418 & 422 Guelph Line, Burlington, Ontario

Phase Two Environmental Site Assessment

Client:
Waldemar LP
3410 South Service Road
Burlington, ON
L7N 3T2

Attention: Kyle Bittman

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EXP Services Inc.
80 Bancroft Street
Hamilton, ON, L8E 2W5
t: 905.573.4000
f: 905.573.9693

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1. Executive Summary

EXP Services Inc. (EXP) was retained by Waldemar LP., ("Client") to complete a Phase Two Environmental Site Assessment (ESA) of the property with the municipal addresses 418 and 422 Guelph Line, in Burlington, Ontario (hereinafter referred to as the 'Site').

The Site is located on the southwest side of Guelph Line, approximately 35 m southeast of New Street in Burlington, Ontario. The Site is approximately 0.38 hectares (0.94 acres) in size, and is occupied by a one-storey commercial building with a basement and a two-storey residential structure with a basement ("Site buildings"). The Site building at 422 Guelph Line has a footprint of approximately 930 m^2 (10,000 ft^2) and was constructed circa 1958. The basement of this structure covers the entire footprint of the building. The Site building at 418 Guelph Line was reportedly constructed in 1949. At the time of this Phase One ESA, the Site buildings were vacant.

This Phase Two ESA was conducted in accordance with the Phase Two ESA standard defined by Ontario Regulation 153/04, as amended (O.Reg.153/04); 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.

The objective of the Phase Two ESA was to assess the areas of potential environmental concern (APECs) identified in the Draft Phase One ESA completed by EXP, dated July 10, 2019.

The APECs identified in the Phase One ESA for each property are provided in the table below.

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)[1]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 1: Vent pipe for potential former AST	North of the Site building addressed as 418 Guelph Line	PCA#28- Gasoline and Associated Products Storage in Fixed Tanks	On-Site	Petroleum Hydrocarbons (PHCs) and Benzene, Toluene, ethylbenzene and Xylenes (BTEX), and Metals	Soil and Groundwater
APEC 2: Presence of greenhouses on Site	East portion of Site	PCA#40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-Site	OC Pesticides	Soil
APEC 3: De-icing salt application to parking areas	On-Site parking areas on northwest portion of the Site	PCA"Other"-De-icing Salt	On-Site	Electrical Conductivity (EC), Sodium Absorption Ratio (SAR)	Soil

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)[1]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 4: Fill and vent pipes associated with off Site UST at 422 Guelph Line	Northeast portion of the Site at 422 Guelph Line	PCA#28- Gasoline and Associated Products Storage in Fixed Tanks	Off-Site	PHCs, BTEX, and Metals	Soil and Groundwater
APEC 5: Various automotive repair facilities on west adjacent at 2432 New Street	West portion of the Site	PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	PHCs, and Volatile Organic Compounds (VOCs)	Groundwater
APEC 6A: Former Motorcycle Repair Center north adjacent to Site at 2434 New Street	North portion of the Site	PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	PHCs, and VOCs	Groundwater
APEC 6B: Fill / vent pipe on building situated on north adjacent property (2434 New Street)	North portion of the Site	PCA#28: Gasoline and Associated Products Storage in Fixed Tanks.	Off-Site	PHCs, BTEX	Groundwater
APEC 7: Dry cleaning facility 25 m east of the Site at 415 Guelph Line	East boundary of the Site	PCA#37 - Operation of Dry Cleaning Equipment (where chemicals are used)	Off-Site	VOCs	Groundwater
APEC 8: Bulk paint storage 25 m east of the Site at 417 Guelph Line	North portion of the Site	PCA#28: Gasoline and Associated Products Storage in Fixed Tanks.	Off-Site	PHCs, BTEX	Groundwater
APEC 9: Automotive Service Station 30 m north of the Site at 433 Guelph Line	Northeast boundary of the Site	PCA#28 – Gasoline and Associated products in fixed tanks.	Off-Site	PHCs, VOCs	Groundwater
APEC 10: Service Centre 60 m north/northwest of Site at 458 Guelph Line with associated USTs	North portion of Site	PCA#28 – Gasoline and Associated products in fixed tanks.	Off-Site	PHCs, BTEX	Groundwater

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)[1]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 11A: Automotive service centre 75 m north of Site at 3001 New Street (formerly 457 Guelph Line) with associated USTs	North boundary of the Site	PCA#28 – Gasoline and Associated products in fixed tanks	Off-Site	PHCs, BTEX	Groundwater
APEC 11B: Automotive service centre 75 m north of Site at 3001 New Street (formerly 457 Guelph Line) with associated USTs	North boundary of the Site	PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	PHCs, VOCs	Groundwater
APEC 12: Dry cleaning facility 180 m northwest of the Site at 480 Guelph Line	Northwest boundary of the Site	PCA#37 - Operation of Dry-Cleaning Equipment (where chemicals are used)	Off-Site	VOCs	Groundwater
APEC 13: Commercial printing establishment north adjacent of Site at 2442 New Street	North portion of the Site	PCA Other – Commercial printing establishment	Off-Site	VOCs	Groundwater

VOCs = volatile organic compounds; PHCs = petroleum hydrocarbons; OCs = Organochlorine Pesticides

Based on the findings of the Phase One ESA and conclusions, a Phase Two ESA was recommended to assess the soil and groundwater conditions at the Site.

The scope of the Phase Two ESA was designed to assess soil and/or groundwater quality associated with the identified APECs (1 to 14) and to determine hydraulic conductivity and hydraulic gradients at the Site. The results and findings of the Phase Two ESA conducted at the Site are summarized as follows:

- On June 10 to June 12, 2019, four (4) boreholes (BH201 to BH203, and re-installation of BH102) were advanced by Geo Environmental Drilling to a maximum depth of 12.2 metres below ground surface (m bgs).
- The general stratigraphy at the Site, as observed in the boreholes, consisted of asphalt/ topsoil generally overlying layers of fill followed by sand, overlain by silty clay/ bedrock.
- The monitoring well network advanced as part of this Phase Two ESA consisted of two (2) monitoring wells screened within the bedrock layer, as well as the re-installation of BH102A. Groundwater levels were measured from the previously installed monitoring wells MW1 to MW4 (BIG), MW101 to MW106 (S2S), and the three (3) newly installed monitoring wells (MW102A, MW201 and MW202) on May 17 and June 12, respectively.
- Based on the groundwater contour map delineated for the Site, the shallow groundwater is anticipated to flow in a south/ southeasterly direction. However, EXP notes that the direction of localized groundwater flow may be influenced by disturbed soil (fill), underground utilities and/or underground building structures in the area. As such, the measured groundwater flow direction may not be representative of the regional area.

- The horizontal hydraulic gradient on-Site ranged from 0.005 m/m (between BH105 and BH/MW4) and 0.006 m/m (between BH/MW2 and BH/MW1).
- The vertical hydraulic gradient on-Site ranged between BH104 and MW201 was 0.048 m/m and between BH/MW4 and MW202 was 0.129 m/m.
- Soil samples were submitted for the analysis of petroleum hydrocarbons (PHCs), benzene, toluene, ethylbenzene and xylenes (BTEX), and volatile organic compounds (VOCs). The following groundwater analytical results indicated that the samples submitted were above the applicable Table 2 SCS:
    - Vinyl Chloride from BH201 – SS6 and duplicate BH201- SS66 was found to be above the applicable MECP (2011) Table 2 SCS.
    - All other parameters, were either non-detected or detected below their applicable MECP (2011) Table 2 SCS.
- Groundwater samples were submitted for the analysis of PHCs, BTEX, and VOCs. The groundwater sampling program included sampling the newly installed monitoring wells (MW201, MW202 and MW102A) and the existing monitoring wells at the Site. The following groundwater analytical results indicated that the samples submitted were above the applicable Table 3 SCS.
    - Chloroform in groundwater samples MW4 (DUP MW44), and MW103;
    - Cis-1,2-Dichloroethylene in groundwater samples BH/MW1, MW3, MW4 (DUP MW44), MW101, MW102, BH104, MW106, and MW102A (DUP MW1022A);
    - Tetrachloroethylene in groundwater samples BH/MW1, BH/MW2, MW3, MW4 (DUP MW44), MW101, MW102, MW103, BH104, BH105, MW106, and MW102A (DUP MW1022A);
    - Trichloroethylene in groundwater samples BH/MW1, BH/MW2, MW3, MW4 (DUP MW44), MW101, MW102, MW103, BH104, BH105, MW106, and MW102A (DUP MW1022A); and
    - Vinyl Chloride in groundwater samples BH/MW1, MW3, MW102, MW102A (DUP MW1022A), and MW201.
- No evidence of free product (i.e. visible film or sheen), was observed during soil sampling, groundwater purging, or groundwater sampling activities. Slight odours were identified while developing and sampling the monitoring wells.

Based on the results of the Phase Two ESA, there are concentrations of EC/SAR in soil and VOCs in soil and groundwater which are above the generic Table 2 SCS. A Risk Assessment is recommended, to develop Site-specific risk-based criteria based on potential exposure pathways of the identified contaminants.

2 Introduction

EXP Services Inc. (EXP) was retained by Waldemar LP., ("Client") to complete a Phase Two Environmental Site Assessment (ESA) of the property with the municipal addresses 418 and 422 Guelph Line, in Burlington, Ontario (hereinafter referred to as the 'Site').

The Site is located on the southwest side of Guelph Line, approximately 35 m southeast of New Street in Burlington, Ontario. The Site is approximately 0.38 hectares (0.94 acres) in size and is occupied by a one-storey commercial building with a basement and a two-storey residential structure with a basement ("Site buildings"). The Site building at 422 Guelph Line has a footprint of approximately 930 m^2 (10,000 ft^2) and was constructed circa 1958. The basement of this structure covers the entire footprint of the building. The Site building at 418 Guelph Line was reportedly constructed in 1949. At the time of this Phase One ESA, the Site buildings were vacant.

This Phase Two ESA was conducted in accordance with the Phase Two ESA standard defined by Ontario Regulation 153/04, as amended (O.Reg.153/04); 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.

The objective of the Phase Two ESA was to assess the areas of potential environmental concern (APECs) identified in the Draft Phase One ESA completed by EXP, dated July 10, 2019.

2.1 Site Description

The Site is located on the southwest side of Guelph Line, approximately 35 m southeast of New Street in Burlington, Ontario. The Phase One Study Area consists of properties within a distance of approximately 250 metres from the Site boundaries. The Phase One Study Area is bound by commercial properties to the north, and west, and residential properties to the south and east.

The Phase One Study Area and a Surrounding Land Use Plan are shown on Figure 2.

The Site has an area of approximately 0.38 hectares (0.94 acres). Based on a review of historical aerial photographs, chain of title information, historical maps, and other records, the Site at 418 and 422 Guelph Line were constructed in 1949 and 1958, respectively.

2.2 Legal Description and Property Ownership

The Site is located on the southwest side of Guelph Line, approximately 35 m southeast of New Street in Burlington, Ontario. The Site has an area of approximately 0.38 hectares (0.94 acres). At the time of this Phase One ESA, the Site buildings were vacant.

Details of the Site are as follows:

Municipal Address	418 Guelph Line, Burlington Ontario
Current Land Use	Commercial
Proposed Land Use	Residential
Legal Description	Part Lot 15 Con 4 NEL SDS as in 388093
Property Identification Number (PIN)	07197-0095 (LT)

Approximate Universal Transverse Mercator (UTM) coordinates	NAD83 17T 598498 m E 4799003 m N
Accuracy Estimate of UTM	10-15 m
Measurement Method	Georeferenced aerial photograph
Site Area	0.19 ha (0.48 acres)
Property Owners, Owner Contact and Address	418 Waldemar Inc. 3410 S Service Road Burlington, ON L7N 3T2

Municipal Address	422 Guelph Line, Burlington Ontario
Current Land Use	Commercial
Proposed Land Use	Residential
Legal Description	Part Lot 16 Con 4 NEL SDS as in 442287
Property Identification Number (PIN)	07197-0094 (LT)
Approximate Universal Transverse Mercator (UTM) coordinates	NAD83 17T 598478 m E 4799019 m N
Accuracy Estimate of UTM	10-15 m
Measurement Method	Georeferenced aerial photograph
Site Area	0.19 ha (0.48 acres)
Property Owners, Owner Contact and Address	422 Waldemar Inc. 3410 S Service Road Burlington, ON L7N 3T2

At the time of the Phase One ESA, the Site buildings were vacant. Based on information provided by the client, both properties will be under the same ownership name (422 Waldemar Inc.) for the filing of the RSC.

2.3 Current and Proposed future Uses

At the time of the Phase Two ESA, the property was zoned for commercial land use according to City of Burlington zoning by-law. Reportedly, the Site is intended to be further developed for residential land use.

2.4 Applicable Site Condition Standards

Analytical results obtained for Site soil and groundwater samples were assessed against Site Condition Standards (SCS) as established under subsection 169.4(1) of the Environmental Protection Act, and presented in the document MECP “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act”, (“SGWS” Standards), (MECP, 2011a). Tabulated background SCS (Table 1) applicable to environmentally sensitive Sites and effects based generic SCS (Tables 2 to 9) applicable to non-environmentally sensitive Sites are provided in MECP (2011a). The effects based SCS (Tables 2 to 9) are protective of human health and the environment for different groundwater conditions (potable and non-potable),

land use scenarios (residential, parkland, institutional, commercial, industrial, community and agricultural/other), soil texture (coarse or medium/fine) and restoration depth (full or stratified).

Tables 1 to 9 of MECP (2011a) are summarized as follows:

- Table 1 – applicable to sites where background concentrations must be met (full depth), such as sensitive sites where site-specific criteria have not been derived;
- Table 2 – applicable to sites with potable groundwater and full depth restoration;
- Table 3 – applicable to sites with non-potable groundwater and full depth restoration;
- Table 4 – applicable to sites with potable groundwater and stratified restoration;
- Table 5 – applicable to sites with non-potable groundwater and stratified restoration;
- Table 6 – applicable to sites with potable groundwater and shallow soils;
- Table 7 – applicable to sites with non-potable groundwater and shallow soils;
- Table 8 – applicable to sites with potable groundwater and that are within 30 m of a water body; and,
- Table 9 – applicable to sites with non-potable groundwater and that are within 30 m of a water body.

Application of the generic or background SCS to a specific site is based on a consideration of site conditions related to soil pH (i.e. surface and subsurface soil), thickness and extent of overburden material, (i.e. shallow soil conditions), and proximity to an area of environmental sensitivity or of natural significance. For some chemical constituents, consideration is also given to soil textural classification with SCS having been derived for both coarse and medium-fine textured soil conditions.

For assessment purposes, EXP selected the MECP (2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for Residential/Parkland/Institutional Property Use and coarse textured soil. The selection of this category was based on the following factors:

- The Site has an overburden thickness greater than 2 m.
- The Site is not located within 30 m of a surface water body or an area of natural significance.
- The soil at the Site has a pH value between 5 and 11 for subsurface soils. However, it is noted that the pH value from the soil sample at BH101 (0-0.6 m bgs) is 9.6 which exceeds the 5 to 9 range for surface soil samples. It is understood that additional soil samples will be collected in this area to confirm the pH value at this location as it is deemed to be anomalous. Therefore, the site is not identified as an environmentally sensitive area and the restrictions identified in Section 41 of O. Reg. 153/04 do not apply.
- The property is not located within an area of natural significance; does not include, nor is it adjacent to an area of natural significance, nor is it part of such an area; and, it does not include land that is within 30 m of an area of natural significance, nor is it part of such an area. Based on the review of available resources from the Ministry of Natural Resources and Forestry and MECP, a woodland was observed 115 m east of the Site.
- The Site is serviced by the City of Niagara Falls water distribution system; and, to the best of EXP's knowledge, all properties within 250 m of the Site are serviced by the municipal water supply (i.e. there are no potable water supply wells located within the Phase One Study Area). However, the City of Burlington objected the application for the Non-Potable Ground Water for filing Record of Site Condition for this Site, due to the highly vulnerable aquifer, as identified in the Region's Source Water protection Planning under Clean Water Act, 2006. The letter of Intent is presented in Appendix G.
- The predominant soil type on the Site is considered to be coarse textured (as per the soil description identified in the borehole logs in Appendix C, and the results of the 75 micron sieve result included in Appendix E).

