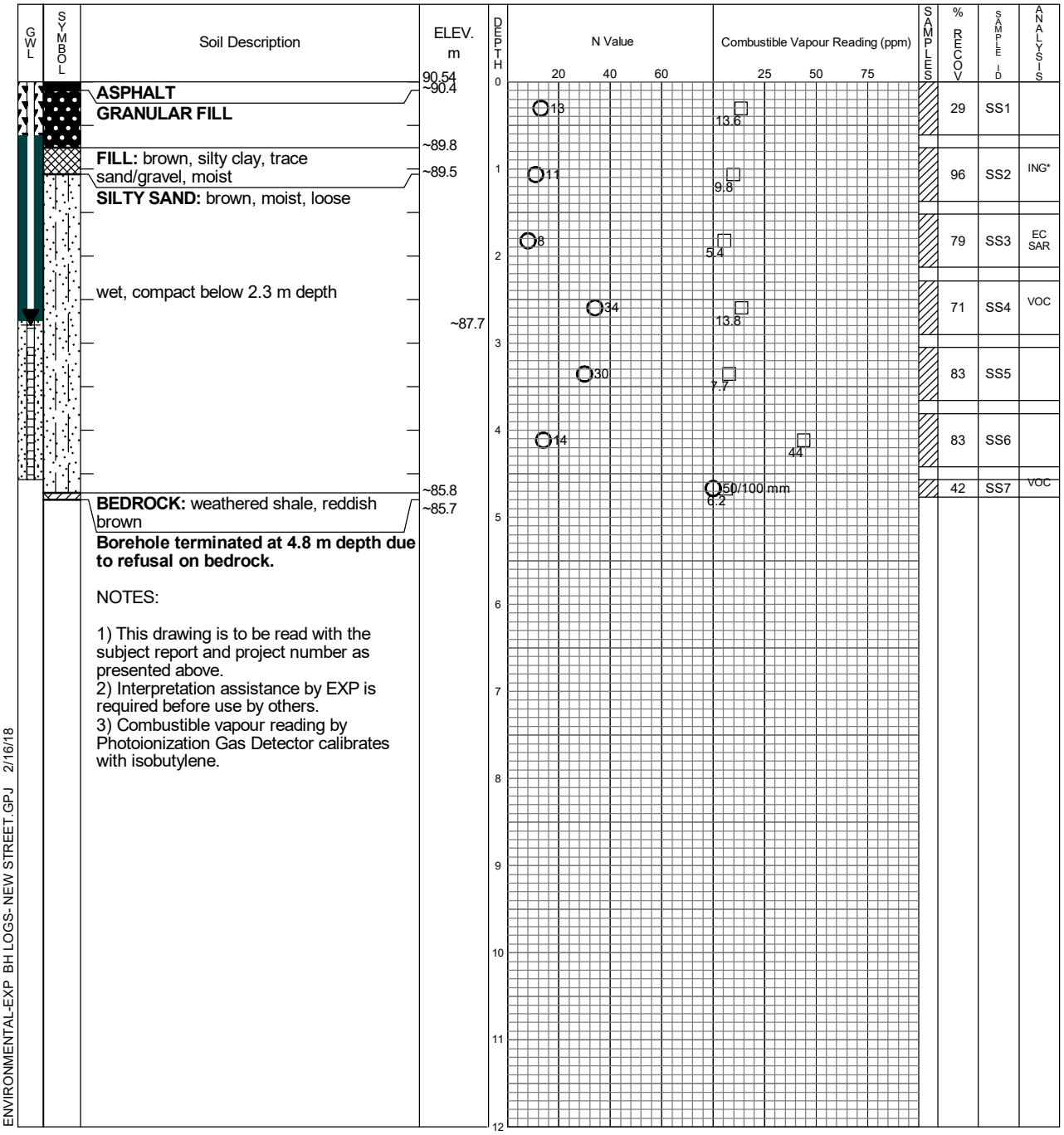
Date Drilled: December 4, 2017

Drill Type: Hollow Stem Augers

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds



NOTES:

1) This drawing is to be read with the subject report and project number as presented above.
2) Interpretation assistance by EXP is required before use by others.
3) Combustible vapour reading by Photoionization Gas Detector calibrates with isobutylene.

ENVIRONMENTAL-EXP BH LOGS-NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Dec. 6, 2017	2.80	
Dec. 12, 2017	2.83	

EXP Services Inc.
Hamilton, Ontario
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Facsimile: 905-573-9693

Log of Borehole BH102

Project No. HAM-00801287-A0 | Drawing No. 2

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

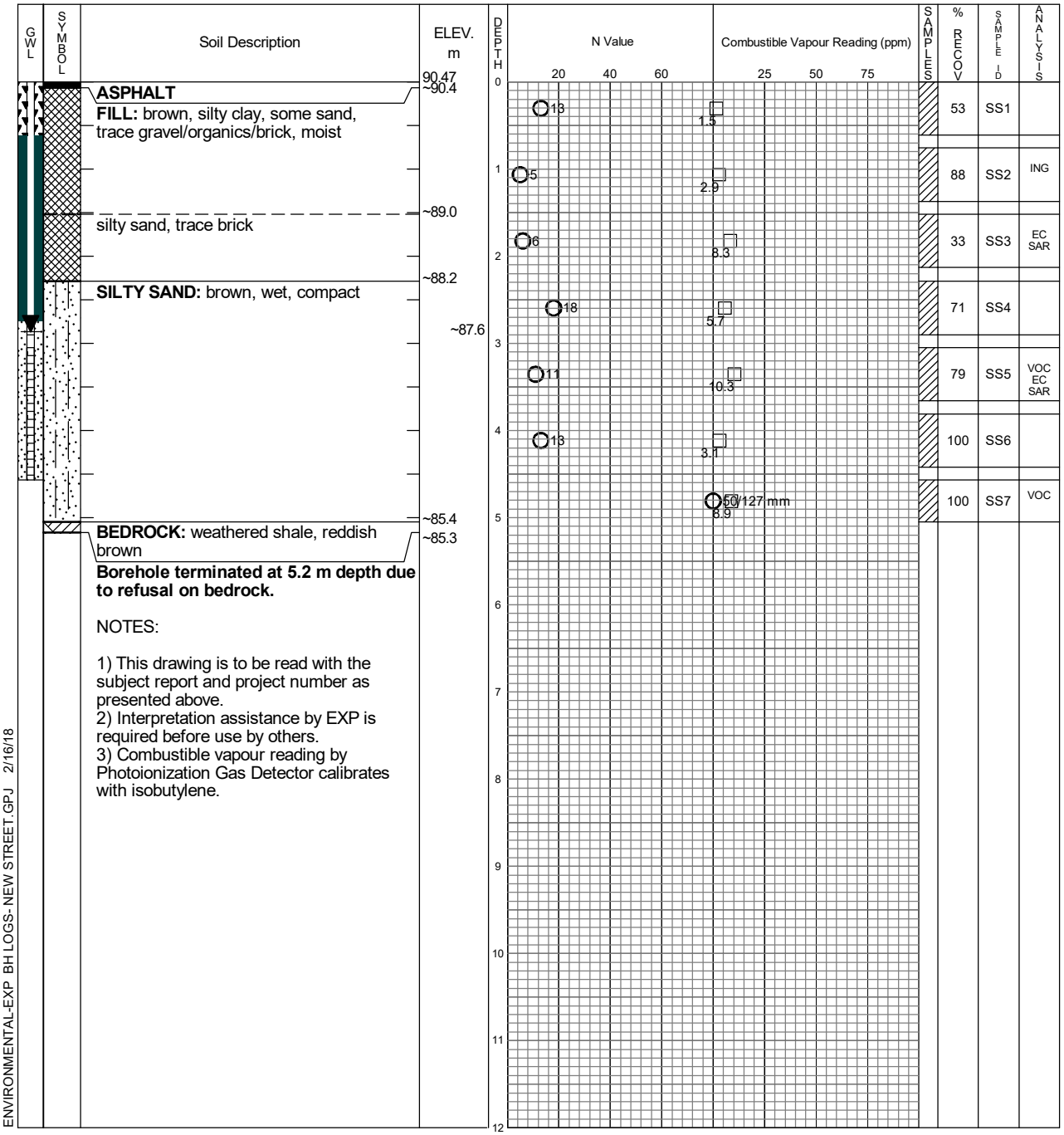
Date Drilled: December 4, 2017

Drill Type: Hollow Stem Augers

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds



ENVIRONMENTAL-EXP BH LOGS- NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Dec. 6, 2017	2.86	
Dec. 12, 2017	2.9	

EXP Services Inc.
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Facsimile: 905-573-9693

Log of Borehole BH103D

Project No. HAM-00801287-A0 | Drawing No. 3

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

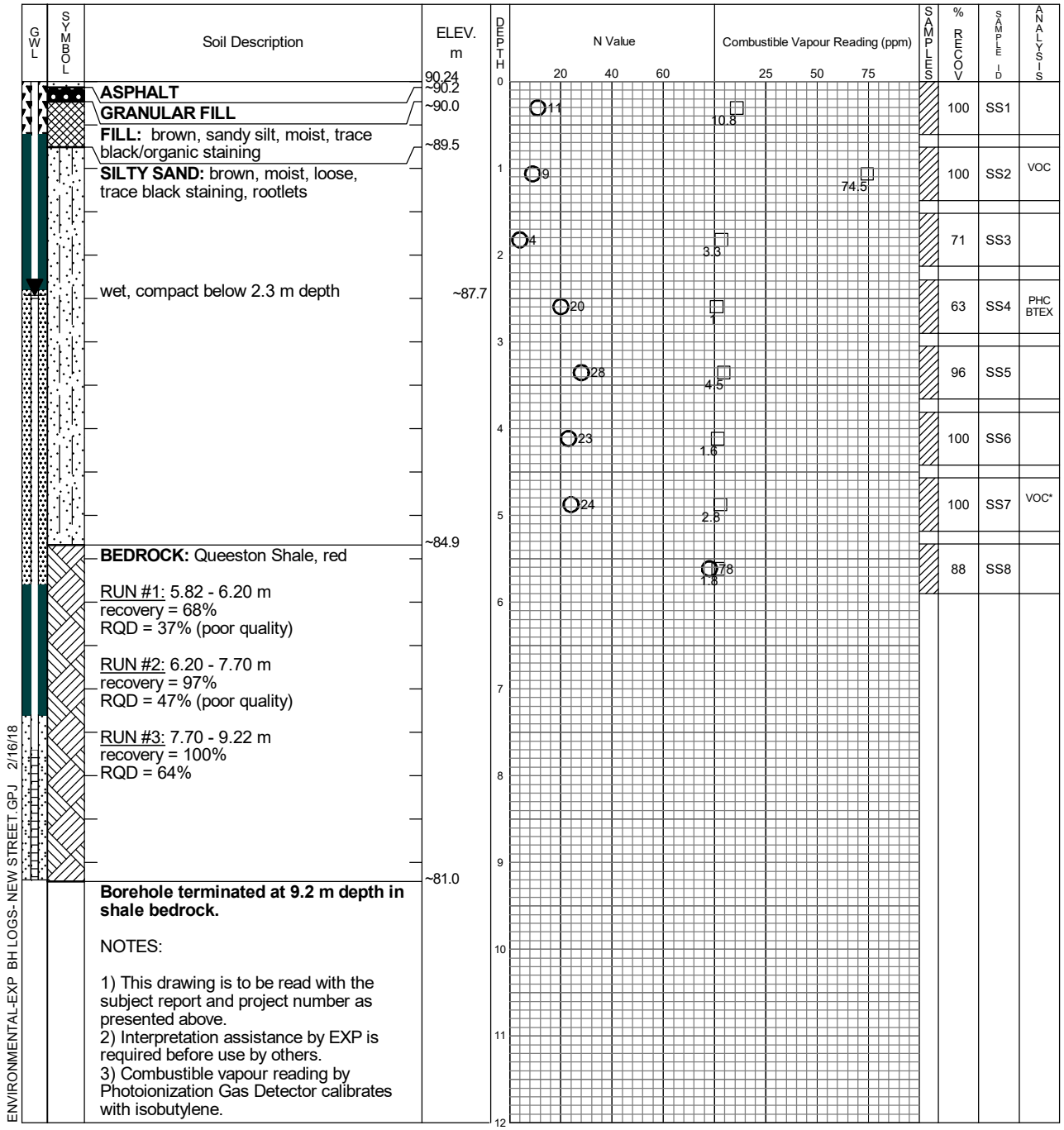
Date Drilled: November 28, 2017

Drill Type: Hollow Stem Augers, HQ Coring

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds



ENVIRONMENTAL-EXP BH LOGS- NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Dec. 7, 2017	2.50	
Dec. 12, 2017	2.50	