- The Site proposed land use is residential.
- There is no intention to carry out a stratified restoration at the Site.

3 Background Information

3.1 Physical Setting

The following physiographic, geological and soil maps were reviewed on June 8, 2018:

- "Toporama"; Natural Resources Canada. Scale 1:17,500. 2008.
- Quaternary Geology of Ontario - geology_ll.shp [computer file],Ontario: Ontario Geological Survey, 2000.
- Bedrock Geology of Ontario - geology_ll.shp [computer file],Ontario: Ontario Geological Survey, 2000.
- Physiography of Southern Ontario - geology_ll.shp [computer file], Ontario: Ontario Geological Survey, 2007.

Based on the review of the above maps, the following information was obtained:

- The Site is approximately 92 m above sea level.
- The Site and surrounding areas are relatively flat, and gently slope southeast, towards Lake Ontario, which is located approximately 810 m southeast of the Site. Based on a review of the topographic map, the inferred groundwater flow at the Site and surrounding properties is anticipated to flow southeast towards Lake Ontario.
- The Site and surrounding areas were dominated by Glaciolacustrine deposits, consisting primarily of sand and gravel as well as nearshore and beach deposits.
- The bedrock in the general area was part of the Glaciolacustrine deposits, consisting primarily of sand and gravel as well as nearshore and beach deposits.

3.2 Previous Environmental Investigations

The following reports were available for review at the time of this Phase One ESA.

1. A report entitled "Phase I Environmental Site Assessment, 418 & 422 Guelph Line, Burlington, Ontario", dated February 7th, 2017, was prepared for exp services Inc. (EXP). Pertinent information from the report is as follows:

- Based on the review of historical records, the Site was used for residential and commercial purposed since at least 1958.
- According to the City Directories, the Site building addressed as 418 Guelph Line was occupied by a real estate office from at least 1971 and prior to that it was florist from approximately 1961 to 1971. Historically, the Site was occupied by a bank and a residential building. Greenhouse structures formerly occupied the eastern portion of the Site. The greenhouses were noted to be a source of potential environmental concern.
- The property addressed as 422 Guelph Line, and the Site building addressed as 422 Guelph Line was occupied by a bowling alley since at least 1961.
- A review of a 1971 FIP and City Directories identified the following environmental concerns:
  - The property at 2439 New Street (currently 458 Guelph Line), located 60 m northwest of the Site, was occupied by a gasoline service station with UST(s) from 1961 to 2011. Given the up-gradient location of the property with respect to the inferred groundwater flow direction, the property and UST were considered to be issues of potential environmental concern.
  - The property at 433 Guelph Line, located approximately 30 m northeast, was occupied by a gasoline station with a UST from approximately 1957 to 1967.

  - The property at 2440A New Street (current location of 2432 New Street), located southwest adjacent to the Site, was occupied by an auto repairs facility from approximately 1967 to 2011. Given the close proximity of the property relative to the Site, this property was considered to be an issue of potential environmental concern.
  - The property at 3001 New Street (formerly 457 Guelph Line), located approximately 75 m north of the Site, was formerly occupied by what appears to be an auto service facility and UST. Given the up-gradient location of the property relative to the Site, this property was considered to be an issue of potential environmental concern.
  - The property at 415 Guelph Line, situated approximately 25 m east of the Site, was occupied by City Laundry & Dry Cleaners in 1961;
- TSSA indicated that there was a record of three (3) active underground fuel tanks at 458 Guelph Line, located 60 m northwest of the Site. Based on the proximity and inferred up-gradient location relative to the Site, this property was identified as an issue of potential environmental concern to the Site.
- The review of the ERIS Report identified the following concerns:
  - The property addressed as 458 Guelph Line was occupied by Petro Canada, a service station associated with decommissioned tanks. Suncor Energy Products occupied this property and installed three (3) USTs. Gasoline was identified in a borehole on the property in 2001 and an investigation took place. A tank leak was reported in 1988.
  - The property addressed as 3001 New Street was listed as gasoline service station from 1992 to 1998 (addressed as 457 Guelph Line).
- An AST used for furnace oil was observed on the Site addressed as 418 Guelph Line in a structure adjoined to the garage. According to the Site representative, furnace oil was formerly used to heat the residence.
- A furnace oil UST was noted to exist beneath the steps north adjacent to the Site building addressed as 422 Guelph Line. Fill and vent pipes to the UST were observed in the northeast portion of the basement. Mapping resources indicated the UST appeared to be situated off-Site.
- At the time of the Site visit, Petro Canada was situated on the property addressed as 458 Guelph Line situated approximately 60 m northwest of the Site and up-gradient with respect to the anticipated groundwater flow direction.

Based on a review of the above reports, the following PCAs as defined in Table 2 Schedule D of O.Reg 153/04 were identified for the Site:

- The former presence of greenhouses on the Site addressed as 418 Guelph Line is associated with PCA#40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications.
- The Site was noted to have an abandoned AST formerly used to for heating oil at 418 Guelph Line. This is associated with PCA#28 – Gasoline and Associated products in fixed tanks.
- A UST was noted to exist northeast adjacent to the Site building addressed as 422 Guelph Line and fill and vent pipes were observed in the basement. This is associated with PCA#28 – Gasoline and Associated products in fixed tanks.
- The property at 433 Guelph Line was occupied by a gasoline station with a UST and associated with PCA#28- Gasoline and Associated Products Storage in Fixed Tanks.
- The property at 2440A (currently 2432 New Street) was occupied by an auto repair facility and associated with PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems.
- The property at 3001 New Street (formerly 457 Guelph Line) was occupied by an auto service facility with PCA#28- Gasoline and Associated Products Storage in Fixed Tanks and PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems.

- The property at 415 Guelph Line was occupied by City Laundry & Dry Cleaners and associated with PCA#37 - Operation of Dry-Cleaning Equipment (where chemicals are used).
- The property at 433 Guelph Line was occupied by a gasoline service operation and associated with PCA#28 – Gasoline and Associated products in fixed tanks.
- The property at 458 Guelph Line (formerly 2439 New Street) was occupied by Kirby BP Service Station, Petro Canada, and Suncore Energy Products and TSSA had records of three (3) active USTs. Gasoline was noted to have leaked from a UST and was identified in a borehole. At the time of the 2017 Site visit, this property remained occupied by Petro Canada. This property is associated with PCA#28 – Gasoline and Associated products in fixed tanks.

The need for a Phase Two ESA on the Site was identified in the Draft Phase One ESA conducted for the Site by EXP, dated July 10, 2019. Based on the findings of the Phase One ESA, including a review of previously completed reports, numerous Potentially Contaminating Activities (PCAs) were identified within the Phase One ESA Study Area (Figure 2). Fourteen (14) corresponding Areas of Potential Environmental Concern (APECs) were identified.

Based on the findings of the Phase One ESA and conclusions, a Phase Two ESA was recommended to assess the soil and groundwater conditions at the Site.

4 Scope of Investigation

4.1 Overview of Site Investigation

The objective of the Phase Two ESA was to assess the APECs identified in EXP's (2019) Phase One ESA to obtain soil and groundwater data to further characterize the Site to support the filing of a RSC on the MECP's Environmental Brownfield Site Registry.

4.1.1 Scope of Work

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

- Request local utility locating companies (e.g. cable, telephone, gas, hydro, water, sewer and storm water) 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 proposed borehole locations and to clear the individual borehole locations;
- Oversee a licensed drilling company to advance a total of four (4) boreholes across the Site;
- Install two (2) vertical delineation monitoring wells for vertical delineation purposes (BH/MW201 and BH/MW 202);
- Decommission BH102 and reinstall to 6 m bgs (as per comments provided by the MECP);
- One (1) shallow borehole in the vicinity of the AST (BH203);
- Collect representative soil samples from the boreholes for laboratory analysis of PHCs, VOCs, Metals, pH, and/or 75-micron sieve;
- Develop the three (3) newly installed groundwater monitoring wells, and ten (10) previously installed wells by BIG and S2S in 2017;
- Collect groundwater samples from the newly installed and existing monitoring wells for laboratory analysis of PHCs, VOCs, and/or Metals;
- Complete an elevation survey of all newly installed monitoring wells to determine the groundwater flow direction in the groundwater unit(s) identified beneath the Site; and,
- Analyze the data and prepare a report of the findings, in accordance with O.Reg.153/04.

4.2 Media Investigated

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

4.3 Phase One Conceptual Site Model

The Phase One Conceptual Site Model (CSM) is incorporated into the Phase Two CSM, presented in Appendix F.

4.4 Deviations from Sampling and Analysis Plan

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

4.5 Impediments

The Site was accessible at the time of the investigation, and no physical impediments were encountered during the field investigation

5. Investigation Method

5.1 General

The Site investigative activities consisted of the following:

- Borehole drilling to facilitate the collection of soil samples for geologic characterization and/or chemical analysis; and,
- Monitoring well installation for hydrogeologic characterization and the collection of groundwater samples for chemical analysis.

Boreholes were advanced in the topsoil and overburden soils by a licensed drilling company under the full-time supervision of EXP staff. The drilling equipment used to advance the boreholes is described below. No petroleum-based greases or solvents were used during drilling activities.

Monitoring wells were installed in the boreholes by a MECP licensed well contractor in accordance with Ontario Regulation 903/90, as amended (O.Reg. 903) using manufactured well components (i.e. riser pipes and screens) and materials (i.e. sand pack and grout) from documented sources.

The approximate locations of the boreholes and monitoring wells are shown on Figure 2.

5.2 Underground Utilities

Prior to the commencement of drilling activities, the locations of underground utilities including but not limited to cable, telephone, natural gas, electrical lines, water, sewer and storm water conduits were marked out by public locating companies. In addition, a private utility locating service (Bulls-Eye) was retained to clear individual borehole locations.

5.3 Borehole Drilling

The fieldwork for the soil investigative portion of the Phase Two ESA was carried out between June 10 and 12, 2019. The boreholes were advanced under the full-time supervision of EXP staff.

Four (4) boreholes (BH201 to BH203, and re-installation of BH102) were advanced by Geo Environmental Drilling to a maximum depth of 12.2 metres below ground surface (m bgs). The boreholes were advanced using a Truck-Mounted CME 75-3 and a Bosh Electric equipped with hallow stem augers. A summary of the boreholes advanced is provided in Table 2.

EXP continuously monitored the drilling activities to record the physical characteristics of the soil, depth of soil sample collection and total depth of boreholes. Field observations are summarized on the borehole logs provided in Appendix C. Representative soil samples were recovered from the boreholes continuously using split-spoon samplers or acetate liners.

All soil cuttings were stored in drums on the Site.

5.4 Soil: Sampling

The soil sampling conducted during the completion of this Phase Two ESA was undertaken in accordance with the SAAP presented in Appendix A, to ensure that soil quality in the APECs identified in the Phase One ESA was characterized in accordance with O.Reg.153/04.

Soil samples for geologic characterization and chemical analysis were collected on a discrete basis in the overburden materials using 5 cm diameter, 60 cm long, split spoons or acetate liners advanced into the subsurface using a track-mounted direct push drill rig or a Bosh Electric. The soil cores were extruded from the samplers upon retrieval by drilling personnel. Geologic details of the recovered cores were logged by EXP field staff and samples were collected from selected cores for chemical analysis. Field observations are summarized on the borehole logs prepared from the field logs and provided in Appendix C.

Measures were taken in the field and during transport to preserve sample integrity prior to chemical analysis. Recommended volumes of soil samples selected for chemical analysis were collected from the recovered cores into pre-cleaned, laboratory-supplied glass sample jars/vials identified for the specified analytical test group. Samples intended for PHC fractions F1 and VOCs were collected using a laboratory-supplied soil core sampler, placed into the vials containing methanol for preservation purposes and sealed using Teflon lined lids.

Soil samples selected for laboratory analysis were placed in clean coolers containing ice prior to and during transportation to the subcontract laboratory, Maxxam Analytics Inc. (Maxxam) of Mississauga, Ontario. The samples were transported/submitted within the acceptable holding time to Maxxam following Chain of Custody protocols for chemical analysis.

Decontamination and other protocols were followed during sample collection and handling to minimize the potential for sample cross-contamination. New disposable nitrile gloves were used for the handling and sampling of each retrieved soil core. The sampling equipment (i.e. split spoons) was decontaminated between borehole locations by the drilling contractor using a potable water/phosphate-free detergent solution followed by rinses with potable water and de-ionized water. Wash and rinse waters were collected in sealed, labeled containers. Drill cuttings were placed in labeled, sealed drums upon completion of sampling.

Soil samples submitted for specific chemical analysis were selected on the basis of visual inspection of the recovered cores, TOV readings, sample location and/or depth interval. The rationale for soil sample submission is presented in Table 3.

Soil samples were also collected and submitted for grain size analysis.

Appropriate quality assurance/quality control (QA/QC) samples were collected during soil sampling, including field duplicate samples, as presented in Section 5.14 and Table 3.

5.5 Soil: Field Screening Measurements

Where required for the characterization of volatile parameters, a portion of each soil core was placed in a sealed plastic bag and allowed to reach ambient temperature prior to field screening, using an RKI Eagle II (RKI) device equipped with a Photoionization Detection (PID) instrument, calibrated with isobutylene and hexane gases. 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 vapours encountered in the subsurface during drilling and are used to aid in the assessment of the vertical and horizontal extent of volatile parameter contamination and the selection of soil samples for analysis.

The field screening measurements, in parts per million (ppm) isobutylene and hexane equivalents, are presented on the borehole logs in Appendix C. It should be noted that field measurements are for screening purposes only and the presence/absence of contamination is determined by laboratory analysis.

Each sample was additionally examined for visual, textural and olfactory classification at the time of sampling.

5.6 Groundwater: Monitoring Well Installation

Three (3) of the four (4) boreholes advanced at the Site were instrumented with monitoring wells. 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 licensed well contractors (Geo Environmental Drilling).

The monitoring wells consisted of a 3 m or 1.5 m length, 51 mm diameter number 10 slot size (0.25 mm) PVC well screen and Schedule 40 PVC riser pipe. All pipe connections were factory machined threaded flush couplings. The annular space around the wells was backfilled with silica 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 0.3 m below ground surface. The monitoring wells were completed with a flush-mount well casing. A summary of the monitoring well installation details is provided in Table 4.

EXP continuously monitored the well installation activities. Well installation details are summarized in Table 4 and on the borehole logs provided in Appendix C.

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.

Measures taken to minimize the potential for cross contamination or the introduction of contaminants during well construction included:

- The use of well pipe components (e.g. riser pipe and well screens) with factory machined threaded flush coupling joints;
- Construction of wells without the use of glues or adhesives;
- Removing the protective plastic wraps from well components at borehole insertion to prevent contact with the ground and other surfaces; and,
- Cleaning of augers between sampling locations.

5.7 Groundwater: Monitoring Well Development

Following the installation of monitoring wells, the newly installed monitoring wells, and ten (10) of the existing monitoring wells were developed, on June 12 and May 17, 2019, respectively, to remove fine sediment particles from the sand pack and enhance hydraulic communication with the surrounding formation waters. The new monitoring wells were developed using dedicated low-density polyethylene (LDPE) tubing, equipped with an inertial foot-valve to disturb the water column and recover groundwater containing dislodged sediment particles. The wells were developed until approximately 3 to 5 well volumes of water were removed and/or until purged dry.

5.8 Groundwater: Purging and Field Measurements of Water Quality Parameters

At least 24 hours following the monitoring well development activities, the depth to groundwater at each monitoring well was measured utilizing an electronic water level meter obtained from Spectra Scientific Inc. (Spectra) of Mississauga, ON. The water level measurements were recorded on log sheets or in a bound field book. The water level meter was decontaminated between monitoring well locations.

Prior to collecting groundwater samples, field measurements of water quality parameters were recorded from the thirteen (13) monitoring wells utilizing low-flow purging and sampling methodologies. Groundwater was purged from each location using a peristaltic pump and dedicated LDPE tubing. Field measurements of dissolved oxygen concentration, electrical conductivity, oxidation-reduction potential, pH, temperature, turbidity and water levels were recorded at three (3) minute intervals during the purging activities using a pre-calibrated multi probe water quality meter, a turbidity meter and a water level meter. Groundwater was considered to be chemically stable when the pH measurements of three (3) successive readings agreed to within ± 1 pH units, the specific conductance within ± 10%, and the temperature within ± 10%. The multi-meter electrodes were calibrated prior to receipt of the meter by the supplier using in-house reference standards.

All development and purged water was collected and stored on Site in labeled, sealed containers, until properly managed or disposed off-Site.

Equipment used during groundwater monitoring were thoroughly cleaned and decontaminated between wells. Well purging details were recorded on log sheets or in a bound field book.

5.9 Groundwater: Sampling

The groundwater sampling conducted during the completion of this Phase Two ESA was undertaken in accordance with the SAAP presented in Appendix A, to ensure that the APECs identified in the Phase One ESA were properly characterized, in accordance with O.Reg.153/04.

Upon completion of purging activities, groundwater samples were collected from monitoring wells. Recommended groundwater sample volumes were collected into pre-cleaned laboratory-supplied vials or bottles provided with analytical test group specific preservatives, as required. The samples were placed in an insulated cooler pre-chilled with ice immediately upon collection. Samples for VOCs and/or PHC F1 analysis were collected in triplicate vials prepared with concentrated sodium bisulphate as a preservative. Each VOC/PHC vial was inverted and inspected for gas bubbles prior to being placed in the cooler to ensure that no head-space was present in the samples. Samples for Inductively Coupled Plasma Mass Spectrometry (ICPMS) metals were collected using disposable 0.45 micron field filters, supplied by Spectra, or laboratory filtered.

All groundwater samples were placed in clean coolers containing ice prior to and during transportation to the subcontract laboratory, Maxxam. The samples were transported/submitted following appropriate holding time requirements following Chain of Custody protocols for chemical analysis.

Decontamination and other protocols were followed during sample collection and handling to minimize the potential for sample cross-contamination. New disposable nitrile gloves were used at each monitoring well location.

Groundwater samples submitted for specific chemical analysis were selected on the basis of sample location and/or depth interval. The rationale for groundwater sample submission is presented in Table 5.

Appropriate QA/QC samples were collected during groundwater sampling, including field duplicate samples and trip blanks, where required, as presented in Table 5.

5.10 Sediment Sampling

As no water body was present at the Site, sediment sampling was not part of the Phase Two ESA.

5.11 Analytical Testing

The contractual laboratory selected to perform the chemical analyses was Maxxam Analytics Inc., of Mississauga, ON. Maxxam is an accredited laboratory under the Standards Council of Canada/Canadian Association of Environmental Analytical Laboratories (Accredited Laboratory No. 97 and No. A3200, respectively) in accordance with ISO/IEC 17025:2005 – “General Requirements for the Competence of Testing and Calibration Laboratories”.

5.12 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. All soil cuttings were stored in drums on the north central portion of the Site until the material was properly disposed of at an off-Site MECP licensed landfill facility. All development and purged water was collected and stored on-Site in labeled, sealed containers, until disposed of off-Site at a MECP licensed landfill facility.

5.13 Elevation Survey

An elevation survey was conducted during the Phase Two ESA investigative activities, with the purpose of obtaining relative vertical control of the monitoring well locations. The top of pipe and ground surface elevations of each monitoring well were surveyed relative to an arbitrary benchmark. The temporary benchmark was the survey marker observed on the central east boundary of the Site.

5.14 Quality Assurance and Quality Control Measures

Quality Control/Quality Assurance measures, as set out in the Sampling and Analysis Plan, were implemented during sample collection, storage and transport to provide accurate data representative of conditions in the surficial fill and upper overburden soils and the water table aquifer. The QA/QC measures included decontamination procedures to minimize the potential for sample cross contamination, the execution of standard operating procedures to collect representative and unbiased samples, the collection of quality control samples to evaluate sample precision and accuracy, and the implementation of measures to preserve sample integrity.

Decontamination protocols were followed during sample collection and handling to minimize the potential for cross-contamination. During the collection of soil samples, split-spoon and duel tube samplers were scraped and decontaminated between sampling intervals by washing with a potable water/phosphate-free detergent solution followed by a rinse with potable water. New disposable nitrile gloves were used for the handling and collection of samples from each soil core and for sample collection from each borehole.

Soil samples selected for chemical analyses were collected from the retrieved soil cores and placed directly into pre-cleaned, laboratory-supplied glass jars or vials. Sample volumes were consistent with analytical test group requirements as specified by the receiving laboratory.

Groundwater samples were collected into pre-clean laboratory-supplied vials or bottles provided with analytical test group specific preservatives, as required. Recommended analytical test group specific sample volumes were collected as specified by the contractual laboratory. Sample vials for analysis of PHC F1 (BTEX) and VOCs were inspected for the presence of gas bubbles and the presence of head space, where volatiles may partition into.

Measures were followed to preserve sample integrity between collection and receipt by the contractual laboratory. All samples, both soil and groundwater, immediately upon collection were placed in insulated coolers pre-chilled with ice for storage and transport to the contractual laboratory. Samples were received by the contractual laboratory within specific analytical test group holding time requirements.

Documentation procedures were followed to confirm sample identification and tracked sample movement. Each sample was assigned a unique identification ID number, which was recorded along with the date, time of sampling and requested analyses on labels affixed to the sampling containers, and in a bound field notebook. Chain of Custody protocols were followed to track sample handling and movement until receipt by the contractual laboratory. Field QA/QC samples were collected during the soil and groundwater sampling. Duplicate samples were collected to evaluate sampling precision to evaluate the potential for sample cross-contamination during handling and transport.

Two (2) duplicate soil samples, BH201-SS66 and BH223-SS1, were collected from BH201-SS6 and BH203-SS1 respectively and submitted for analysis of VOCs and PHCs with BTEX, for QA/QC purposes. Two (2) duplicate groundwater samples (BH/MW22 and BH1044) were collected from monitoring wells BH/MW2and BH104, respectively and submitted for analysis of PHCs and BTEX parameters for QA/QC purposes. Three (3) duplicates groundwater samples (BH/MW22, BH44, and BH/MW1022A) were collected from monitoring wells BH/MW2, MW4 and BH/MW102A, respectively, and submitted for analysis of VOC parameters for QA/QC purposes. In addition, two (2) trip blank samples were analyzed for VOCs

6. Review and Evaluation

6.1 Geology

The soil investigation conducted at the Site for the environmental assessment consisted of the advancement of four (4) boreholes into the topsoil material and the underlying native materials to a maximum depth of 12.2 m bgs. The borehole logs describing geologic details of the soil cores recovered during the Site drilling activities are presented in Appendix C. 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 observed in the boreholes, consisted of asphalt/ topsoil generally overlying layers of fill followed by sand, overlain by silty clay/ bedrock. A brief description of the soil stratigraphy at the Site, in order of depth, is summarized in the following sections. Refer to borehole logs provided in Appendix C for details of soil stratigraphy. The interpreted Site geology is also shown on the enclosed cross sections (Figures 21 and 22).

6.1.1 Surface Material

Topsoil with thickness of approximately 100 mm and asphalt of approximately 50 - 100 mm was encountered at the surface of all boreholes.

6.1.2. Fill Material

Fill material was encountered below the asphalt/ topsoil in majority of the boreholes extending to depths between 0.05 m bgs and 2.13 m bgs. The fill comprised generally of sand, with trace silt and gravel.

6.1.3. Native Material

Fine sand, and silty clay material was encountered below the fill material and extended to depths of approximately 5.95 m bgs.

6.1.4 Bedrock

Bedrock was encountered at BH201and BH202 to the maximum investigated depth of 12.2 m.

6.2 Groundwater: Elevations and Flow Direction

The monitoring well network advanced as part of this Phase Two ESA consisted of three (3) monitoring wells. Ten (10) existing monitoring wells (MW1 to MW4 installed by BIG, and BH101 to BH106, installed by S2S) were screened between 1.5 and 10.7 m bgs and three (3) newly installed monitoring wells (MW201, MW202 and MW102A) were screened between 2.74 and 12.2 m bgs, within the sand layer (MW102S), and the bedrock (MW201 and MW202). Groundwater levels were measured between May 21 and June 20, 2019. The groundwater levels and corresponding elevations are summarized in Table 6, and presented in the borehole logs provided in Appendix C.

Based on the groundwater contour map delineated for the Site, the shallow groundwater is anticipated to flow in an east/southeasterly direction. A groundwater contour map is presented in Figure 6. However, EXP notes that the direction of localized groundwater flow may be influenced by disturbed soil (fill), underground utilities and/or underground building structures in the area. As such, the measured groundwater flow direction may not be representative of the regional area.

6.2.1 Groundwater: Hydraulic Conductivity

Based on the soil types and textual values provided in the textbook called Groundwater by Alan R. Freeze and John A. Cherry, the value is approximately 1 x 10-6 m/s.

6.2.2 Groundwater: Horizontal Hydraulic Gradients

The horizontal hydraulic gradient, between each monitoring well pair, is calculated using the following equation:

$$i = \Delta h/\Delta s$$

Where,

i = horizontal hydraulic gradient;

Δh (m) = groundwater elevation difference; and,

Δs (m) = separation distance.

The horizontal hydraulic gradient on-Site ranged from 0.005 m/m (between BH105 and BH/MW4) and 0.006 m/m (between BH/MW2 and BH/MW1) as shown in Table 7.

6.2.3 Groundwater: Vertical Hydraulic Gradients

The horizontal hydraulic gradient, between each monitoring well pair, is calculated using the following equation:

$$iv = (h2-h1)/(z2-z1)$$

Where,

i = vertical hydraulic gradient;

z (m) = bottom of well elevation minus 50; and,

h (m) = difference between the groundwater elevation bottom of well elevation plus z.

The vertical hydraulic gradient on-Site ranged between BH104 and MW201 was 0.048 m/m and between BH/MW4 and MW202 was 0.129 m/m as shown in Table 8.

6.3 Soil Texture

Based on the 75 micron sieve of representative soil, the soil texture at the Site was determined to be coarse textured soils (refer to the 75 micron sieve analysis in the Certificates of Analysis - Appendix E)

6.4 Soil: Field Screening

TOV readings from each sample interval were measured for soil sample selected for BTEX/PHC and VOC analysis from all advanced boreholes. Vapour concentrations readings collected during subsurface drilling were measured using the RKI Eagle 2 in ppm calibrated with isobutylene and hexane or equivalent. The vapour readings, in ppm, are provided on the borehole logs in Appendix C.

Soil samples submitted for chemical analysis were selected on the basis of visual inspection of the recovered cores, TOV readings, sample location and/or depth interval. Both hexane and isobutylene readings indicate that there are insignificant volatile particles in the soil vapours.

6.5 Soil Quality

In accordance with the scope of work, chemical analyses were performed on selected soil samples recovered from the boreholes. The selection of representative "worst case" soil samples was based on field screening, visual and/or olfactory evidence of impacts, and the presence of potential water bearing zones. Copies of the laboratory Certificates of Analysis for the analyzed soil samples are provided in Appendix E. A summary of the analytical results for the soil samples, including the locations and depths of each sample, a comparison of concentrations against applicable SCS, and the identification of the potential contaminants of concern, are provided in Appendix D.

6.5.1 Petroleum Hydrocarbons

One (1) soil sample, including one (1) QA/QC field duplicate (BH223-SS1) were analyzed for PHCs including BTEX. The results of the analysis together with the applicable Table 2 SCS are presented in Table D-1 in Appendix D.

As shown in Table D-1, PHCs were not detected above the laboratory RDLs. The laboratory RDLs were below the Table 2 SCS.

6.5.2 Volatile Organic Compounds

One (1) soil sample, including one (1) QA/QC field duplicate (BH201-SS66) were analyzed for VOCs. The results of the analysis together with the applicable Table 2 SCS are presented in Table D-2 in Appendix D.

The following compounds were detected in exceedances of the MECP (2011) Table 2 SCS.

- Vinyl Chloride in soil sample BH201 – SS6 and duplicate BH201- SS66.

As shown in Table D-2, the remaining VOCs were not detected above the laboratory RDLs. The laboratory RDLs were below the Table 2 SCS.

6.5.3 Soil pH

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). It is noted that the pH value from the soil sample at BH101 (0-0.6 m bgs) is 9.6 which exceeds the 5 to 9 range for surface soil samples. Additional soil samples will be collected in this area to confirm the pH value at this location as it is deemed to be anomalous. The remaining pH values from previous analytical results (S2S) were within the acceptable range to use the Table 2 SCS.

Refer to Table D-5 for a summary of the soil samples analyzed for pH.

6.5.4 Chemical Transformation and Soil Contaminant Source

No chemical constituents were detected in the soil samples. It is anticipated that the soil exceedances are associated with the APECs identified off-Site (former dry cleaner).

6.5.5 Evidence of Non-Aqueous Phase Liquid

Inspection of the soil cores retrieved from the boreholes did not indicate the presence of non-aqueous phase liquid (NAPL), staining, or sheen at the time of the Phase Two ESA.

6.6 Groundwater Quality

In accordance with the scope of work, chemical analyses were performed on groundwater samples recovered from the monitoring wells. The selection of groundwater samples was based on location and/or screen depth. Copies of the laboratory Certificates of Analysis for the analyzed groundwater samples are provided in Appendix E. A summary of the analytical results

for the groundwater samples, including the locations of each sample, well screen interval depth, a comparison of parameter concentrations against applicable SCS, and the identification of the PCOCs, are provided in Appendix D.

6.6.1 Petroleum Hydrocarbons

Based on the findings in the 2017 Phase II ESAs by BIG and S2S, PHC parameters in groundwater samples MW1 and MW2 were above the Table 2 SCS. EXP resampled the wells in 2019 to confirm the concentration of PHCs from MW1 and MW2. Based on the analytical results from two rounds of groundwater sampling from the existing wells MW1 and MW2 the concentration of PHCs is below the Table 2 SCS.

Seven (7) groundwater samples including two (2) QA/QC field duplicates (BH/MW22 and BH1044) were analyzed for PHCs including BTEX. The results of the analysis together with the applicable Table 2 SCS are presented in Table D-7 in Appendix D.

As shown in Table D-7, PHCs including BTEX were detected below the laboratory RDLs in the analyzed samples. The laboratory RDLs were below the Table 2 SCS.