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Log of Borehole BH103S

Project No. HAM-00801287-A0 | Drawing No. 4

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

Date Drilled: December 4. 2017

Drill Type: Hollow Stem Augers

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH
			90.23	0
		ASPHALT	~90.2	
		GRANULAR FILL	~90.0	
		FILL: brown, sandy silt, moist, trace black/organic staining	~89.5	1
		SILTY SAND: brown, moist, loose, trace black staining, rootlets		2
▽		wet	~87.8	3
				4
			~85.7	5
		END OF BOREHOLE		6
		NOTES:		7
		1) This drawing is to be read with the subject report and project number as presented above.		8
		2) Interpretation assistance by EXP is required before use by others.		9
				10
				11
				12

N Value: 20 40 60

Combustible Vapour Reading (ppm): 25 50 75

SAMPLES | % RECOV | SAMPLE ID | ANALYSIS

ENVIRONMENTAL-EXP BH LOGS-NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Dec. 7, 2017	2.46	
Dec. 12, 2017	2.46	

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Facsimile: 905-573-9693

Log of Borehole BH104

Project No. HAM-00801287-A0 | Drawing No. 5

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

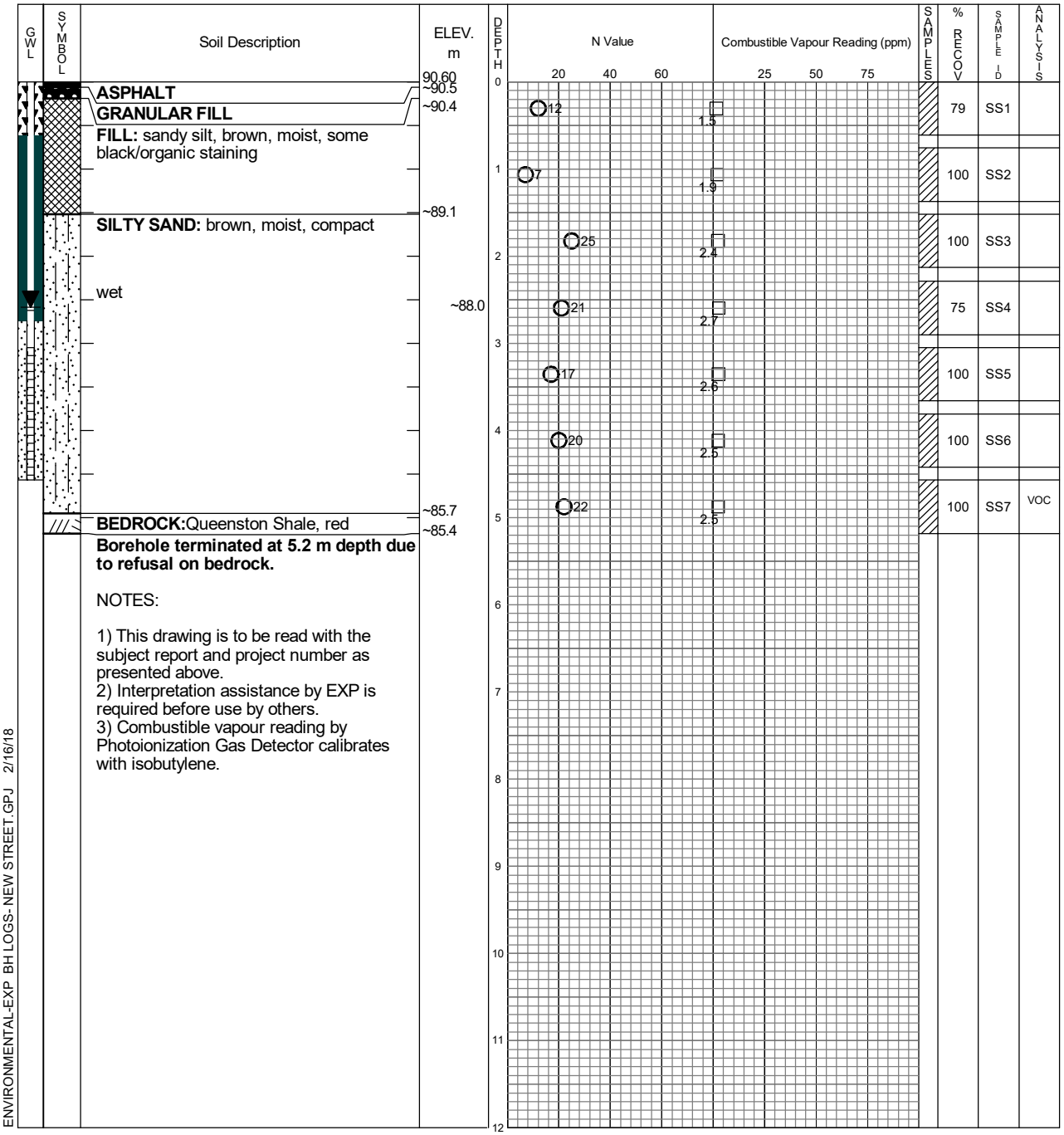
Date Drilled: December 1, 2017

Drill Type: Hollow Stem Augers

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds



ENVIRONMENTAL-EXP BH LOGS- NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Dec. 6, 2017	2.60	
Dec. 12, 2017	2.62	

EXP Services Inc.
Hamilton, Ontario
Telephone: 905-573-4000
Facsimile: 905-573-9693

Log of Borehole BH105D

Project No. HAM-00801287-A0 | Drawing No. 6

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

Date Drilled: November 28, 2017

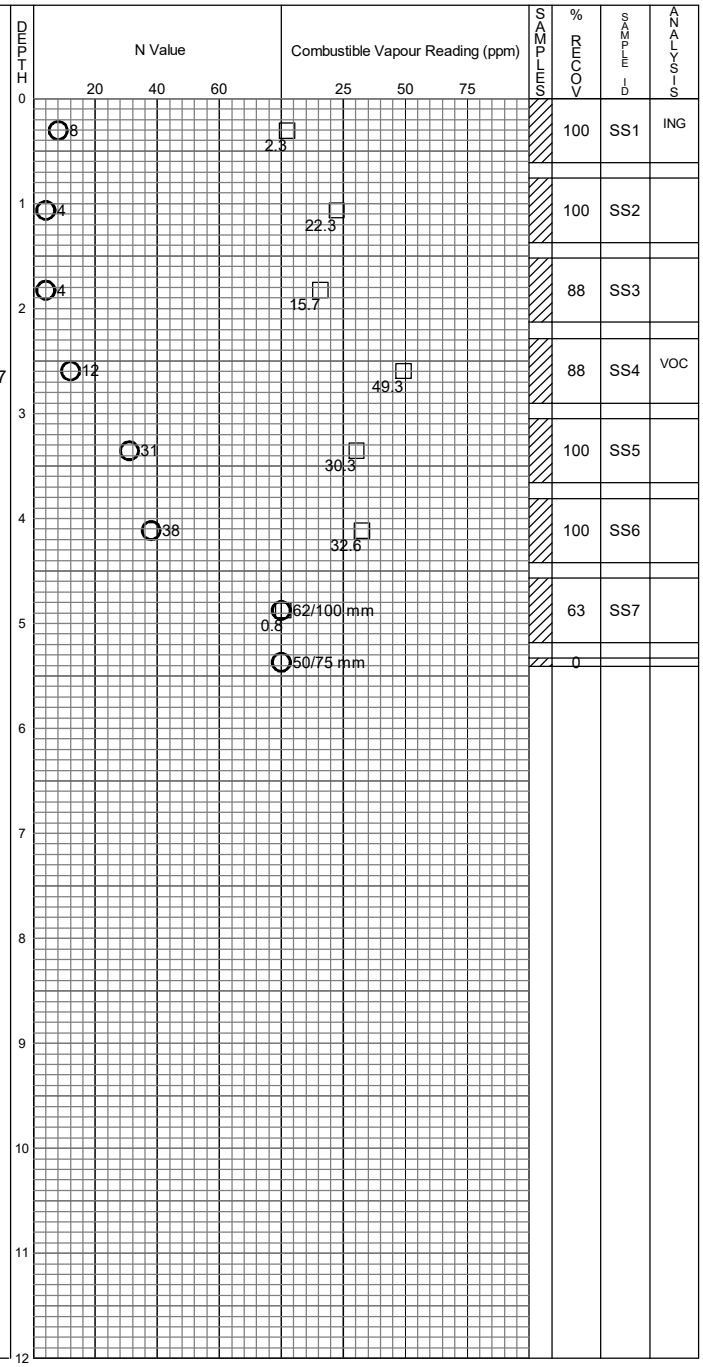
Drill Type: Hollow Stem Augers, HQ Coring

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH
			90.44	0
		ASPHALT	~90.4	
		GRANULAR FILL	~90.2	
		FILL: sandy silt, brown, moist, some black/organic staining		
			~89.2	1
		SILTY SAND: light brown, moist, loose		
		very moist below 1.5 m depth		2
		wet, compact below 2.3 m depth		
			~87.7	3
		dense below 3.1 m depth		
			~85.1	4
		BEDROCK: Queeston Shale, red		
		RUN #1: 5.56 - 6.07 m recovery = 73% RQD = 31% (poor quality)		6
		RUN #2: 6.07 - 7.62 m recovery = 100% RQD = 94% (excellent quality)		7
		RUN #3: 7.62 - 9.15 m recovery = 100% RQD		8
			~81.3	9
		Borehole terminated at 9.1 m depth in shale bedrock.		10
		NOTES: 1) This drawing is to be read with the subject report and project number as presented above. 2) Interpretation assistance by EXP is required before use by others. 3) Combustible vapour reading by Photoionization Gas Detector calibrates with isobutylene.		11
				12



SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
	100	SS1	ING
	100	SS2	
	88	SS3	
	88	SS4	VOC
	100	SS5	
	100	SS6	
	63	SS7	
	0		

ENVIRONMENTAL-EXP BH LOGS- NEW STREET.GPJ 2/16/18

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Facsimile: 905-573-9693

Time	Water Level (m)	Depth to Cave (m)
Dec. 6, 2017	2.70	
Dec. 12, 2017	2.71	

Log of Borehole BH105S

Project No. HAM-00801287-A0 | Drawing No. 7

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

Date Drilled: November 27. 2017

Drill Type: Hollow Stem Augers

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH
			90.44	0
		ASPHALT	~90.4	
		GRANULAR FILL	~90.2	
		FILL: sandy silt, brown, moist, some black/organic staining		
			~89.2	1
		SILTY SAND: light brown, moist, loose		
		very moist		2
		wet		
			~87.6	3
				4
			~85.9	
		END OF BOREHOLE		5
		NOTES:		6
		1) This drawing is to be read with the subject report and project number as presented above.		7
		2) Interpretation assistance by EXP is required before use by others.		8
				9
				10
				11
				12