It is noted that the historic PHCs exceedance in groundwater at MW1 and MW2 may be a result of sediment in the samples during the groundwater sampling procedures or incomplete well development. As such, additional well purging was conducted prior to groundwater sampling. In addition, these wells were sampled utilizing low flow sampling procedures to reduce the potential for sediment interference. A review of the 2019 analytical results indicated that the concentrations of PHCs in the groundwater samples from MW1 and MW2 are below laboratory detection limits in this Phase Two ESA, and the laboratory detection limits are below Table 2 SCS. As such, the PHCs analytical results of groundwater samples from MW1 and MW2 in 2017 Phase II ESA have been superseded.

6.6.2 Volatile Organic Compounds

Eighteen (18) groundwater samples, including two (2) QA/QC field duplicates and two (2) trip blank samples were analyzed for VOCs. The results of the analysis together with the applicable Table 2 SCS are presented in Table D-8 in Appendix D.

The following compounds were detected in exceedances of the MECP (2011) Table 2 SCS.

- Chloroform in groundwater samples MW4 (DUP MW44), and MW103;
- Cis-1,2-Dichloroethylene in groundwater samples BH/MW1, MW3, MW4 (DUP MW44), MW101, MW102, BH104, MW106, and MW102A (DUP MW1022A);
- Tetrachloroethylene in groundwater samples BH/MW1, BH/MW2, MW3, MW4 (DUP MW44), MW101, MW102, MW103, BH104, BH105, MW106, and MW102A (DUP MW1022A);
- Trichloroethylene in groundwater samples BH/MW1, BH/MW2, MW3, MW4 (DUP MW44), MW101, MW102, MW103, BH104, BH105, MW106, and MW102A (DUP MW1022A); and
- Vinyl Chloride in groundwater samples BH/MW1, MW3, MW102, MW102A (DUP MW1022A), and MW201.

As shown in Table D-8, the remaining VOCs were either not detected or detected below the applicable Table 2 SCS. The laboratory RDLs were below the Table 2 SCS.

6.6.4 Chemical Transformation and Groundwater Contaminant Source

The groundwater impacts noted consist of chlorinated solvents and sodium/ chloride based on previous environmental investigation and the current Phase Two ESA. The chlorinated solvents are likely associated with an off-site source (former dry cleaner) and the sodium/chloride is likely associated with the use of salt for de-icing purposes on asphalt paved surfaces.

6.6.5 Evidence of Non-Aqueous Phase Liquid (NAPL)

Inspection of the purged groundwater retrieved from the monitoring wells did not indicate the presence of NAPL, staining, or sheen. Slight odours were identified while developing and sampling the monitoring wells.

6.7 Sediment Quality

As no surface water body was located on-Site, the Phase Two ESA did not include sediment sampling.

6.8 Quality Assurance and Quality Control Measures

Quality assurance and quality control measures were taken during the field activities to meet the objectives of the sampling and quality assurance plan to collect unbiased and representative samples to characterize existing conditions in the overburden and bedrock materials, and water table units at the Site.

Review of field activity documentation indicated that recommended sample volumes were collected from soil and groundwater for each analytical test group into appropriate containers and preserved with proper chemical reagents in accordance with the protocols set out in the "Protocol for Analytical Methods used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" (MECP, 2004). Samples were preserved at the required temperatures in pre-chilled insulated coolers and met applicable holding time requirements, when relinquished to the receiving laboratory.

Field QA/QC samples were collected during soil and groundwater sampling. A total of two (2) soil and four (4) groundwater duplicate samples were collected to evaluate sampling precision. Two (2) trip blank samples were analyzed for VOCs. Refer to Tables D-1, D-2, D-7 and D-8 for a summary of the QA/QC samples collected and submitted for chemical analysis

The field duplicate sample results were quantitatively evaluated by calculating the relative percent difference (RPD). Assessment of the duplicate soil and groundwater sample showed that the results generally met analytical test group specific acceptance criteria. The overall assessment indicates that the soil and groundwater samples were collected with an acceptable level of precision, and the data is acceptable quality for meeting the objectives of the Phase Two ESA.

The contractual laboratory selected to perform the chemical analyses was Maxxam Analytics Inc., of Mississauga, ON. Maxxam is an accredited laboratory under the Standards Council of Canada/Canadian Association of Laboratory Accreditation (Accredited Laboratory No. 97 and No. A3200, respectively) in accordance with ISO/IEC 17025:2005 – "General Requirements for the Competence of Testing and Calibration Laboratories". Certificates of Analysis were received from Maxxam reporting the results of all the chemical analyses performed on the submitted soil and groundwater samples. Copies of the Certificates of Analysis are provided in Appendix E. Review of the Certificates of Analysis, prepared by Maxxam, indicates that they were in compliance with the requirements set out under subsection 47(3) of O. Reg. 153/04.

The analytical program conducted by Maxxam included analytical test group specific QA/QC measures to evaluate the accuracy and precision of the analytical results and the efficiency of analyte recovery during solute extraction procedures. The laboratory QA/QC program consisted of the preparation and analysis of laboratory duplicate samples to assess precision and sample homogeneity, method blanks to assess analytical bias, spiked blanks and QC standards to evaluate analyte recovery, matrix spikes to evaluate matrix interferences and surrogate compound recoveries (VOCs only) to evaluate extraction efficiency. The laboratory QA/QC results are presented in the Quality Assurance Report provided in the Certificate of Analysis prepared by Maxxam. The QA/QC results are reported as percent recoveries for matrix spikes, spike blanks and QC standards, relative percent difference for laboratory duplicates and analyte concentrations for method blanks. The QA/QC results were assessed against test group control limits in the case of spiked blanks, matrix spikes and surrogate recoveries and alert criteria in the case of method blanks and laboratory duplicates. Review of the laboratory QA/QC results reported by Maxxam indicated that they were within acceptable control limits or below applicable alert criteria for the sampled media and analytical test groups. Based on the assessment of the QA/QC, the analytical results reported are of acceptable quality and data qualifications are not required.

6.9 Phase Two Conceptual Site Model

This section presents a Phase Two Conceptual Site Model (CSM) 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 Phase Two CSM was completed in accordance with O. Reg.153/04 as defined by the MECP and is presented in Appendix F

7. Conclusions

The results and findings of the Phase Two ESA conducted at the Site are summarized as follows:

- On June 10, to June 12, 2019, four (4) boreholes (BH201 to BH203, and re-installation of BH102) were advanced by Geo Environmental Drilling to a maximum depth of 12.2 metres below ground surface (m bgs).
- The general stratigraphy at the Site, as observed in the boreholes, consisted of asphalt/ topsoil generally overlying layers of fill followed by sand, overlain by silty clay/ bedrock.
- The monitoring well network advanced as part of this Phase Two ESA consisted of two (2) monitoring wells screened within the bedrock layer, as well as the re-installation of BH102A. Groundwater levels were measured from the previously installed monitoring wells MW1 to MW4 (BIG), MW101 to MW106 (S2S), and the three (3) newly installed monitoring wells (MW102A, MW201 and MW202) on May 17 and June 12, respectively.
- Based on the groundwater contour map delineated for the Site, the shallow groundwater is anticipated to flow in a south/ southeasterly direction. However, EXP notes that the direction of localized groundwater flow may be influenced by disturbed soil (fill), underground utilities and/or underground building structures in the area. As such, the measured groundwater flow direction may not be representative of the regional area.
- The horizontal hydraulic gradient on-Site ranged from 0.005 m/m (BetweenBH105 and BH/MW4) and 0.006 m/m (between BH/MW2 and BH/MW1).
- The vertical hydraulic gradient on-Site ranged between BH104 and MW201 was 0.048 m/m and between BH/MW4 and MW202 was 0.129 m/m.
- Soil samples were submitted for the analysis of petroleum hydrocarbons (PHCs), benzene, toluene, ethylbenzene and xylenes (BTEX), and volatile organic compounds (VOCs).
    - Vinyl Chloride in soil sample BH201 – SS6 and duplicate BH201- SS66 was found to be above the applicable MECP (2011) Table 2 SCS.
    - All other parameters, were either non-detected or detected below their applicable MECP (2011) Table 2 SCS.
- Groundwater samples were submitted for the analysis of PHCs, BTEX, and VOCs. The groundwater sampling program included sampling the newly installed monitoring wells (MW201, MW202 and MW102A) and the existing monitoring wells at the Site. The following groundwater analytical results indicated that the samples submitted were above the applicable Table 3 SCS.
    - Chloroform in groundwater samples MW4 (DUP MW44), and MW103;
    - Cis-1,2-Dichloroethylene in groundwater samples BH/MW1, MW3, MW4 (DUP MW44), MW101, MW102, BH104, MW106, and MW102A (DUP MW1022A);
    - Tetrachloroethylene in groundwater samples BH/MW1, BH/MW2, MW3, MW4 (DUP MW44), MW101, MW102, MW103, BH104, BH105, MW106, and MW102A (DUP MW1022A);
    - Trichloroethylene in groundwater samples BH/MW1, BH/MW2, MW3, MW4 (DUP MW44), MW101, MW102, MW103, BH104, BH105, MW106, and MW102A (DUP MW1022A); and
    - Vinyl Chloride in groundwater samples BH/MW1, MW3, MW102, MW102A (DUP MW1022A), and MW201.
- No evidence of free product (i.e. visible film or sheen), was observed during soil sampling, groundwater purging, or groundwater sampling activities. Slight odours were identified while developing and sampling the monitoring wells.

Based on the results of the Phase Two ESA, there are concentrations of EC/SAR in soil and VOCs in soil and groundwater which are above the generic Table 2 SCS. A Risk Assessment is recommended, to develop Site-specific risk-based criteria based on potential exposure pathways of the identified contaminants.

8. 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.

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 Services Inc. 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 carried out to address the intent of applicable provincial Regulations, Guidelines, Policies, Standards, Protocols and Objectives administered by the Ministry of the 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 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 418 Waldemar Inc. and 422 Waldemar Inc. 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.

9 Closure

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.



Patricia McMullan, B.Eng, EIT
Environmental Scientist
Environmental Services



Stephanie Hsia, B.Sc
Team Lead - Hamilton
Environmental Services



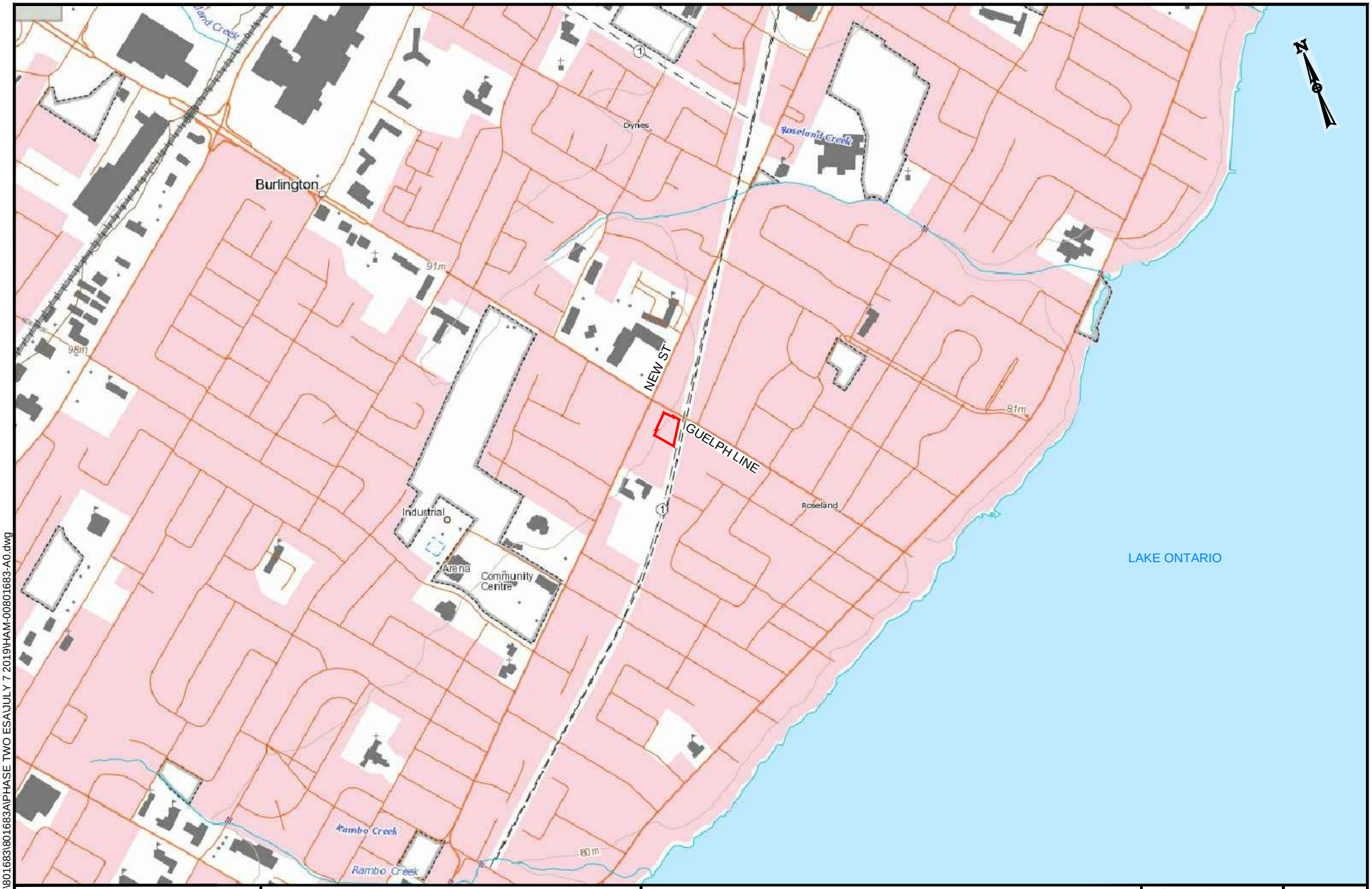
Samuel Lee, P.Geo.
Senior Project Manager
Environmental Services

10 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. Specific reference is made to the following:

- Canadian Standards Association [CSA] (2000) Z769-00, Phase II Environmental Site Assessment. Canadian Standards Association, March 2000.
- Environmental Protection Act, R.S.O. 1990, Chapter E.19, as amended, September 2004.
- Ministry of the Environment [MECP] (1996) Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario. Ontario Ministry of the Environment, December 1996.
- MECP (2011a) Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. Ontario Ministry of the Environment, March 2004, amended as of July 1, 2011.
- MECP (2011) Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act. Ontario Ministry of the Environment, April 15, 20101.
- Occupational Health and Safety Act - Ministry of Labour (MOL).
- Ontario Regulation 153/04, made under the Environmental Protection Act, May 2004, amended.
- Ontario Water Resources Act – R.R.O. 1990, Regulation 903, amended.
- Ontario Geological Survey (2010a) Physiography of Southern Ontario (Scale 1:22,000).
- Topographic Map available at the Natural Resources Canada (NRC) website http://atlas.nrcan.gc.ca/site/english/maps/topo/map
- Ontario Geological Survey (2010b) Surficial geology of Southern Ontario (Scale 1:22,000).
- Ontario Geological Survey (2011) Bedrock geology of Ontario (Scale 1:22,000).

Figures



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LEGEND:

APPROXIMATE SITE BOUNDARY

SCALE

150 0 150 300 450 600 750m

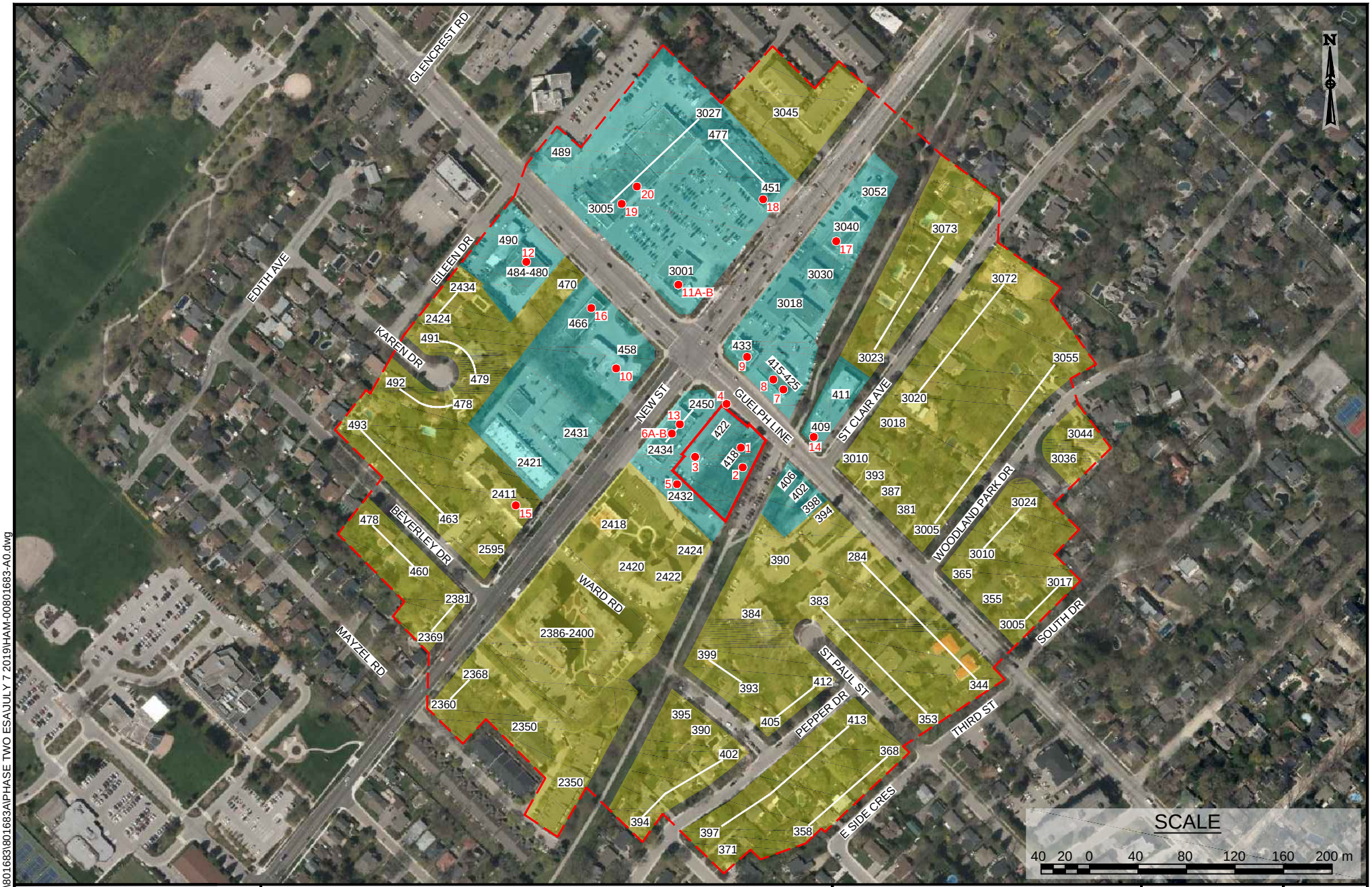
TITLE AND LOCATION:

SITE LOCATION PLAN

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE:	CK:
AS NOTED	SH
DATE:	FIG. NO.:
JULY 2019	1

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LEGEND:

- APPROXIMATE SITE BOUNDARY
- PHASE I STUDY AREA
- 1 PCA IDENTIFIER
- RESIDENTIAL
- COMMERCIAL

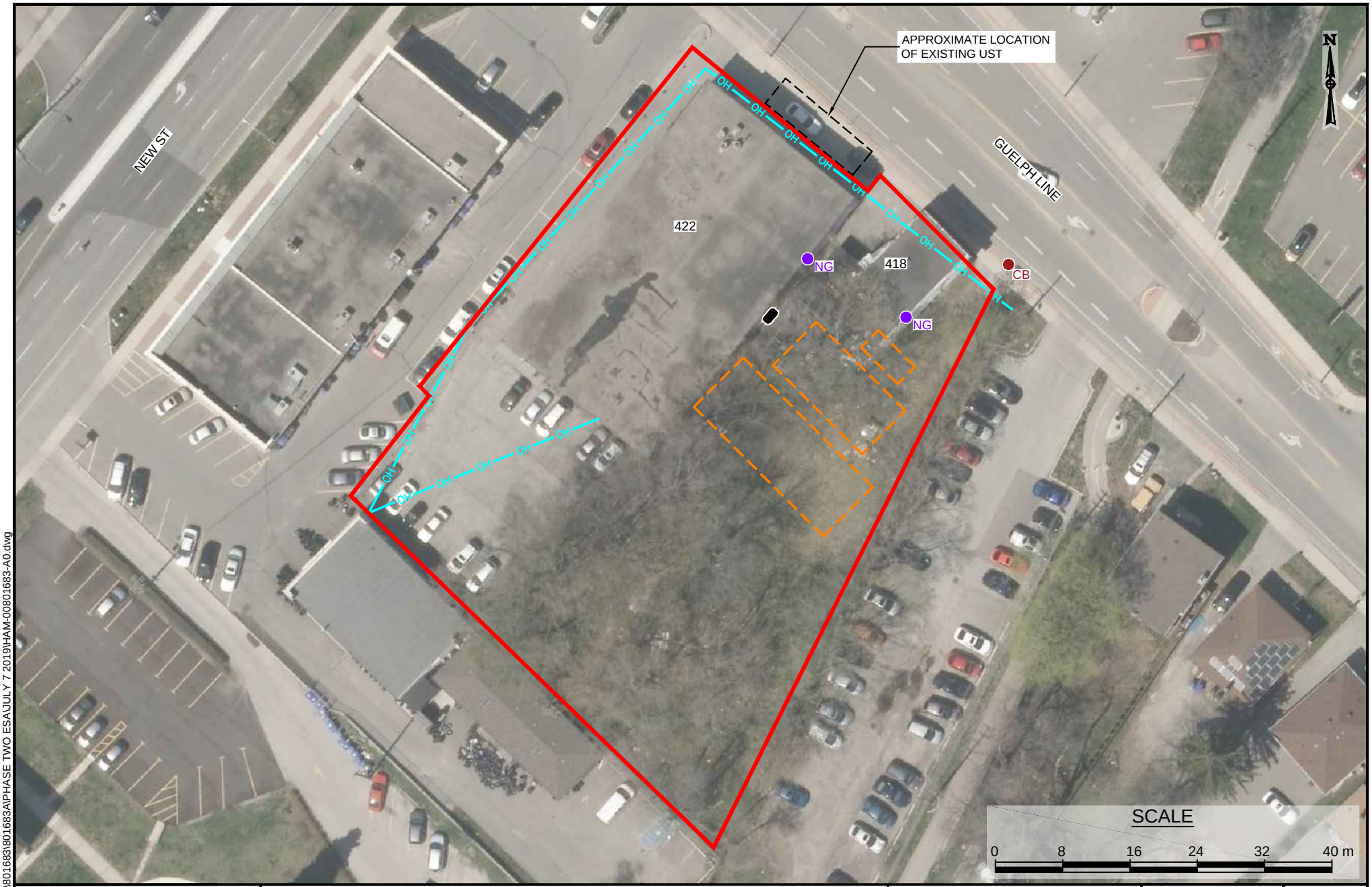
TITLE AND LOCATION:

SURROUNDING LAND USE PLAN, PHASE I STUDY AREA AND PCAs

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 2

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LEGEND:

- APPROXIMATE SITE BOUNDARY
- OH — OVERHEAD LINES
- CB — CATCH BASIN
- NG — NATURAL GAS HOOK-UP
- APPROXIMATE FORMER LOCATION OF GREEN HOUSE
- AST

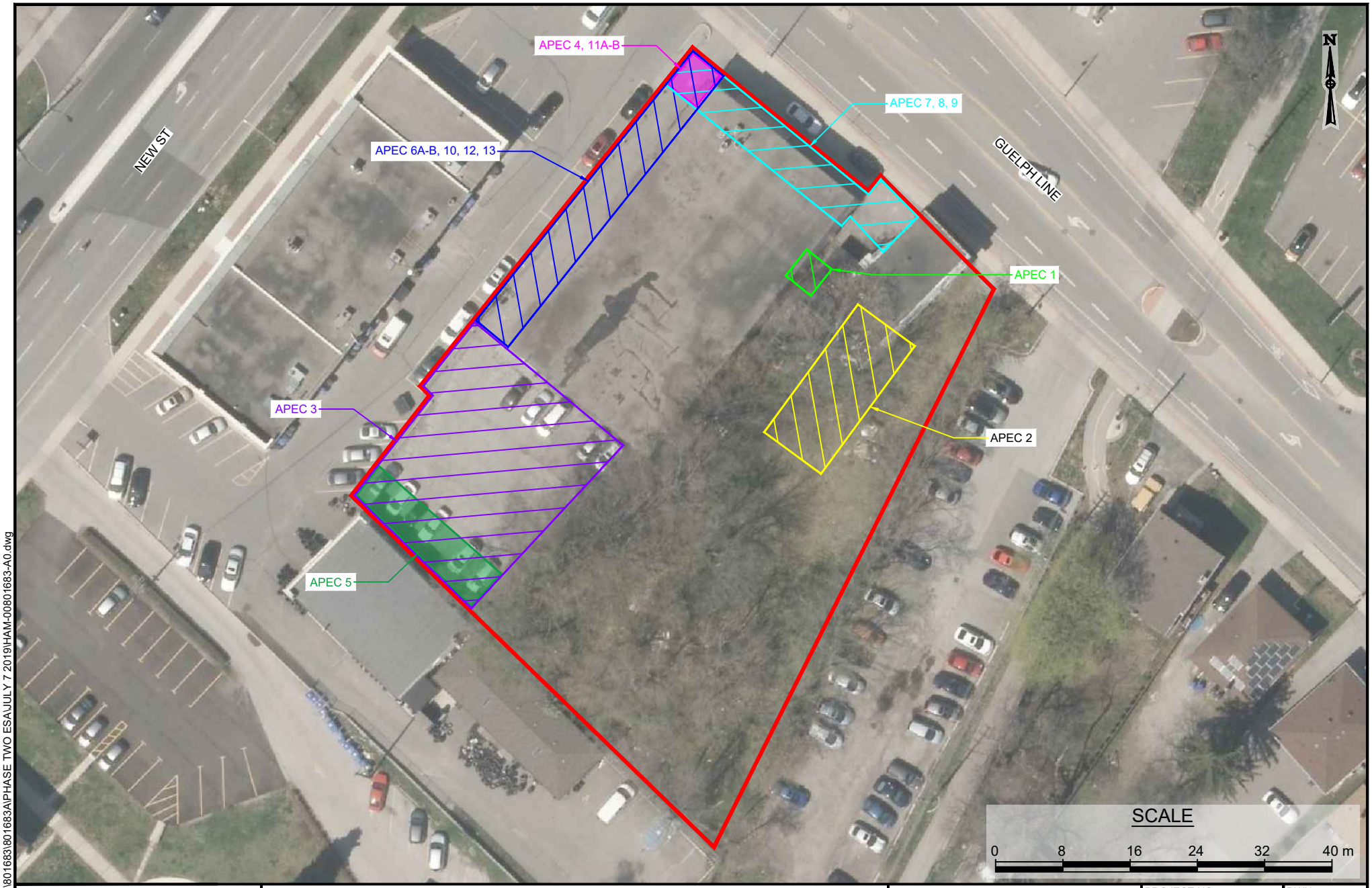
TITLE AND LOCATION:

SITE PLAN AND UTILITIES

PHASE TWO ESA
418 AND 422 GUELPH LINE,
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PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 3

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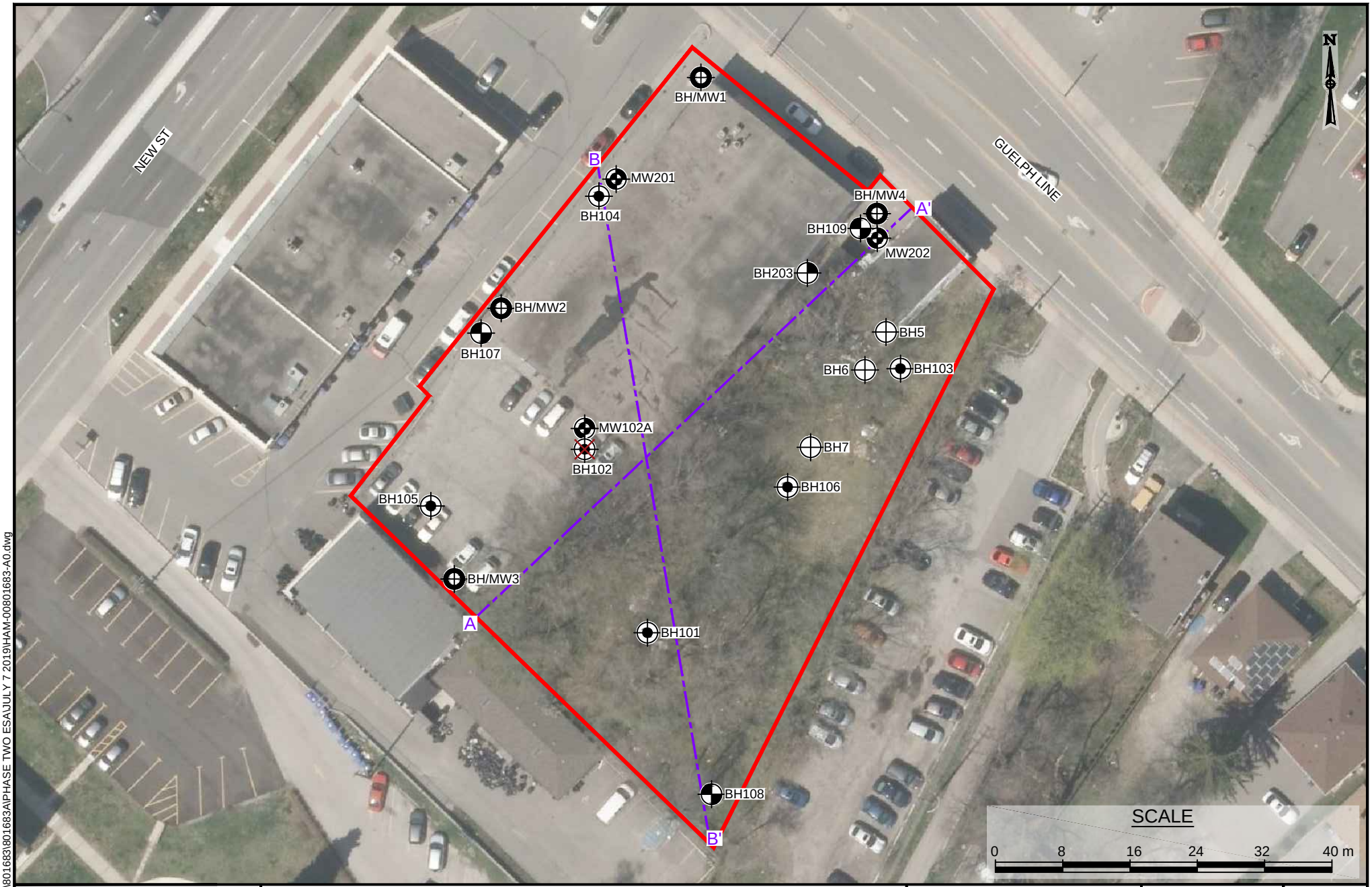
APPROXIMATE SITE BOUNDARY