N Value: 20 40 60

Combustible Vapour Reading (ppm): 25 50 75

SAMPLES | % RECOV | SAMPLE ID | ANALYSIS

ENVIRONMENTAL-EXP BH LOGS- NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Dec. 6, 2017	2.58	
Dec. 12, 2017	2.82	

EXP Services Inc.
Hamilton, Ontario
Telephone: 905-573-4000
Facsimile: 905-573-9693

Log of Borehole BH106D

Project No. HAM-00801287-A0 | Drawing No. 8

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

Date Drilled: November 30, 2017

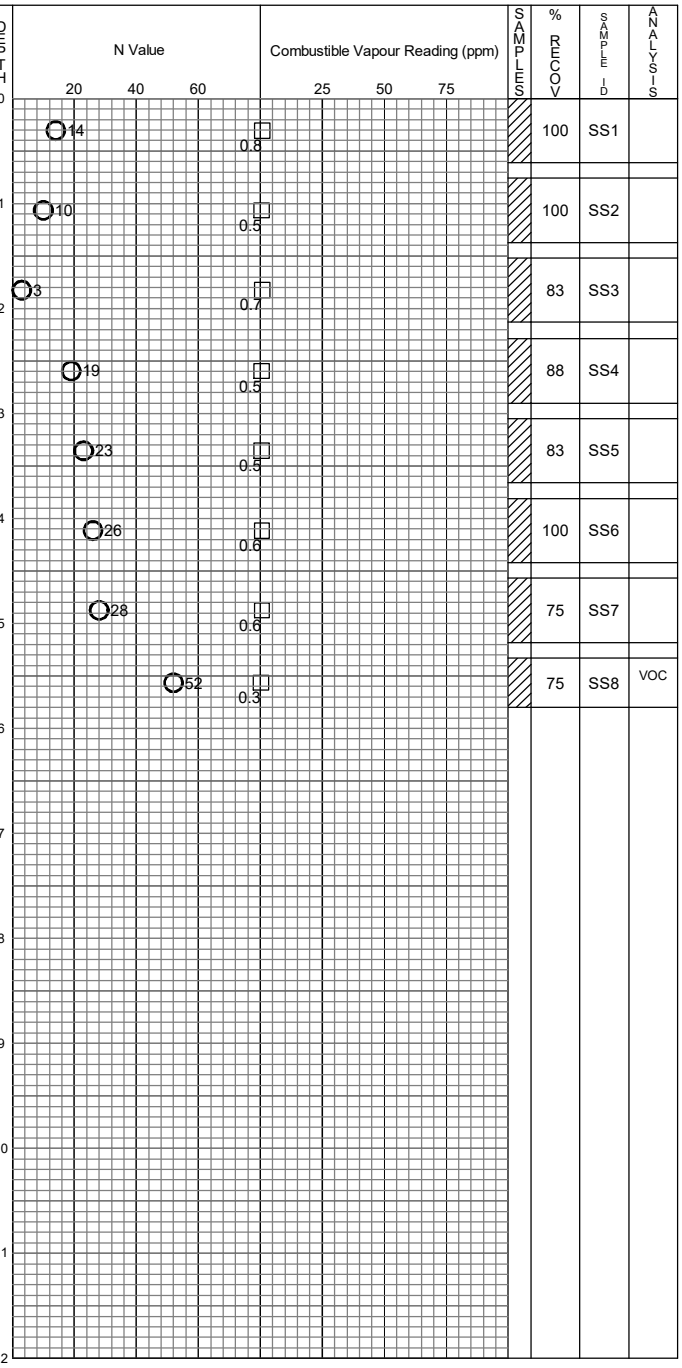
Drill Type: Hollow Stem Augers, HQ Coring

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH
			90.39	0
		ASPHALT	~90.3	
		GRANULAR FILL	~90.2	
		FILL: silty sand, brown, moist		
		SILTY SAND: brown, moist, loose	~89.2	1
		dark brown staining below 1.5 m depth		
		compact, very moist to wet below 2.3 m depth	~87.7	2
		BEDROCK: Queeston Shale, red	~84.6	3
		RUN #1: 5.79 - 6.10 m recovery = 0% RQD = 0% (very poor quality)		4
		RUN #2: 6.10 - 7.62 m recovery = 79% RQD = 28% (poor quality)		5
		RUN #3: 7.62 - 8.92 m recovery = 50% RQD = 0		6
		Borehole terminated at 8.9 m depth in shale bedrock.	~81.5	7
				8
				9
				10
				11
				12



SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
	100	SS1	
	100	SS2	
	83	SS3	
	88	SS4	
	83	SS5	
	100	SS6	
	75	SS7	
	75	SS8	VOC

NOTES:

1) This drawing is to be read with the subject report and project number as presented above.
2) Interpretation assistance by EXP is required before use by others.
3) Combustible vapour reading by Photoionization Gas Detector calibrates with isobutylene.

ENVIRONMENTAL-EXP BH LOGS- NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Dec. 6, 2017	2.72	
Dec. 12, 2017	2.73	

EXP Services Inc.
Hamilton, Ontario
Telephone: 905-573-4000
Facsimile: 905-573-9693

Log of Borehole BH106S

Project No. HAM-00801287-A0 | Drawing No. 9

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

Date Drilled: November 27, 2017

Drill Type: Hollow Stem Augers

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH
			90.39	0
		ASPHALT	~90.3	
		GRANULAR FILL	~90.2	
		FILL: silty sand, brown, moist		
			~89.2	1
		SILTY SAND: brown, moist, loose		
		dark brown staining below 1.5 m depth		2
		very moist	~87.4	3
		wet		4
			~85.8	5
		END OF BOREHOLE		6
		NOTES:		7
		1) This drawing is to be read with the subject report and project number as presented above.		8
		2) Interpretation assistance by EXP is required before use by others.		9
				10
				11
				12

N Value: 20 40 60

Combustible Vapour Reading (ppm): 25 50 75

SAMPLES | % RECOV | SAMPLE ID | ANALYSIS

ENVIRONMENTAL-EXP BH LOGS-NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Dec. 6, 2017	2.94	
Dec. 12, 2017	2.96	

EXP Services Inc.
Hamilton, Ontario
Telephone: 905-573-4000
Facsimile: 905-573-9693

Log of Borehole BH107D

Project No. HAM-00801287-A0 | Drawing No. 10

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

Date Drilled: November 29. 2017

Drill Type: Hollow Stem Augers, HQ Coring

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value	Combustible Vapour Reading (ppm)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
			90.46							
		TOPSOIL	~90.3							
		FILL: silty sand, trace gravel, brown, moist, black/organic staining, rootlets light brown below 0.8 m depth			4	1.6		100	SS1	
				1	4	1.4		75	SS2	
		SILTY SAND: brown, moist, loose, rootlets	~88.9							
		wet below 2.3 m depth		2	2	1.7		96	SS3	
			~87.6		3	1.6		100	SS4	PHC BTEX
		compact below 3.1 m depth		3	19	2.5		83	SS5	
				4	10	2.4		100	SS6	
				5	19	4.3		100	SS7	VOC
		BEDROCK: Queeston Shale, red	~85.1							
		RUN #1: 5.92 - 6.22 m recovery = 0% RQD = 0% (very poor quality)		6	64	2		71	SS8	
		RUN #2: 6.22 - 7.62 m recovery = 86% RQD = 59% (fair quality)		7						
		RUN #3: 7.62 - 9.15 m recovery = 100% RQD =		8						
			~81.3	9						
		Borehole terminated at 9.2 m depth in shale bedrock.		10						
		NOTES: 1) This drawing is to be read with the subject report and project number as presented above. 2) Interpretation assistance by EXP is required before use by others. 3) Combustible vapour reading by Photoionization Gas Detector calibrates with isobutylene.		11						
				12						

ENVIRONMENTAL-EXP BH LOGS- NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Dec. 6, 2017	2.86	
Dec. 12, 2017	2.88	

EXP Services Inc.
Hamilton, Ontario
Telephone: 905-573-4000
Facsimile: 905-573-9693

Log of Borehole BH107S

Project No. HAM-00801287-A0 | Drawing No. 11

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

Date Drilled: December 4, 2017

Drill Type: Hollow Stem Augers

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH
			90.49	0
		TOPSOIL	~90.3	
		FILL: silty sand, trace gravel, brown, moist, black/organic staining, rootlets		
		light brown below 0.8 m depth		1
			~89.0	
		SILTY SAND: brown, moist, loose, rootlets		2
		wet		
			~87.5	3
				4
			~85.9	
		END OF BOREHOLE		5
		NOTES:		6
		1) This drawing is to be read with the subject report and project number as presented above.		7
		2) Interpretation assistance by EXP is required before use by others.		8
				9
				10
				11
				12

N Value: 20 40 60

Combustible Vapour Reading (ppm): 25 50 75

SAMPLES | % RECOV | SAMPLE ID | ANALYSIS

ENVIRONMENTAL-EXP BH LOGS-NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Dec. 6, 2017	2.99	
Dec. 12, 2017	2.99	

EXP Services Inc.
Hamilton, Ontario
Telephone: 905-573-4000
Facsimile: 905-573-9693

Log of Borehole BH108

Project No. HAM-00801287-A0 | Drawing No. 12

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

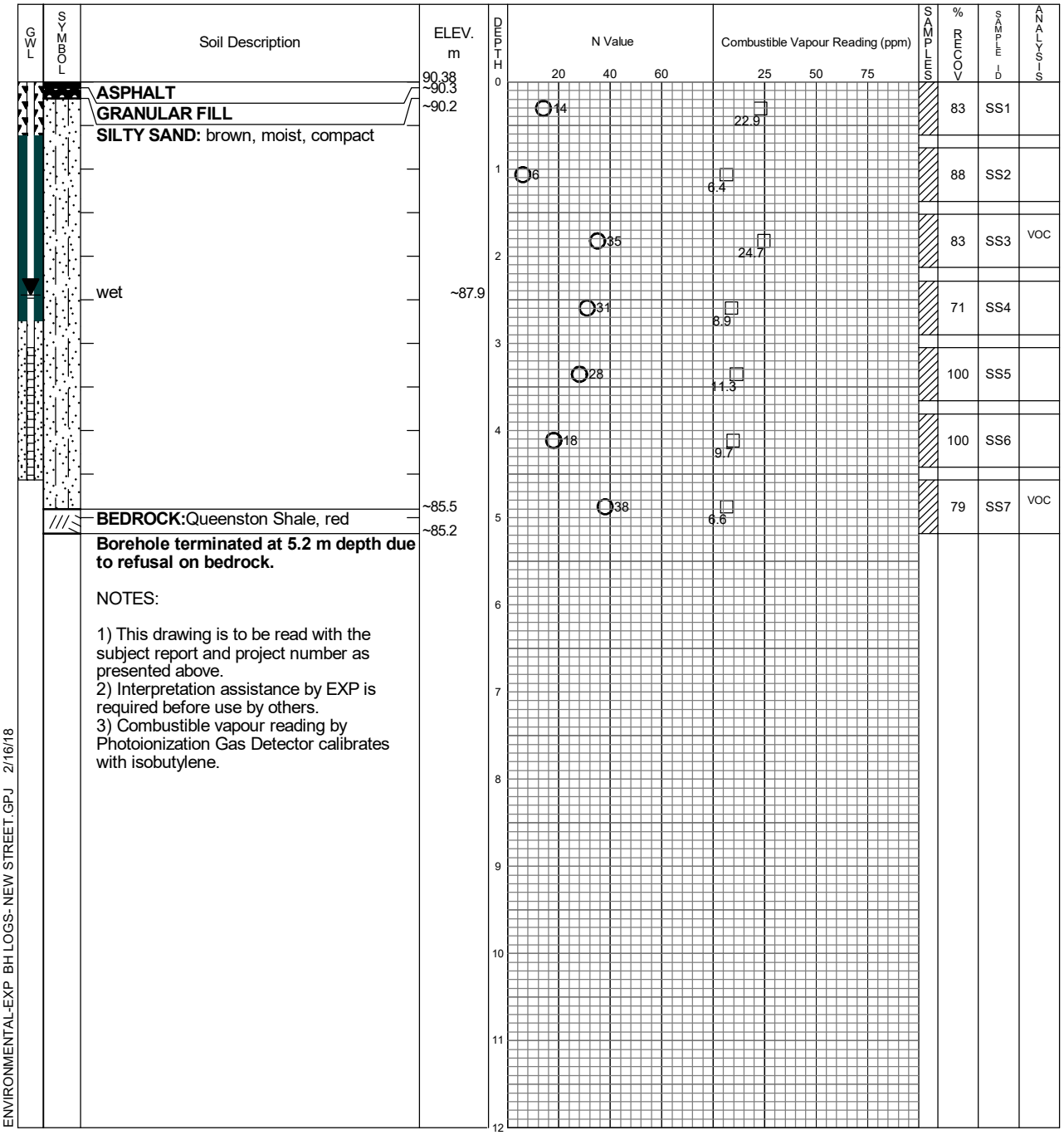
Date Drilled: December 4, 2017

Drill Type: Hollow Stem Augers

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds



NOTES:

1) This drawing is to be read with the subject report and project number as presented above.
2) Interpretation assistance by EXP is required before use by others.
3) Combustible vapour reading by Photoionization Gas Detector calibrates with isobutylene.