TITLE AND LOCATION:

SITE PLAN AND APECs

PHASE TWO ESA
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PROJECT NO.:	DWN.:
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SCALE: AS NOTED	CK: SH
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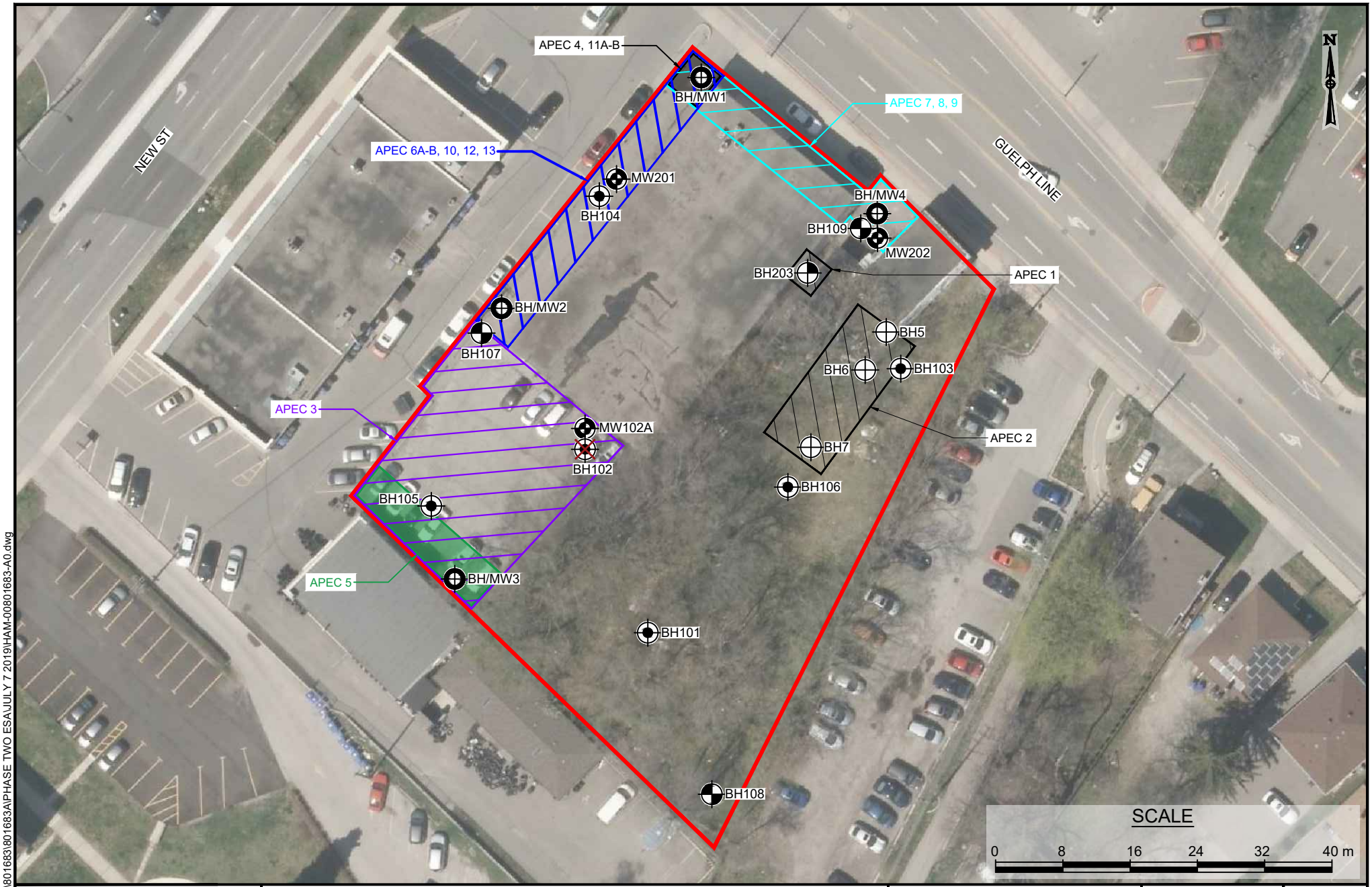
- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION (S2S, 2017)
- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- DECOMMISSIONED (JUNE 2019)
- A-A' CROSS SECTION A-A' (SEE FIGURE 21)
- B-B' CROSS SECTION B-B' (SEE FIGURE 22)

TITLE AND LOCATION:

BOREHOLE / MONITORING WELL LOCATION PLAN

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE:	CK:
AS NOTED	SH
DATE:	FIG. NO.:
JULY 2019	5A



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LEGEND:

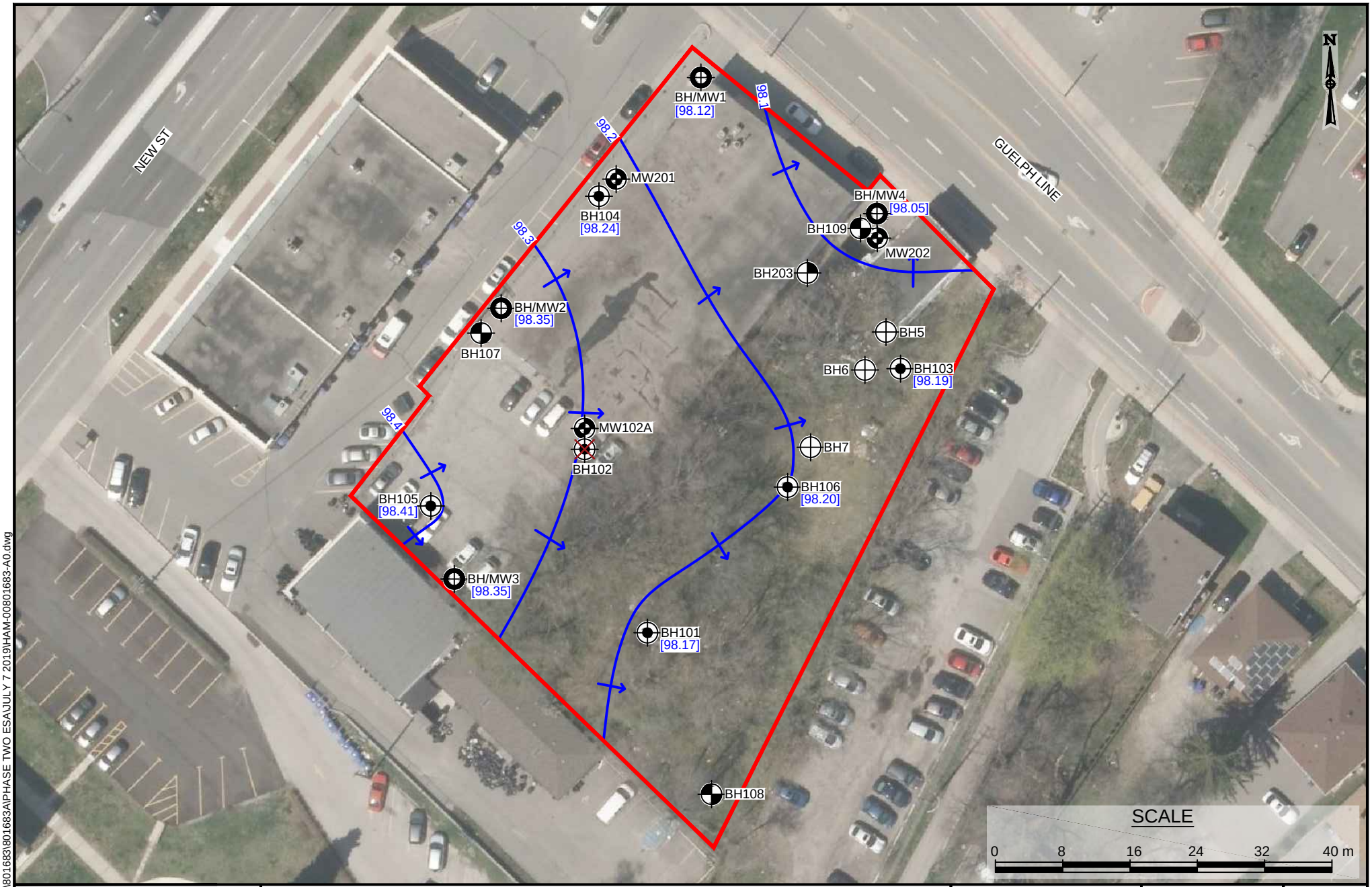
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- BOREHOLE LOCATION (S2S, 2017)
- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:

BOREHOLE / MONITORING WELL LOCATION PLAN WITH APECs

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.: HAM-00801683-A0	DWN.: LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 5B



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LEGEND:

- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION (S2S, 2017)
- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- GROUNDWATER CONTOURS
- [XX.XX] GROUNDWATER ELEVATION (MAY 21 2019)
- GROUNDWATER FLOW DIRECTION
- DECOMMISSIONED (JUNE 2019)

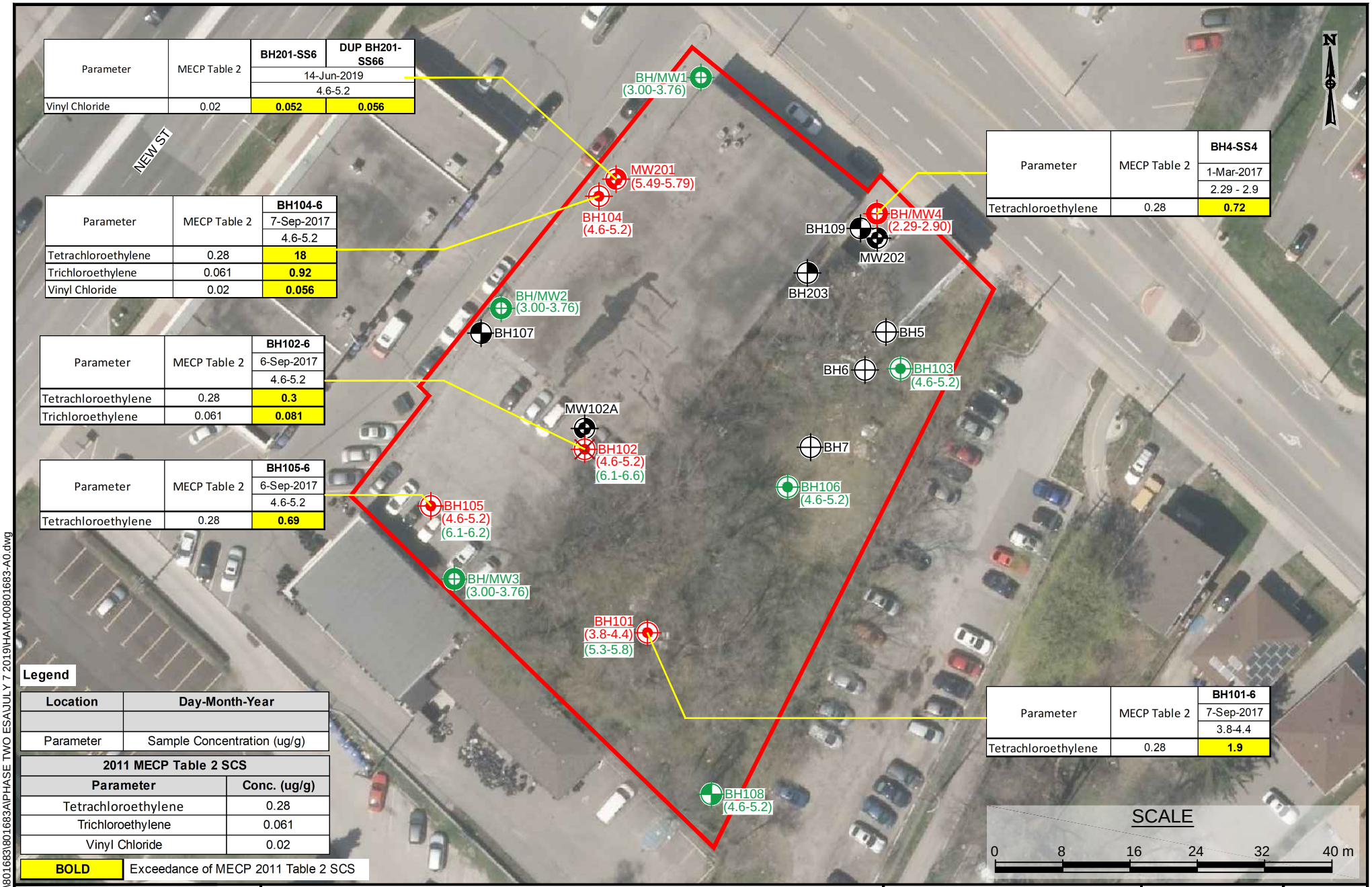
TITLE AND LOCATION:

GROUNDWATER CONTOURS

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 6

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Parameter	MECP Table 2	BH201-SS6	DUP BH201-SS66
		14-Jun-2019	
		4.6-5.2	
Vinyl Chloride	0.02	**0.052**	**0.056**

Parameter	MECP Table 2	BH104-6
		7-Sep-2017
		4.6-5.2
Tetrachloroethylene	0.28	**18**
Trichloroethylene	0.061	**0.92**
Vinyl Chloride	0.02	**0.056**

Parameter	MECP Table 2	BH102-6
		6-Sep-2017
		4.6-5.2
Tetrachloroethylene	0.28	**0.3**
Trichloroethylene	0.061	**0.081**

Parameter	MECP Table 2	BH105-6
		6-Sep-2017
		4.6-5.2
Tetrachloroethylene	0.28	**0.69**

Parameter	MECP Table 2	BH4-SS4
		1-Mar-2017
		2.29 - 2.9
Tetrachloroethylene	0.28	**0.72**

Parameter	MECP Table 2	BH101-6
		7-Sep-2017
		3.8-4.4
Tetrachloroethylene	0.28	**1.9**

Legend

Location	Day-Month-Year
Parameter	Sample Concentration (ug/g)

2011 MECP Table 2 SCS	
Parameter	**Conc. (ug/g)**
Tetrachloroethylene	0.28
Trichloroethylene	0.061
Vinyl Chloride	0.02

BOLD Exceedance of MECP 2011 Table 2 SCS

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LEGEND:

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- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- SAMPLE EXCEEDS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:

SOIL SAMPLING LOCATIONS VOCs

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE:	CK:
AS NOTED	SH
DATE:	FIG. NO.:
JULY 2019	7

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LEGEND:

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- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:

SOIL SAMPLING LOCATIONS PHCs

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE:	CK:
AS NOTED	SH
DATE:	FIG. NO.:
JULY 2019	8

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LEGEND:

- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION (S2S, 2017)
- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:

SOIL SAMPLING LOCATIONS BTEX

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.: HAM-00801683-A0	DWN.: LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 9



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LEGEND:

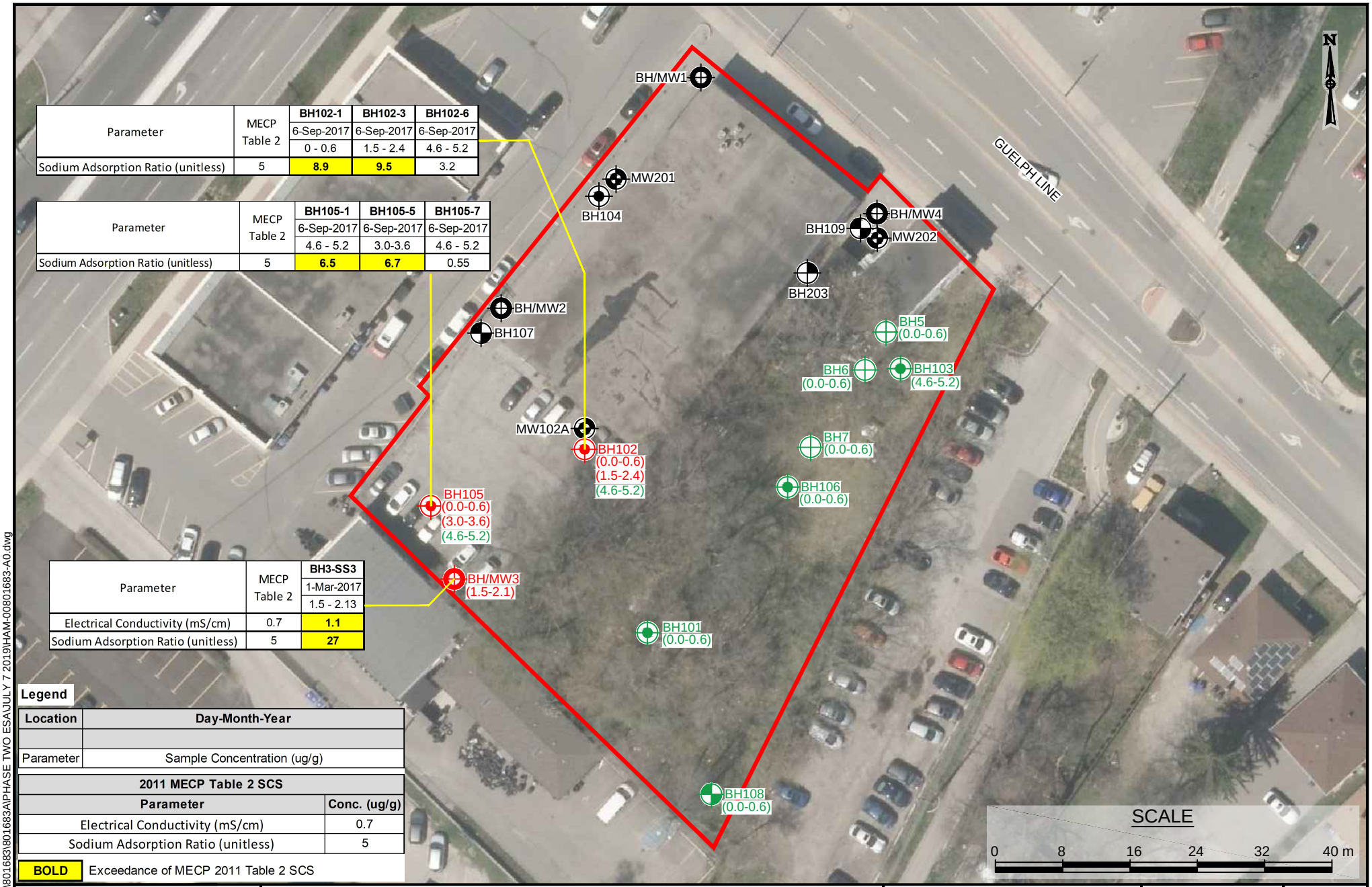
- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION (S2S, 2017)
- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:

SOIL SAMPLING LOCATIONS METALS

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.: HAM-00801683-A0	DWN.: LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 10



Parameter	MECP Table 2	BH102-1	BH102-3	BH102-6
		6-Sep-2017	6-Sep-2017	6-Sep-2017
		0 - 0.6	1.5 - 2.4	4.6 - 5.2
Sodium Adsorption Ratio (unitless)	5	**8.9**	**9.5**	3.2

Parameter	MECP Table 2	BH105-1	BH105-5	BH105-7
		6-Sep-2017	6-Sep-2017	6-Sep-2017
		4.6 - 5.2	3.0-3.6	4.6 - 5.2
Sodium Adsorption Ratio (unitless)	5	**6.5**	**6.7**	0.55

Parameter	MECP Table 2	BH3-SS3
		1-Mar-2017
		1.5 - 2.13
Electrical Conductivity (mS/cm)	0.7	**1.1**
Sodium Adsorption Ratio (unitless)	5	**27**

Legend

Location	Day-Month-Year
Parameter	Sample Concentration (ug/g)

2011 MECP Table 2 SCS	
Parameter	**Conc. (ug/g)**
Electrical Conductivity (mS/cm)	0.7
Sodium Adsorption Ratio (unitless)	5

BOLD Exceedance of MECP 2011 Table 2 SCS

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LEGEND:

- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION (S2S, 2017)
- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- SAMPLE EXCEEDS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:

SOIL SAMPLING LOCATIONS EC/SAR

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE:	CK:
AS NOTED	SH
DATE:	FIG. NO.:
JULY 2019	11

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LEGEND:

- APPROXIMATE SITE BOUNDARY
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- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:

SOIL SAMPLING LOCATIONS PCBs

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE:	CK:
AS NOTED	SH
DATE:	FIG. NO.:
JULY 2019	12

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LEGEND:

- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION (S2S, 2017)
- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:

SOIL SAMPLING LOCATIONS PAHs

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 13

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LEGEND:

- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION (S2S, 2017)
- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

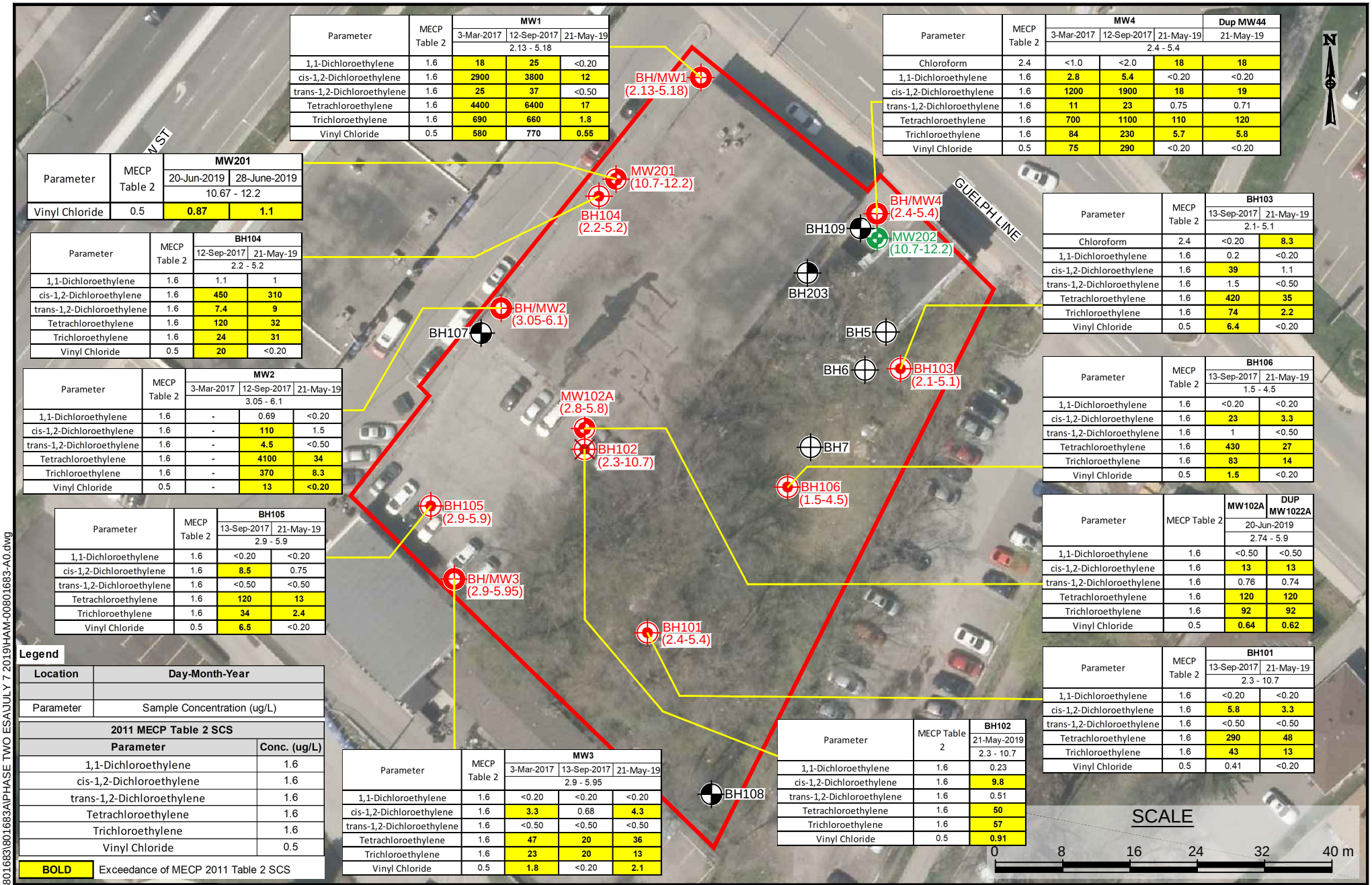
TITLE AND LOCATION:

SOIL SAMPLING LOCATIONS OC PESTICIDES

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 14

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Parameter	MECP Table 2	MW1		
		3-Mar-2017	12-Sep-2017	21-May-19
		2.13 - 5.18		
1,1-Dichloroethylene	1.6	18	25	<0.20
cis-1,2-Dichloroethylene	1.6	2900	3800	12
trans-1,2-Dichloroethylene	1.6	25	37	<0.50
Tetrachloroethylene	1.6	4400	6400	17
Trichloroethylene	1.6	690	660	1.8
Vinyl Chloride	0.5	580	770	0.55

Parameter	MECP Table 2	MW4			Dup MW44
		3-Mar-2017	12-Sep-2017	21-May-19	21-May-19
		2.4 - 5.4			
Chloroform	2.4	<1.0	<2.0	18	18
1,1-Dichloroethylene	1.6	2.8	5.4	<0.20	<0.20
cis-1,2-Dichloroethylene	1.6	1200	1900	18	19
trans-1,2-Dichloroethylene	1.6	11	23	0.75	0.71
Tetrachloroethylene	1.6	700	1100	110	120
Trichloroethylene	1.6	84	230	5.7	5.8
Vinyl Chloride	0.5	75	290	<0.20	<0.20

Parameter	MECP Table 2	MW201	
		20-Jun-2019	28-June-2019
		10.67 - 12.2	
Vinyl Chloride	0.5	0.87	1.1

Parameter	MECP Table 2	BH104	
		12-Sep-2017	21-May-19
		2.2 - 5.2	
1,1-Dichloroethylene	1.6	1.1	1
cis-1,2-Dichloroethylene	1.6	450	310
trans-1,2-Dichloroethylene	1.6	7.4	9
Tetrachloroethylene	1.6	120	32
Trichloroethylene	1.6	24	31
Vinyl Chloride	0.5	20	<0.20

Parameter	MECP Table 2	BH103	
		13-Sep-2017	21-May-19
		2.1- 5.1	
Chloroform	2.4	<0.20	8.3
1,1-Dichloroethylene	1.6	0.2	<0.20
cis-1,2-Dichloroethylene	1.6	39	1.1
trans-1,2-Dichloroethylene	1.6	1.5	<0.50
Tetrachloroethylene	1.6	420	35
Trichloroethylene	1.6	74	2.2
Vinyl Chloride	0.5	6.4	<0.20

Parameter	MECP Table 2	MW2		
		3-Mar-2017	12-Sep-2017	21-May-19
		3.05 - 6.1		
1,1-Dichloroethylene	1.6	-	0.69	<0.20
cis-1,2-Dichloroethylene	1.6	-	110	1.5
trans-1,2-Dichloroethylene	1.6	-	4.5	<0.50
Tetrachloroethylene	1.6	-	4100	34
Trichloroethylene	1.6	-	370	8.3
Vinyl Chloride	0.5	-	13	<0.20

Parameter	MECP Table 2	BH106	
		13-Sep-2017	21-May-19
		1.5 - 4.5	
1,1-Dichloroethylene	1.6	<0.20	<0.20
cis-1,2-Dichloroethylene	1.6	23	3.3
trans-1,2-Dichloroethylene	1.6	1	<0.50
Tetrachloroethylene	1.6	430	27
Trichloroethylene	1.6	83	14
Vinyl Chloride	0.5	1.5	<0.20

Parameter	MECP Table 2	BH105	
		13-Sep-2017	21-May-19
		2.9 - 5.9	
1,1-Dichloroethylene	1.6	<0.20	<0.20
cis-1,2-Dichloroethylene	1.6	8.5	0.75
trans-1,2-Dichloroethylene	1.6	<0.50	<0.50
Tetrachloroethylene	1.6	120	13
Trichloroethylene	1.6	34	2.4
Vinyl Chloride	0.5	6.5	<0.20

Parameter	MECP Table 2	MW102A	DUP MW1022A
		20-Jun-2019	
		2.74 - 5.9	
1,1-Dichloroethylene	1.6	<0.50	<0.50
cis-1,2-Dichloroethylene	1.6	13	13
trans-1,2-Dichloroethylene	1.6	0.76	0.74
Tetrachloroethylene	1.6	120	120
Trichloroethylene	1.6	92	92
Vinyl Chloride	0.5	0.64	0.62

Parameter	MECP Table 2	BH101	
		13-Sep-2017	21-May-19
		2.3 - 10.7	
1,1-Dichloroethylene	1.6	<0.20	<0.20
cis-1,2-Dichloroethylene	1.6	5.8	3.3
trans-1,2-Dichloroethylene	1.6	<0.50	<0.50
Tetrachloroethylene	1.6	290	48
Trichloroethylene	1.6	43	13
Vinyl Chloride	0.5	0.41	<0.20

Parameter	MECP Table 2	MW3		
		3-Mar-2017	13-Sep-2017	21-May-19
		2.9 - 5.95		
1,1-Dichloroethylene	1.6	<0.20	<0.20	<0.20
cis-1,2-Dichloroethylene	1.6	3.3	0.68	4.3
trans-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50
Tetrachloroethylene	1.6	47	20	36
Trichloroethylene	1.6	23	20	13
Vinyl Chloride	0.5	1.8	<0.20	2.1

Parameter	MECP Table 2	BH102
		21-May-2019
		2.3 - 10.7
1,1-Dichloroethylene	1.6	0.23
cis-1,2-Dichloroethylene	1.6	9.8
trans-1,2-Dichloroethylene	1.6	0.51
Tetrachloroethylene	1.6	50
Trichloroethylene	1.6	57
Vinyl Chloride	0.5	0.91

Legend

Location	Day-Month-Year
Parameter	Sample Concentration (ug/L)

2011 MECP Table 2 SCS	
Parameter	Conc. (ug/L)
1,1-Dichloroethylene	1.6
cis-1,2-Dichloroethylene	1.6
trans-1,2-Dichloroethylene	1.6
Tetrachloroethylene	1.6
Trichloroethylene	1.6
Vinyl Chloride	0.5