ENVIRONMENTAL-EXP BH LOGS- NEW STREET.GPJ 2/16/18

EXP Services Inc.
Hamilton, Ontario
Telephone: 905-573-4000
Facsimile: 905-573-9693

Time	Water Level (m)	Depth to Cave (m)
Dec. 6, 2017	2.45	
Dec. 12, 2017	2.48	

Log of Borehole BH109

Project No. HAM-00801287-A0 | Drawing No. 13

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

Date Drilled: November 30, 2017

Drill Type: Hollow Stem Augers, HQ Coring

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value (20, 40, 60)	Combustible Vapour Reading (ppm) (25, 50, 75)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
			90.50							
		ASPHALT	~90.4	0						
		GRANULAR FILL	~90.3							
		FILL: reddish brown, silty clay, some sand, trace gravel, moist	~89.6							
		SILTY SAND: brown, moist, compact		1						
				2						
▼		wet								
			~87.8	3						
				4						
				5						
		BEDROCK: Queeston Shale, red	~85.1	6						
		RUN #1: 5.71 - 6.17 m recovery = 37% RQD = 0% (very poor quality)		7						
		RUN #2: 6.17 - 7.70 m recovery = 97% RQD = 90% (good quality)		8						
		RUN #3: 7.70 - 9.22 m recovery = 97% RQD =		9						
		Borehole terminated at 9.2 m depth in shale bedrock.	~81.3	10						
		NOTES: 1) This drawing is to be read with the subject report and project number as presented above. 2) Interpretation assistance by EXP is required before use by others. 3) Combustible vapour reading by Photoionization Gas Detector calibrates with isobutylene.		11						
				12						
					8	1.8		96	SS1	
					17	2.1		96	SS2	
					23	3.8		79	SS3	
					20	3.3		75	SS4	PHC* BTEX*
					18	1.9		100	SS5	
					3	2		100	SS6	
					50/152 mm	5		42	SS7	
					50/127 mm	6.1		21	SS8	VOC*

ENVIRONMENTAL-EXP BH LOGS- NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Dec. 7, 2017	2.15	
Dec. 12, 2017	2.74	

EXP Services Inc.
Hamilton, Ontario
Telephone: 905-573-4000
Facsimile: 905-573-9693

Log of Borehole BH110

Project No. HAM-00801287-A0 | Drawing No. 14

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

Date Drilled: December 4, 2017

Drill Type: Hollow Stem Augers

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value (20, 40, 60)	Combustible Vapour Reading (ppm) (25, 50, 75)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
		Direct drill to 4.6 m	90.15	0						
		SILTY SAND: brown, wet	~85.6	5		40.3		100	SS7	PHC BTEX VOC
		BEDROCK: Queenston Shale, red	~85.1 ~85.0							
		Borehole terminated at 5.2 m depth due to refusal on bedrock.		12						

NOTES:

1) This drawing is to be read with the subject report and project number as presented above.
2) Interpretation assistance by EXP is required before use by others.
3) Combustible vapour reading by Photoionization Gas Detector calibrates with isobutylene.

ENVIRONMENTAL-EXP BH LOGS- NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)

EXP Services Inc.
Hamilton, Ontario
Telephone: 905-573-4000
Facsimile: 905-573-9693

Log of Borehole BH201

Project No. HAM-00801287-A0 Drawing No. 15

Project: Phase Two ESA Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

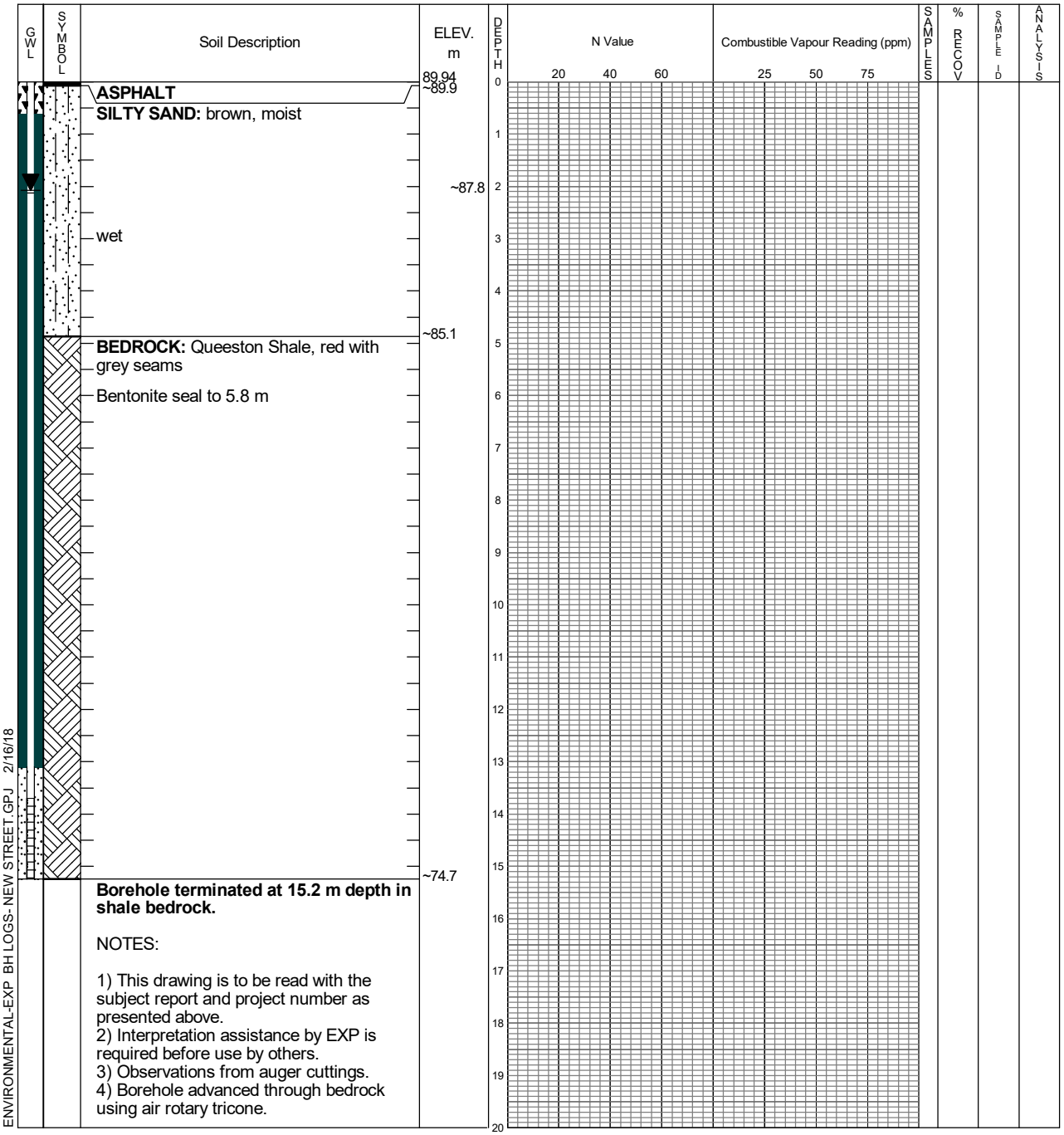
Date Drilled: January 29, 2018

Drill Type: Hollow Stem Augers, Tricone

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds



ENVIRONMENTAL-EXP BH LOGS-NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Jan. 31, 2018	2.05	
Feb. 1, 2018	2.13	

EXP Services Inc.
Hamilton, Ontario
Telephone: 905-573-4000
Facsimile: 905-573-9693

Log of Borehole BH202

Project No. HAM-00801287-A0 | Drawing No. 16

Project: Phase Two ESA | Sheet No. 1 of 1

Location: 2421 and 2431 New Street, Burlington, ON

Refer to Borehole Location Plan

Date Drilled: January 29, 2018

Drill Type: Hollow Stem Augers, Tricone

Datum: Geodetic

Chemical Analysis

BTEX	Benzene, Toluene, Ethylbenzene and Xylenes	*	Duplicate Sample
ING	Metals and Inorganics	PCB	Polychlorinated Biphenyls
MET	Metals	PHC	Petroleum Hydrocarbons (F1-F4)
PAH	Polycyclic Aromatic Hydrocarbons	F2-F4	Petroleum Hydrocarbons (F2-F4)
OCP	Organochlorine Pesticides	VOC	Volatile Organic Compounds

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value (20, 40, 60)	Combustible Vapour Reading (ppm) (25, 50, 75)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
			90.45	0						
		ASPHALT ~90.4								
		SILTY SAND: brown, moist		1						
				2						
			~87.8							
				3						
		wet		4						
				5						
			~85.3							
		BEDROCK: Queeston Shale, red with grey seams		6						
		Bentonite seal to 5.5 m		7						
				8						
				9						
				10						
				11						
				12						
				13						
				14						
			~75.2	15						
		Borehole terminated at 15.2 m depth in shale bedrock.		16						
		NOTES:		17						
		1) This drawing is to be read with the subject report and project number as presented above.		18						
		2) Interpretation assistance by EXP is required before use by others.		19						
		3) Observations from auger cuttings.		20						
		4) Borehole advanced through bedrock using air rotary tricone.								

ENVIRONMENTAL-EXP BH LOGS-NEW STREET.GPJ 2/16/18

Time	Water Level (m)	Depth to Cave (m)
Jan. 31, 2018	2.53	
Feb. 1, 2018	2.65	

EXP Services Inc.
Hamilton, Ontario
Telephone: 905-573-4000
Facsimile: 905-573-9693

Project No: 6574

Project: Limited Phase II Environmental Site Assessment

Client: The Rosseau Group

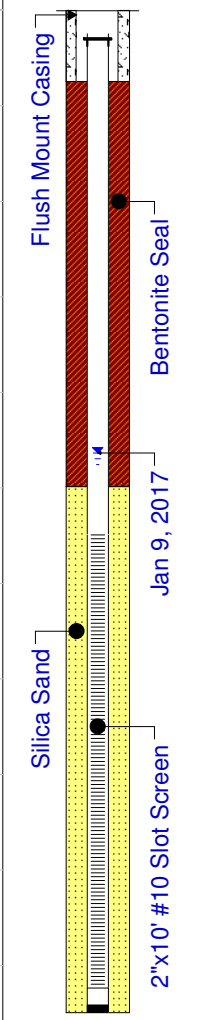
Location: 2411, 2421, 2433 New Street, Burlington, Ontario

S2S Environmental Inc.

Log of Borehole: BH1

Depth (ft / m)	Symbol	Description	Number	Type	Recovery %	Laboratory Analyses	HSVC as Isobutylene (ppm)	HSVC as Hexane (ppm / %LEL)
0 / 0		Grade Surface						
0 / 0		ASPHALT (100 mm)						
1 / 0		Brown, damp, fine to coarse, very loose, SAND and fine and coarse, rouded and subangular GRAVEL (FILL)	1		70			
2 / 1		Brown, moist, fine, loose SAND, trace silt (FILL), non-cohesive, non-plastic - light brown - black mottling for approximately 0.20 m	2		70	Metals & Inorg.	<1	<25
5 / 1			3		70	PAHs	<1	<25
6 / 2		- black mottling for approximately 0.13 m - brown, saturated	4		70		<1	<25
9 / 3		- black mottling for approximately 0.02 m	5		90		<1	<25
11 / 3			6		90		<1	<25
13 / 4			7		95	PHCs, BTEX, Metals, pH, Grain Size	<1	50
15 / 5		Brown, wet, loose SAND, trace silt, non-cohesive, non-plastic - trace fine gravel from approximately 4.42 m bgs to approximately 4.58 m bgs	8		95		<1	<25
17 / 5			9		100	VOCs	<1	<25
18 / 6		Weathered SHALE bedrock						
21 / 6		End of Borehole						

Well Completion Details



Monitoring well installed to approximately 6.4 m bgs

Drill Date: January 5, 2017

Drill Rig: Track-mounted AMS Powerprobe 9700 VTR-PRO

Hole Size / Drill Method: 127 mm / SSA

GPS Coordinates: 17T 598349 E 4799007 N

Datum: N/A

Logged by: RW

Checked by: AC

Sheet: 1 of 1

Notes:

One groundwater sample (BH1) collected on January 10, 2017 and submitted for laboratory analyses of PHCs, selected VOCs, and selected metals and inorganics.

One duplicate soil sample (DUP1) collected on January 5, 2017 from approximately 0.5 to approximately 1.2 m bgs and submitted for laboratory analysis of selected metals and inorganics.

Project No: 6574

Project: Limited Phase II Environmental Site Assessment

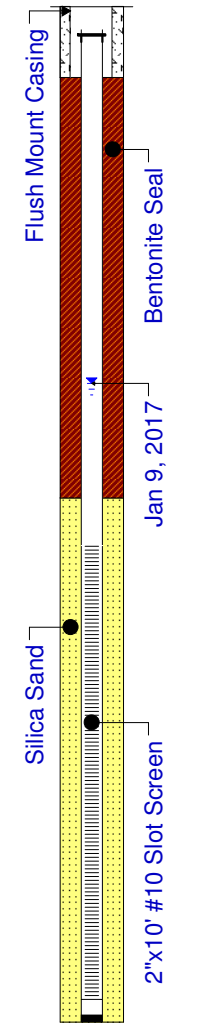
Client: The Rosseau Group

Location: 2411, 2421, 2433 New Street, Burlington, Ontario

S2S Environmental Inc.

Log of Borehole: BH2

Depth (ft / m)	Symbol	Description	Number	Type	Recovery %	Laboratory Analyses	HSVC as Isobutylene (ppm)	HSVC as Hexane (ppm / %LEL)	Well Completion Details
0 / 0		Grade Surface							
0 / 0		ASPHALT (50 mm)							
1 / 0		Brown, damp SILT and loose SAND (FILL), slightly cohesive, low plasticity	1		50		<1	<25	
3 / 1		Light brown, damp, fine SAND, trace very soft silt, non-cohesive, non-plastic - moist	2		50	Metals & Inorg.	<1	<25	
5 / 2			3		85	PAHs	<1	<25	
7 / 2		- wet	4		85	PHCs, BTEX, Metals	<1	<25	
9 / 3			5		95		<1	<25	
10 / 3		- some fine, subangular gravel for approximately 0.3 m	6		95		<1	<25	
13 / 4			7		100	Grain Size	<1	<25	
15 / 5		- fragments of grey, weathered shale	8		100		<1	<25	
16 / 5			9		100		<1	<25	
17 / 5		Dark brown, moist SILT, trace loose sand, slightly cohesive, low plasticity	10		100	VOCs			
18 / 6		Weathered SHALE bedrock							
22 / 7		End of Borehole							



Monitoring well installed to approximately 6.5 m bgs

Drill Date: January 5, 2017

Drill Rig: Track-mounted AMS Powerprobe 9700 VTR-PRO

Hole Size / Drill Method: 127 mm / SSA

GPS Coordinates: 17T 598324 E 4799090 N

Datum: N/A

Logged by: RW

Checked by: AC

Sheet: 1 of 1

Notes:

One groundwater sample (BH2) collected on January 10, 2017 and submitted for laboratory analysis of selected VOCs.

One duplicate soil sample (DUP2) collected on January 5, 2017 from approximately 1.2 to approximately 1.8 m bgs and submitted for laboratory analysis of selected PAHs.

Project No: 6574

Project: Limited Phase II Environmental Site Assessment

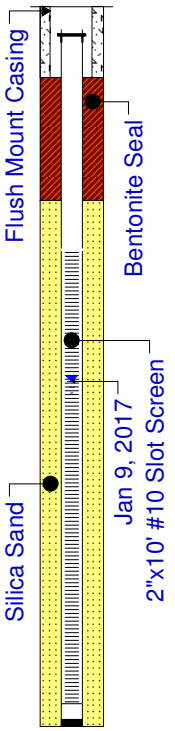
Client: The Rosseau Group

Location: 2411, 2421, 2433 New Street, Burlington, Ontario

S2S Environmental Inc.

Log of Borehole: BH2B

SUBSURFACE PROFILE			SAMPLE				HSVC as Isobutylene (ppm, 1 – 1000)	HSVC as Hexane (ppm: 100, 300, 500; %LEL: 10, 30, 50, 70, 90)	Well Completion Details
Depth (ft / m)	Symbol	Description	Number	Type	Recovery %	Laboratory Analyses			
0 / 0		Grade Surface							
0		ASPHALT (50 mm)							
1		Brown, damp, soft SILT and SAND (FILL), slightly cohesive, low plasticity							
3 / 1		Light brown, damp, fine SAND, trace very soft silt, non-cohesive, non-plastic - moist							
6 / 2		- wet							
10 / 3		- some fine subangular gravel for approximately 0.3 m							
13 / 4									
15		End of Borehole							
16 / 5									
20 / 6									
23 / 7									
24									



Monitoring well installed to approximately 4.6 m bgs

Drill Date: January 6, 2017

Drill Rig: Track-mounted AMS Powerprobe 9700 VTR-PRO

Hole Size / Drill Method: 127 mm / SSA

GPS Coordinates: 17T 598322 E 4799089 N

Datum: N/A

Logged by: RW

Checked by: AC

Sheet: 1 of 1

Notes:

One groundwater sample (BH2B) collected on January 10, 2017 and submitted for laboratory analyses of PHCs, selected VOCs, selected PAHs, and selected metals and inorganics.

Project No: 6574

Project: Limited Phase II Environmental Site Assessment

Client: The Rosseau Group

Location: 2411, 2421, 2433 New Street, Burlington, Ontario

S2S Environmental Inc.

Log of Borehole: BH3

SUBSURFACE PROFILE

Depth (ft)	Depth (m)	Symbol	Description
0	0		Grade Surface
0	0		ASPHALT (50 mm)
1	0		Light grey, damp, fine to coarse SAND and fine, angular GRAVEL (FILL)
2	0		Dark brown, moist, very loose, fine SAND, trace soft silt (FILL), slightly cohesive, non-plastic
3	1		- trace organics for approximately 0.5 m, wet
5	1		- black mottling for approximately 0.1 m
7	2		
10	3		
11	3		Dark brown, wet, fine, very loose SAND, trace soft silt, slightly cohesive, non-plastic
13	4		
15	4		- fragments of grey weathered shale
16	5		End of Borehole
20	6		
23	7		
24			

SAMPLE

Number	Type	Recovery %	Laboratory Analyses
1		70	
2		70	Metals & Inorg.
3		80	PAHs
4		80	PHCs, BTEX, Metals
5		100	
6		100	
7		80	Grain Size
8		80	
9		80	VOCs

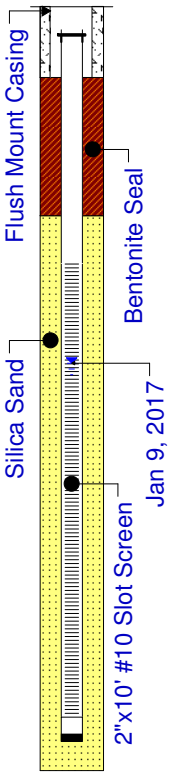
HSVC as Isobutylene (ppm): 1 – 1000

Number	HSVC as Isobutylene (ppm)
1	<1
2	<1
3	<1
4	<1
5	<1
6	<1
7	<1
8	<1
9	<1

HSVC as Hexane (ppm: 100 – 300 – 500; %LEL: 10 30 50 70 90)

Number	HSVC as Hexane
1	<25
2	<25
3	<25
4	<25
5	<25
6	<25
7	<25
8	<25
9	<25

Well Completion Details



Monitoring well installed to approximately 4.7 m bgs

Drill Date: January 5, 2017

Drill Rig: Track-mounted AMS Powerprobe 9700 VTR-PRO

Hole Size / Drill Method: 127 mm / SSA

GPS Coordinates: 17T 598381 E 4799056 N

Datum: N/A

Logged by: RW

Checked by: AC

Sheet: 1 of 1

Notes:

One groundwater sample (BH3) collected on January 9, 2017 and submitted for laboratory analysis of PHCs, selected VOCs, selected PAHs, and selected metals and inorganics.

One duplicate soil sample (DUP4) collected on January 5, 2017 from approximately 4.6 m to approximately 4.9 m bgs and submitted for laboratory analysis of selected VOCs.

One duplicate groundwater sample (DUP3) collected on January 9, 2017 and submitted for laboratory analysis of selected PAHs.

Project No: 6574

Project: Limited Phase II Environmental Site Assessment

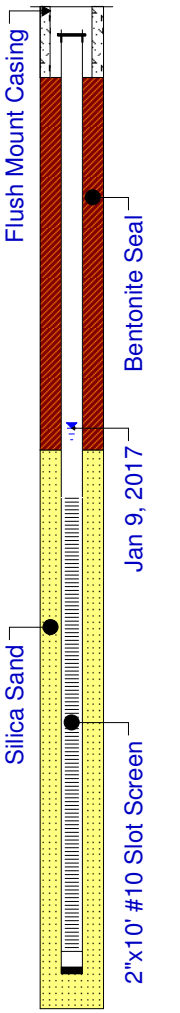
Client: The Rosseau Group

Location: 2411, 2421, 2433 New Street, Burlington, Ontario

S2S Environmental Inc.

Log of Borehole: BH4

Depth (ft / m)	Symbol	Description	Number	Type	Recovery %	Laboratory Analyses	HSVC as Isobutylene (ppm)	HSVC as Hexane (ppm / %LEL)
0 / 0		Grade Surface						
0 / 0		ASPHALT (100 mm)						
1 / 0		Grey, damp, fine to coarse, loose SAND and fine GRAVEL (FILL), non-cohesive, non-plastic	1		80		<1	85
2 / 0		Brown, moist, very loose, fine SAND trace silt (FILL). non-cohesive, non-plastic	2		80	Metals & Inorg.	2	<25
3 / 1		- dark brown mottling for approximately 0.5 m	3		60	PAHs	<1	50
4 / 1			4		60		<1	<25
5 / 2		- wet	5		95	PHCs, BTEX, Metals, Grain Size	<1	60
6 / 2			6		95		<1	<25
7 / 3		Brown, wet, very loose SAND, trace silt (FILL), non-cohesive, non-plastic	7		100		<1	30
8 / 3			8		100		1	30
9 / 4			9		5	VOCs		
10 / 4								
11 / 5								
12 / 5								
13 / 6		Weathered SHALE bedrock						
14 / 6								
15 / 7		End of Borehole						



Drill Date: January 6, 2017

Drill Rig: Track-mounted AMS Powerprobe 9700 VTR-PRO

Hole Size / Drill Method: 127 mm / SSA

GPS Coordinates: 17T 598424 E 4799000 N

Datum: Local

Logged by: RW

Checked by: AC

Sheet: 1 of 1

Notes:

One groundwater sample (BH4) collected on January 10, 2017 and submitted for laboratory analyses of PHCs, selected VOCs, and selected metals and inorganics.

One duplicate soil sample (DUP3) collected on January 6, 2017 from approximately 2.4 to approximately 3.0 m bgs and submitted for laboratory analysis of PHCs and BTEX.

One duplicate groundwater sample (DUP4) collected on January 10, 2017 and submitted for laboratory analysis of selected metals and inorganics.

FB

Terraprobe-B 110629 June 9/11

Ontario Ministry of the Environment

Well Tag No. for Master Well *(Place Sticker and/or Print Below)*

A 101069

Master Well Record for Cluster Well Construction

Regulation 903 Ontario Water Resources Act

Page 1 of 2

[redacted]

Address of Well Location (Street Number/Name, RR): 2421 New st.

Township:

Lot:

Concession:

County/District/Municipality: Halton

City/Town/Village: Burlington

Province: Ontario

Postal Code: L7R 1K1

UTM Coordinates: NAD 83 Zone 17 Easting 598328 Northing 4799039

GPS Unit Make: Garmin

Model: etrex

Mode of Operation: ☐ Differentiated, specify ☐ Undifferentiated ☒ Averaged

Overburden and Bedrock Materials *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	Depth (Metres) To
Brown	sand	Gravel	loose	0	1
Brown	sand	silt	soft	1	4.9
Brown	shale	shale	hard	4.9	7.6

Hole Details

Depth (Metres) From	Depth (Metres) To	Diameter (Centimetres)
0	7.6	21

Water Use

☐ Public ☐ Industrial ☐ Not used ☐ Other, specify
☐ Domestic ☐ Commercial ☐ Dewatering
☐ Livestock ☐ Municipal ☒ Monitoring
☐ Irrigation ☐ Test Hole ☐ Cooling & Air Conditioning

Method of Construction

☐ Cable Tool ☐ Air Percussion ☐ Digging
☐ Rotary (Conventional) ☐ Diamond ☒ Boring
☐ Rotary (Reverse) ☐ Jetting ☐ Other, specify
☐ Rotary (Air) ☐ Driving

Status of Well

☒ Test Hole ☐ Abandoned, Insufficient Supply
☐ Replacement Well ☐ Abandoned, Poor Water Quality
☐ Dewatering Well ☐ Other, specify
☐ Alteration (Construction) ☐ Abandoned, other, specify

Construction Details

Inside Diameter (Centimetres)	Material (steel, plastic, fibreglass, concrete, galvanized)	Wall Thickness	Depth (Metres) From	Depth (Metres) To
5.1	plastic casing	0.65	0	6.0
5.1	plastic screen	0.65	6.0	7.6

No Casing and Screen Used

Open Hole ☐ Yes ☒ No

Static Water Level Test

3.0 Metres

Screen

☐ Galvanized ☐ Steel ☐ Fibreglass ☐ Concrete ☒ Plastic

Outside Diameter (Centimetres): 6.4

Slot No.: 20

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	Depth Set at (Metres) To	Type of Sealant Used (Material and Type)	Volume Used (Cubic Metres)
0	0.3	concrete	
0.3	5.8	Bentonite chips	

Water Details

Water found at Depth	Kind of Water
3.0 Metres ☐ Gas	☒ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Disinfected ☐ Yes ☒ No If no, provide reason: monitering well

Date Master Well Completed (yyyy/mm/dd): 2011/06/09

Cluster Information *(Please also fill out the additional Cluster Well Information for Well Construction for each parcel of land and cluster.)*

Total Wells in Cluster: 2

Total Wells on this Property: 2

Please indicate Number of Cluster Well Information Log Sheets Submitted: 1

Location of Well Cluster

Detailed Map must be provided as an attachment no larger than legal size (8.5" x 14"). Sketches are not allowed.

☐ Check box to confirm detailed map is provided as per Section 11.1 (3)

Consent to release additional information concerning the cluster to [redacted]

Well Contractor and Well Technician Information

Business Name of Well Contractor: Geo-Environmental

Well Contractor's Licence No.: 6607

Business Address (Street No./Name, number, RR): 340 Market Dr.

Municipality: Milton

Province: Ont

Postal Code: L9T 5A4

Business E-mail Address:

Bus. Telephone No. (inc. area code): 9058763388

Name of Well Technician (Last Name, First Name): Collins Tim

Well Technician's Licence No.: 2059

Signature of Technician:

Date Submitted (yyyy/mm/dd): 2011/06/09

Ministry Use Only

Audit No.: M 08535

Well Contractor No.:

Date Received (yyyy/mm/dd): NOV 01 2011

Date of Inspection (yyyy/mm/dd):

Remarks:

1992 (11/2006)

Ministry's Copy

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Ontario Ministry of the Environment

Well Tag No. for Master Well *(Print Well Tag No.)* A101069

Cluster Well Information for Cluster Well Con

Regulation 903 Ontario Water Re

[redacted]

Address of Well Location (Street Number/Name, RR)	Lot	Concession	Township	County/District/Municipality
2421 New st.				Halton

City/Town/Village	Province	Postal Code	GPS Unit Make	Model	Unit Mode of Operation	Signature of Technician/Contractor	Date (yyy
Burlington	Ontario	L7R1K1	Garmin	etrex	☐ Undifferentiated ☑ Averaged ☐ Differentiated, specify:		2011/0

Well # on Sketch	UTM Coordinates Zone	Easting	Northing	Full Depth of Hole (metres)	Hole Diameter (cm)	Method of Construction	Casing Material	Casing Length (metres)	Screen Interval (metres) From	To	Annular Space Sealant Used	Static Water Level (metres)	Abandonment Sealant Used	Comments	Date of Co (yyyy/mm
MW Ds	17	598327	4799040	4.5	21	Boring	plastic	3.0	3.0	4.5	Bentonite chips	3.0			2011/0

Well Contractor and Well Technician Information

Business Name of Well Contractor	Business Address (Street Number/Name, RR)	Municipality	Province
Geo-Environmental	340 Market Dr	Milton	Ont

Postal Code	Business Telephone No. (inc. area code)	Well Contractor's Licence No.	Business E-mail Address
L9T5A4	9058763388	6607	

Name of Well Technician (First Name, Last Name)	Well Technician's Licence No.	Date Submitted (yyyy/mm/dd)	Signature of Technician
Tim Collins	2059	2011/06/09	

Date 1st Well in Cluster Constructed (yyyy/mm/dd)	Date Last Well in Cluster Constructed (yyyy/mm/dd)
2011/06/09	2011/06/09

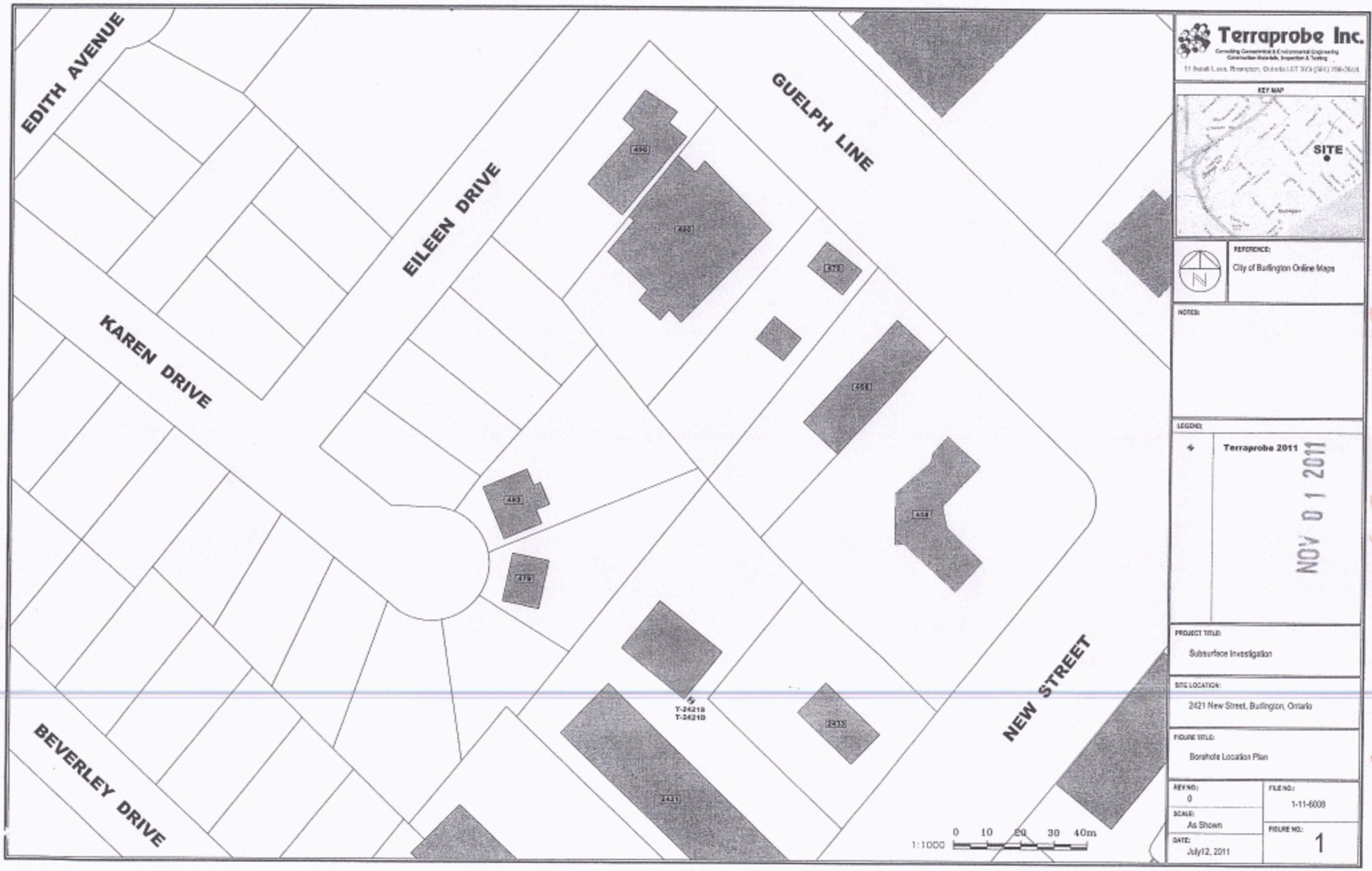
Ministry Use Only

Date Received (yyyy/mm/dd)	Date Inspected (yyyy/mm/dd)
NOV 01 2011	
Audit No. C 13554	**Remarks** M08535

1991 (11/2006)

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Terraprobe Inc.
Consulting Geoscientists & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane, Brampton, Ontario L6T 3Y3 (905) 796-2650

KEY MAP

REFERENCE:
City of Burlington Online Maps

NOTES:

LEGEND:
Terraprobe 2011

RECEIVED
NOV 01 2011

PROJECT TITLE:
Subsurface Investigation

SITE LOCATION:
2421 New Street, Burlington, Ontario

FIGURE TITLE:
Borehole Location Plan

REV NO:	FILE NO:
0	1-11-6008
SCALE: As Shown	FIGURE NO: 1
DATE: July12, 2011	

C-647 mos35

Project No: SM 093537-E

Project: 2433 New Street

Location: Burlington, Ontario

Client: Millington & Associates

Log of Borehole No. 1

Borehole Location: See Drawing No. 1

Project Manager: John Monkman, P. Eng.

Soil-Mat

SUBSURFACE PROFILE

SAMPLE

Depth (ft / m)	Elevation [m]	Symbol	Description	Well Data	Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
0 / 0	99.34		Ground Surface								
	99.09		***Pavement Structure*** Approximately 50 millimetres of asphaltic concrete over 200 millimetres of granular base		SS	1	2,3,3,3	6			
			Sand / Silty Sand Brown, fine to medium grained, trace fine gravel, loose to dense		SS	2	1,2,1,1	3			
2					SS	3	1,2,1,4	3			
					SS	4	6,7,8,10	15			
4					SS	5	8,13,13,12	26			
					SS	6	6,10,9,10	19			
6	94.24				SS	7	3,13,50,68 Wet	63			
			Queenston Shale Red, severely weathered, occasional more resistant grey layers		SS	8	13, 50/50mm Wet	100+			
	93.24		End of Borehole								

Moisture Content w% (10, 20, 30, 40)

Standard Penetration Test • blows/300mm • (20, 40, 60, 80)

Notes:

1. Borehole advanced using hollow stem continuous flight auger equipment on September 25, 2009 to termination at a depth of 6.1m.
2. Free groundwater at a depth of 5.5m on completion and a 50 millimetre well was installed to 6.1m, slotted in the lower 3.05m.
3. Soil samples will be discarded after three months unless otherwise directed by our client.

Drill Method: Hollow Stem Auge

Drill Date: September 25, 2009

Hole Size: 200mm

SOIL-MAT ENGINEERS & CONSULTANTS LTD.
130 Lancing Drive, Hamilton, ON L8W 3A1
Phone: (905) 318-7440 Fax: (905) 318-7455
e-mail: info@soil-mat.on.ca

Datum: Temporary Benchmark

Checked by: JM

Sheet: 1 of 1

Project No: SM 093537-E

Project: 2433 New Street

Location: Burlington, Ontario

Client: Millington & Associates

Log of Borehole No. 2

Borehole Location: See Drawing No. 1

Project Manager: John Monkman, P. Eng.

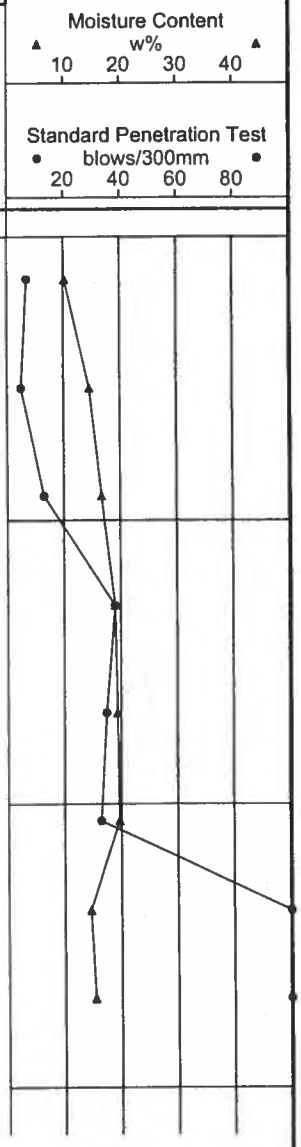
Soil-Mat

SUBSURFACE PROFILE

Depth (ft / m)	Elevation [m]	Description	Well Data
0 / 0	99.29	Ground Surface	
	99.04	***Pavement Structure*** Approximately 50 millimetres of asphaltic concrete over 200 millimetres of granular base	
		Sand / Silty Sand Brown, fine to medium grained, trace fine gravel, loose to dense	
2 / 0.6			
4 / 1.2			
6 / 1.8			
8 / 2.4			
10 / 3			
12 / 3.7			
14 / 4.3			
	94.49	***Queenston Shale*** Red, severely weathered, occasional more resistant grey layers	
16 / 4.9			
18 / 5.5			
20 / 6	93.19	End of Borehole	

SAMPLE

Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
SS	1	5,4,3,3	7			
SS	2	2,2,3,3	5			
SS	3	1,5,8,12	13			
SS	4	12,17, 21,26	38			
SS	5	10,17, 18,23	35			
SS	6	12,16, 17,13	33			
SS	7	16,66, 50/50mm	100+			
SS	8	50/50mm	100+			



Notes:

1. Borehole advanced using hollow stem continuous flight auger equipment on September 25, 2009 to termination at a depth of 6.1m.
2. Free groundwater at a depth of 5.8m on completion and a 50 millimetre well was installed to 6.1m, slotted in the lower 3.05m.
3. Soil samples will be discarded after three months unless otherwise directed by our client.

Drill Method: Hollow Stem Auge

Drill Date: September 25, 2009

Hole Size: 200mm

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130 Lancing Drive, Hamilton, ON L8W 3A1
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e-mail: info@soil-mat.on.ca

Datum: Temporary Benchmark

Checked by: JM

Sheet: 1 of 1

Project No: SM 093537-E

Project: 2433 New Street

Location: Burlington, Ontario

Client: Millington & Associates

Log of Borehole No. 3

Borehole Location: See Drawing No. 1

Project Manager: John Monkman, P. Eng.

Soil-Mat

SUBSURFACE PROFILE

SAMPLE

Depth (ft / m)	Elevation [m]	Description	Well Data	Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
0 / 0	99.54	Ground Surface								
	99.29	***Pavement Structure*** Approximately 50 millimetres of asphaltic concrete over 200 millimetres of granular base								
		Sand / Silty Sand Brown, fine to medium grained, some organic matter in the upper level, trace fine gravel, loose to dense		SS	1	7,8,6,4	14			
				SS	2	3,2,1,1	3			
2				SS	3	1,1,2,2	3			
				SS	4	10,19, 26,30	45			
				SS	5	17,26, 34,38	60			
4				SS	6	12,16, 22,26	38			
				SS	7	7,11,28,46	39			
	94.24	***Queenston Shale*** Red, severely weathered, occasional more resistant grey layers		SS	8	50/150mm Wet	100+			
6	93.44	End of Borehole								

Moisture Content w% (10, 20, 30, 40)

Standard Penetration Test blows/300mm (20, 40, 60, 80)

Notes:

1. Borehole advanced using hollow stem continuous flight auger equipment on September 25, 2009 to termination at a depth of 6.1m.
2. Free groundwater at a depth of 5.8m on completion and a 50 millimetre well was installed to 6.1m, slotted in the lower 3.05m.
3. Soil samples will be discarded after three months unless otherwise directed by our client.

Drill Method: Hollow Stem Auge

Drill Date: September 25, 2009

Hole Size: 200mm

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130 Lancing Drive, Hamilton, ON L8W 3A1
Phone: (905) 318-7440 Fax: (905) 318-7455
e-mail: info@soil-mat.on.ca

Datum: Temporary Benchmark

Checked by: JM

Sheet: 1 of 1

Project No: SM 093537-E

Project: 2433 New Street

Location: Burlington, Ontario

Client: Millington & Associates

Log of Borehole No. 4

Borehole Location: See Drawing No. 1

Project Manager: John Monkman, P. Eng.

Soil-Mat

SUBSURFACE PROFILE

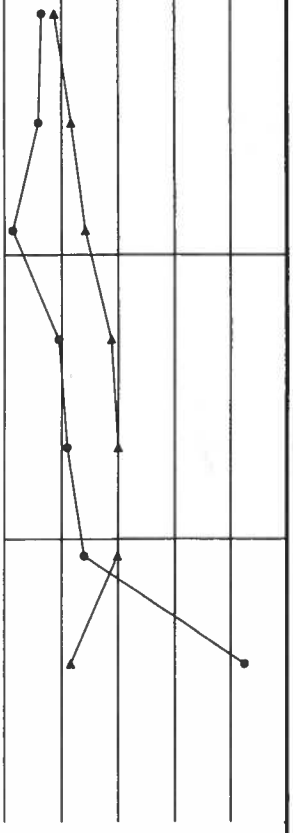
Depth (ft / m)	Elevation [m]	Description
0 / 0	99.69	Ground Surface
	99.44	***Pavement Structure*** Approximately 50 millimetres of asphaltic concrete over 200 millimetres of granular base
		Sand / Silty Sand Brown, fine to medium grained, trace fine gravel, loose to dense
	94.69	***Queenston Shale*** Red, severely weathered, occasional more resistant grey layers
	94.59	End of Borehole

SAMPLE

Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
SS	1	5,7,6,6	13			
SS	2	5,6,6,6	12			
SS	3	2,2,1,7	3			
SS	4	7,8,11,12	19			
SS	5	7,10,12,15	22			
SS	6	6,11,17,20	28			
SS	7	5,39,46, 50/100mm Wet	85			

Moisture Content w% (10, 20, 30, 40)

Standard Penetration Test blows/300mm (20, 40, 60, 80)



Notes:

1. Borehole advanced using hollow stem continuous flight auger equipment on September 25, 2009 to termination at a depth of 5.1m.
2. Borehole dry on completion and backfilled as per Ontario Regulation 903.
3. Soil samples will be discarded after three months unless otherwise directed by our client.

Drill Method: Hollow Stem Auge

Drill Date: September 25, 2009

Hole Size: 200mm

SOIL-MAT ENGINEERS & CONSULTANTS LTD.
130 Lancing Drive, Hamilton, ON L8W 3A1
Phone: (905) 318-7440 Fax: (905) 318-7455
e-mail: info@soil-mat.on.ca

Datum: Temporary Benchmark

Checked by: JM

Sheet: 1 of 1

Appendix F:
Sampling and Analysis Plan

1 Introduction

This appendix presents the Sampling and Analysis Plan (SAAP) that was developed in support of the Phase Two Environmental Site Assessment (ESA). The Phase Two ESA will be conducted to provide further characterization of the Site subsurface conditions and define the extent of impacts to assess remedial options such that, upon completion of remedial actions, a Record of Site Condition (RSC) can be filed on the Ontario Ministry of the Environment and Climate Change (MOECC) Brownfields Environmental Site Registry. The SAAP presents the procedures and measures that will be undertaken during field investigative activities to characterize the Site conditions and meet the data quality objectives of the Phase Two ESA.

The SAAP presents the sampling program proposed for the Site, the recommended procedures and protocols for sampling and related field activities, the data quality objectives, and the quality assurance/ quality control (QA/QC) measures that will be undertaken to provide for the collection of accurate, reproducible and representative data. These components are described in further detail below.

2 Field Sampling Program

The field sampling program was developed to provide for the collection of samples of the surficial and subsurface soil materials for chemical analysis of one or more of the following parameters: metals, PHCs and VOCs.

Vertical control of the boreholes and monitoring wells will be obtained through the completion of an elevation survey with reference to a Site temporary benchmark or a local geodetic benchmark. Groundwater flow and direction in the water table aquifer will be determined through groundwater level measurements and the relative groundwater elevations established in the Site elevation survey.

3 Field Methods

To meet the requirements of the field sampling program, the following field investigative methods will be undertaken:

- Borehole Drilling;
- Rock core drilling;
- Soil Sampling;
- Monitoring Well Installation;
- Monitoring Well Development;
- Residue Management Procedures;
- Groundwater Level Measurements;
- Elevation Survey; and,
- Groundwater Sampling.

The field investigative methods will be performed as described below:

3.1 **Borehole Drilling**

Sixteen (16) boreholes will be advanced at the Site to facilitate the collection of soil samples for chemical analysis and/or geologic characterization.

Prior to borehole drilling, utility clearances will be obtained from public and private locators, as required. If any uncertainty regarding the location of a buried utility at a borehole location is encountered or if a location is within 1 m of a buried utility, the borehole will be initiated by daylighting or hand augering to a sufficient depth to be clear of any utilities. Boreholes will be advanced into the surficial fill and native overburden soils by a licensed drilling contractor under the full-time supervision of EXP staff.

3.2 **Soil Sampling**

Soil samples for geologic characterization and chemical analysis will be collected on a continuous basis in the overburden material. Geologic and sampling details of the recovered cores will be logged and the samples will be assessed for the potential presence of non-aqueous phase liquids. A portion of each soil core will be placed in a sealed “zip-lock” plastic bag and allowed to reach ambient temperature prior to field screening with a combustible gas detector or photo-ionization detector (PID) that will be calibrated with an appropriate reference gas prior to use. The vapour measurements will be made by inserting the instrument’s probe into the plastic bag while manipulating the sample to ensure volatilization of the soil gases. These readings will provide a real-time indication of the relative concentration of volatile organic vapours encountered in the subsurface during drilling. Samples for chemical analysis will be selected on the basis of visual, combustible gas and olfactory evidence of impacts and at specific intervals to define the lateral and vertical extent of known impacts.

Recommended volumes of soil samples selected for chemical analysis will be collected into pre-cleaned, laboratory supplied, analytical test group specific containers. The samples will be placed into clean insulated coolers chilled with ice for storage and transport. The samples will be assigned unique identification numbers, and the date, time, location, and requested analyses for each sample will be documented in a bound field note book. The samples will be submitted to the contractual laboratory within analytical test group holding times under Chain of Custody (COC) protocols. New disposable chemical resistant gloves will be used during the handling and sample collection for each soil core to prevent sample cross-contamination.

3.3 **Monitoring Well Installation**

A drilling contractor will be contracted to advance fifteen (15) boreholes which will each be equipped with monitoring wells to facilitate the collection of groundwater samples. The monitoring wells will be installed in general accordance with the Ontario Water Resources Act- R.R.O. 1990, Regulation 903 – Amended to O. Reg. 128/03 and will be installed by a licensed well contractor.

The monitoring wells will be constructed using a 50 mm diameter, Schedule 40, PVC riser pipe and number 10 slot size (0.25 mm) well screens. The base of the well screens will be sealed with PVC end caps. All well pipe connections will be factory machined threaded flush couplings. The pipe components will be pre-wrapped in plastic, which will be removed prior to insertion in the borehole to minimize the potential for contamination. No lubricants or adhesives will be used in the construction of the monitoring well. The annular space around the well screens will be backfilled with silica sand to an average height of 0.3 m above the top of the screen. Granular bentonite will be placed in the borehole annulus from the top of the sand pack to approximately 0.6 m below grade. The exterior monitoring wells will be completed with monument protective steel casings cemented into place. The interior monitoring wells will be secured using lockable ‘J-plugs’.

3.4 Monitoring Well Development

The newly installed monitoring wells will be developed to remove fine sediment particles potentially lodged in the sand pack and well screen to enhance hydraulic communication with the surrounding formation waters. The monitoring wells will be developed using a low flow peristaltic pump and sample tubing. Monitoring well development will be monitored by visual observations of turbidity, and by taking field measurements of pH, electrical conductivity and temperature for every standing well volume removed. Standing water volumes will be determined by means of an electronic water level meter. Water quality parameter measurements will be recorded using a multi meter instrument. The instrument probes will be calibrated prior to use following manufacturer's procedures using analytical grade reagents, or if obtained from a field equipment supplier, the calibration checked. A minimum of three to five wetted well volumes will be removed; and, well development will continue until the purged water has chemically stabilized as indicated by visual observations and field parameters measurements.

Well development details will be documented on a well development log sheet or in a bound hard cover notebook. All development waters will be collected and stored in labelled, sealed containers.

3.5 Residue Management Procedures

The residue materials produced during the borehole drilling, soil sampling programs and monitoring well sampling programs comprised of soil cuttings from drilling activities, decontamination fluids from equipment cleaning, and waters from well development and purging will be placed in labeled, sealed drums for off-Site disposal.

3.6 Groundwater Level Measurements

Groundwater level measurements will be recorded for the installed monitoring wells to determine groundwater flow and direction in the overburden aquifer beneath the Site. Water levels will be measured with respect to the top of the casing by means of an electronic water level meter. The water levels will be recorded on water level log sheets or in a bound field notebook. The water level meter probe will be decontaminated between monitoring well locations.

3.7 Elevation Survey

An elevation survey will be conducted to obtain vertical control of the newly installed monitoring well locations. The top of casing and ground surface elevation of each monitoring well location will be surveyed against a known geodetic benchmark, or if unavailable, against a suitable arbitrary temporary benchmark. Elevations measured against a geodetic benchmark will be recorded as meters above mean sea level (m AMSL). The arbitrary temporary benchmark will be assigned an elevation of 100 m. The elevation survey will be accurate to within ± 0.3 cm.

3.8 Groundwater Sampling

Groundwater samples will be collected from the installed monitoring wells for chemical analysis. The monitoring wells will be purged first of three to five wetted well volumes of water to remove standing water and draw in fresh formation water. Wetted well volumes will be determined by measuring water levels with an electronic water level meter. A low flow peristaltic pump and sample tubing, will be used for well purging and sample collection. Wells, which are purged dry, are to recover to 75% of static levels before sampling.

Recommended groundwater sample volumes will be collected into pre-cleaned, laboratory-supplied vials or bottles provided with analytical test group specific preservatives, as required. The samples will be placed in an insulated cooler chilled with ice for storage and transport.

All groundwater samples will be assigned unique identification numbers, and the date, time, project number, company name, location and requested analyses for each sample will be documented in a bound hard cover notebook. The samples will be submitted to the contractual laboratory within analytical test group holding times under COC protocols. New disposable chemical resistant gloves will be used for each sampling location to prevent sample cross-contamination.

4 Field Quality Assurance/Quality Control Program

The objective of the field quality assurance/quality control (QA/QC) program is to obtain soil and groundwater samples and other field measurements that provide data of acceptable quality that meets the objectives of the Phase Two ESA. The objectives of the QA/QC program will be achieved through the implementation of procedures for the collection of unbiased (i.e. non-contaminated) samples, sample documentation to provide a measure of sample reproducibility and accuracy. The field QA/QC measures will comprise:

- Decontamination Protocols;
- Equipment Calibration;
- Sample Preservation;
- Sample Documentation;

Details on the field QA/QC measures are provided below.

4.1 Decontamination Protocols

Decontamination protocols will be followed during field sampling where non-dedicated sampling equipment is used to prevent sample cross contamination. For soil sampling, sampling equipment will be cleaned/decontaminated between sampling intervals. For the monitoring well installation, well components are not to come into contact with the ground surface prior to insertion into boreholes. Electronic water level meters will be decontaminated between monitoring well locations during well development and purging activities. All decontamination fluids will be collected and stored in sealed, labelled containers.

4.2 Equipment Calibration

All equipment requiring calibration will be calibrated in the field according to manufacturer's requirements using analytical grade reagents, or by the supplier prior to conducting field activities, and subsequently checked in the field. The calibration of all pre-calibrated instruments will be checked in the field using analytical grade reagents and re-calibrated as required. For multiple day sampling events, equipment calibration will be checked prior to the beginning of sampling activities. All calibration data will be documented in a bound hard cover notebook.

4.3 Sample Preservation

All samples will be preserved using appropriate analytical test group specific reagents, as required, and upon collection placed in ice-filled insulated coolers for storage and transport.

4.4 Sample Documentation

All samples will be assigned a unique identification number, which is to be recorded along with the date, time, project number, company name, location and requested analysis in a bound field notebook. All samples will be handled and transported following COC protocols.

Appendix G:
Survey Plan

PLAN OF SURVEY
SHOWING TOPOGRAPHICAL INFORMATION OF

PART OF LOT 16
CONCESSION 3
SOUTH OF DUNDAS STREET

(GEOGRAPHIC TOWNSHIP OF NELSON)

CITY OF BURLINGTON

REGIONAL MUNICIPALITY OF HALTON

SCALE 1: 200

0 5 10 15 20m

KRCMAR SURVEYORS LTD. 2017

METRIC: DISTANCES SHOWN HEREON ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

BEARING

BEARINGS SHOWN HEREON ARE GRID AND ARE REFERRED TO THE NORTHWESTERLY LIMIT OF PART 1, AS SHOWN ON PLAN 20R-15030, HAVING A BEARING OF N37°38'40"E.

ELEVATION

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO CITY OF BURLINGTON BENCHMARK No. 360, HAVING AN ELEVATION OF 87.949 METRES.

NOTE

SUBJECT LANDS COMPRISE ALL OF PINS 07068-0208(LT) AND 07068-0255(LT).

LEGEND

■	DENOTES SURVEY MONUMENT FOUND
□	DENOTES SURVEY MONUMENT PLANTED
CP	DENOTES CONCRETE PIN
SIB	DENOTES STANDARD IRON BAR
RIB	DENOTES ROUND IRON BAR
IB	DENOTES IRON BAR
(M)	DENOTES MEASURED
(S)	DENOTES SET
(OU)	DENOTES ORIGIN UNKNOWN
(P1)	DENOTES HALTON CONDOMINIUM PLAN No. 324
(P2)	DENOTES PLAN 20R-12796
(P3)	DENOTES PLAN 20R-1836
(P4)	DENOTES PLAN 20R-15030
(P5)	DENOTES PLAN BY PAUL JASON COMPANY LTD., O.L.S., DATED AUGUST 27, 1971
(646)	DENOTES R.G. SEWELL, O.L.S.
(1176)	DENOTES DONALD E. ROBERTS LTD., O.L.S.
(1511)	DENOTES GUIDO VINCENT CONSOLI, O.L.S.
(1629)	DENOTES B.A. JACOBS SURVEYING LTD., O.L.S.
A/C	DENOTES AIR CONDITIONER
BF	DENOTES BOARD FENCE
BR	DENOTES TIES TO BRICK
CLF	DENOTES CHAIN LINK FENCE
CONC.	DENOTES CONCRETE
CPAD	DENOTES CONCRETE PAD
DSE	DENOTES DOOR SILL ELEVATION
FR	DENOTES TIES TO FRAME
ILB	DENOTES INTERLOCKING BRICK
IRV	DENOTES IRRIGATION VALVE
(Tc)	DENOTES TOP OF CURB
(Bc)	DENOTES BOTTOM OF CURB
(Tw)	DENOTES TOP OF WALL
—x—	DENOTES FENCE
—o/t—	DENOTES HYDRO SERVICE (OVERHEAD)
×123.45	DENOTES EXISTING GRADE ELEVATION
⊕BOL	DENOTES BOLLARD
CB	DENOTES CATCH BASIN
	DENOTES CONIFEROUS TREE WITH TRUNK DIAMETER
	DENOTES DECIDUOUS TREE WITH TRUNK DIAMETER
	DENOTES DOWN GUY ANCHOR
FH	DENOTES FIRE HYDRANT
GV	DENOTES GAS VALVE
HP/LS	DENOTES HYDRO POLE WITH LIGHT STANDARD
MH	DENOTES MANHOLE
MP	DENOTES METAL POST
MW	DENOTES MONITORING WELL
SN	DENOTES SIGN
WV	DENOTES WATER VALVE

TOTAL SITE AREA = 7032.1 m²

Phase One, Phase Two, RA and RSC Property Boundary

MUNICIPAL ADDRESSES

No. 2421 AND 2431 NEW STREET, CITY OF BURLINGTON.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 28th DAY OF NOVEMBER, 2017

DATE DECEMBER 8, 2017

WALDEMAR GOLINSKI
ONTARIO LAND SURVEYOR

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2038137

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PLAN AVAILABLE AT www.ProtectYourBoundaries.ca

FIELD:	A.M./D.L.	DRAWN:	S.D./C.L.	CHECKED:	W.G.	JOB NO:	17-218
DWG NAME:	17-218ST01	PLOT INFO:	14:54 08/Dec/2017	WORK ORDER NO:	20838		

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