BOLD Exceedance of MECP 2011 Table 2 SCS

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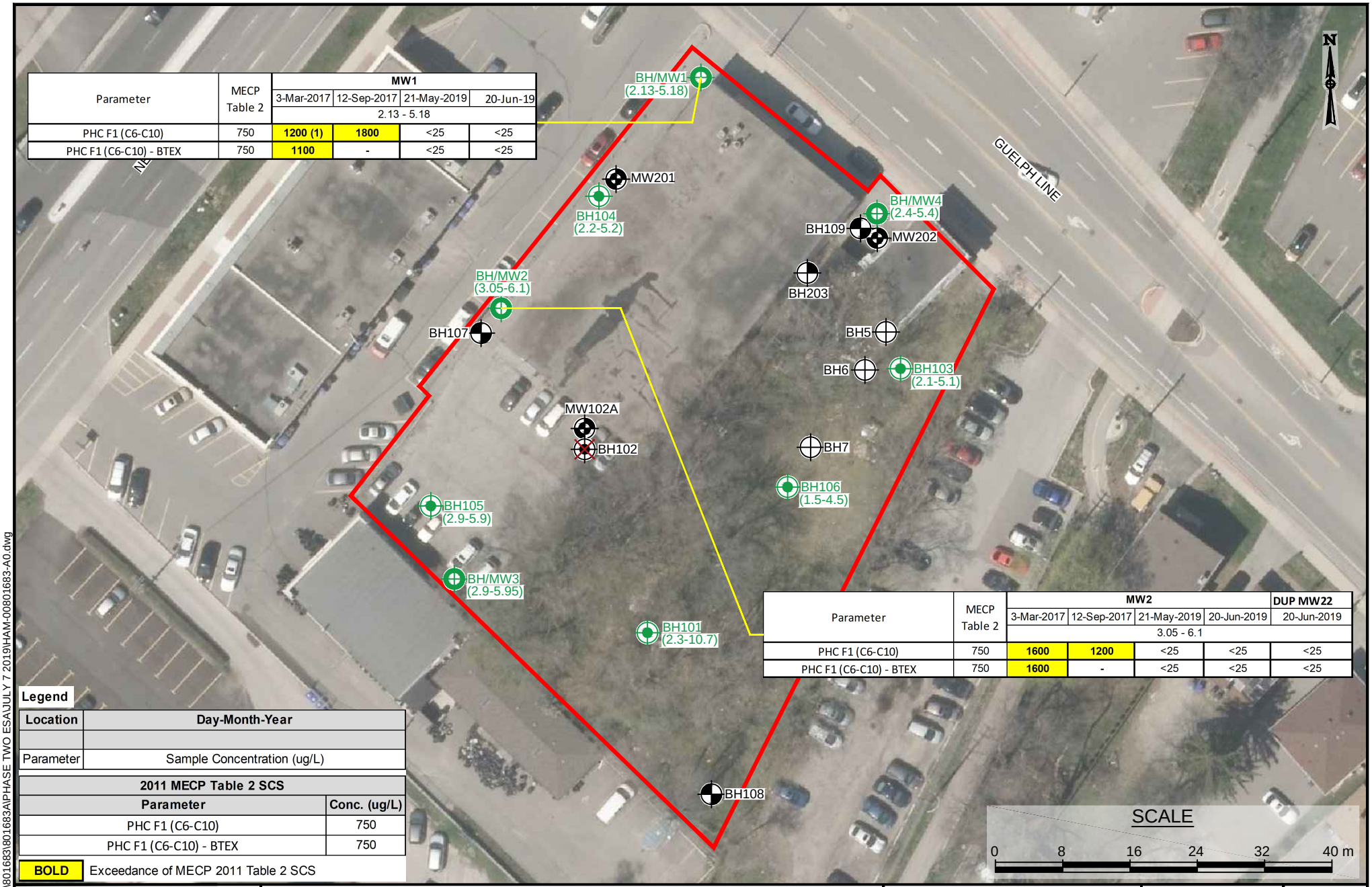
- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION (S2S, 2017)
- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- SAMPLE EXCEEDS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:

GROUNDWATER SAMPLING LOCATIONS VOCs

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 15



Parameter	MECP Table 2	MW1			
		3-Mar-2017	12-Sep-2017	21-May-2019	20-Jun-19
		2.13 - 5.18			
PHC F1 (C6-C10)	750	**1200 (1)**	**1800**	<25	<25
PHC F1 (C6-C10) - BTEX	750	**1100**	-	<25	<25

Parameter	MECP Table 2	MW2				DUP MW22
		3-Mar-2017	12-Sep-2017	21-May-2019	20-Jun-2019	20-Jun-2019
		3.05 - 6.1				
PHC F1 (C6-C10)	750	**1600**	**1200**	<25	<25	<25
PHC F1 (C6-C10) - BTEX	750	**1600**	-	<25	<25	<25

Legend

Location	Day-Month-Year
Parameter	Sample Concentration (ug/L)

2011 MECP Table 2 SCS	
Parameter	**Conc. (ug/L)**
PHC F1 (C6-C10)	750
PHC F1 (C6-C10) - BTEX	750

BOLD Exceedance of MECP 2011 Table 2 SCS

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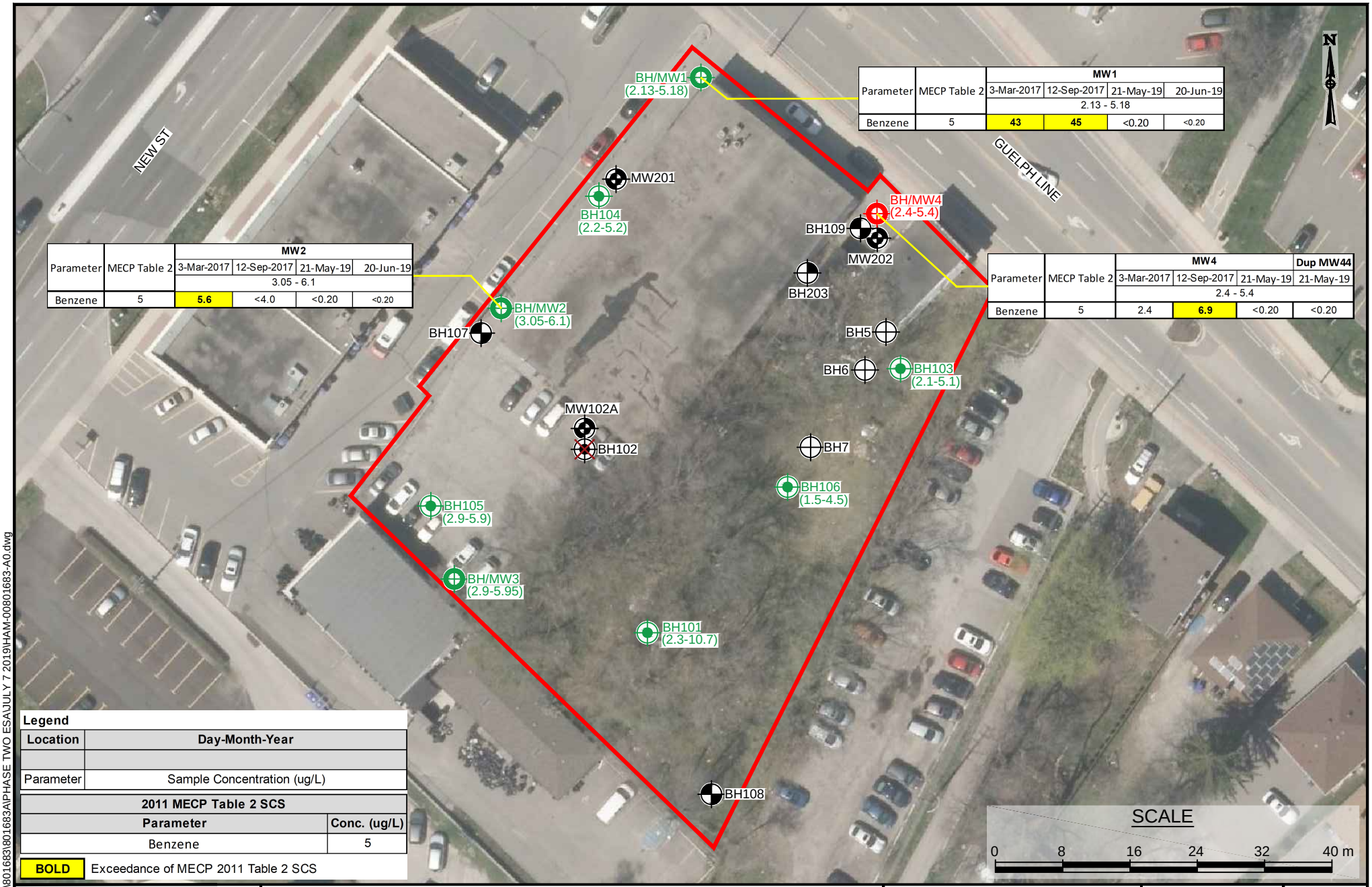
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LEGEND:
- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION (S2S, 2017)
- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- SAMPLE EXCEEDS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:
GROUNDWATER SAMPLING LOCATIONS PHCs
PHASE TWO ESA
418 AND 422 GUELPH LINE, BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 16

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Parameter	MECP Table 2	MW1			
		3-Mar-2017	12-Sep-2017	21-May-19	20-Jun-19
		2.13 - 5.18			
Benzene	5	**43**	**45**	<0.20	<0.20

Parameter	MECP Table 2	MW2			
		3-Mar-2017	12-Sep-2017	21-May-19	20-Jun-19
		3.05 - 6.1			
Benzene	5	**5.6**	<4.0	<0.20	<0.20

Parameter	MECP Table 2	MW4			Dup MW44
		3-Mar-2017	12-Sep-2017	21-May-19	21-May-19
		2.4 - 5.4			
Benzene	5	2.4	**6.9**	<0.20	<0.20

Legend

Location	Day-Month-Year
Parameter	Sample Concentration (ug/L)

2011 MECP Table 2 SCS	
Parameter	**Conc. (ug/L)**
Benzene	5

BOLD Exceedance of MECP 2011 Table 2 SCS

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LEGEND:

- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION (S2S, 2017)
- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
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- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- SAMPLE EXCEEDS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:

GROUNDWATER SAMPLING LOCATIONS BTEX

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 17

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LEGEND:

- APPROXIMATE SITE BOUNDARY
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- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:

GROUNDWATER SAMPLING LOCATIONS METALS

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE:	CK:
AS NOTED	SH
DATE:	FIG. NO.:
JULY 2019	18

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Parameter	MECP Table 2	MW3
		13-Sep-2017
		2.9 - 5.9
Sodium	490000	**1200000**
Chloride	790000	**2000000**

Legend

Location	Day-Month-Year
Parameter	Sample Concentration (ug/L)

2011 MECP Table 2 SCS	
Parameter	**Conc. (ug/L)**
Sodium	490000
Chloride	790000

BOLD Exceedance of MECP 2011 Table 2 SCS

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LEGEND:

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- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- SAMPLE EXCEEDS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

TITLE AND LOCATION:

GROUNDWATER SAMPLING LOCATIONS SODIUM AND CHLORIDE

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE:	CK:
AS NOTED	SH
DATE:	FIG. NO.:
JULY 2019	19

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LEGEND:

- APPROXIMATE SITE BOUNDARY
- BOREHOLE LOCATION (S2S, 2017)
- BOREHOLE / MONITORING WELL LOCATION (S2S, 2017)
- BOREHOLE LOCATION (BIG, 2017)
- BOREHOLE / MONITORING WELL LOCATION (BIG, 2017)
- BOREHOLE LOCATION (EXP, 2019)
- BOREHOLE / MONITORING WELL LOCATION (EXP, 2019)
- SAMPLE MEETS TABLE 2 SCS
- DECOMMISSIONED (JUNE 2019)

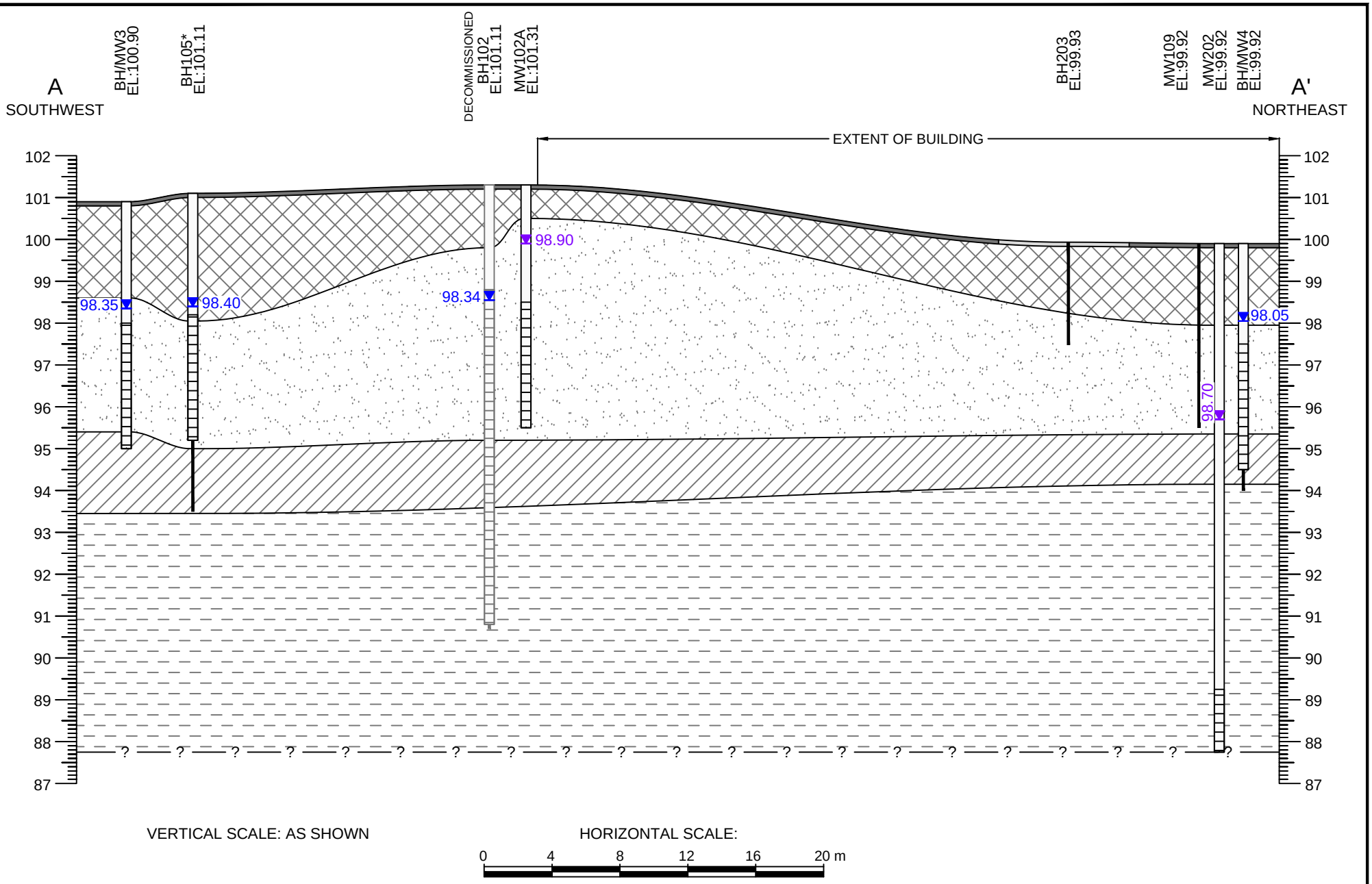
TITLE AND LOCATION:

GROUNDWATER SAMPLING LOCATIONS PAHs

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 20

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LEGEND:

- ASPHALT
- TOPSOIL
- FILL
- SAND
- SILTY SILT TILL
- BEDROCK
- GROUNDWATER ELEVATION AS MEASURED ON MAY 21, 2019
- GROUNDWATER ELEVATION AS MEASURED ON JUNE 20, 2019
- * FOR CHEMICAL CHARACTERIZATION ONLY

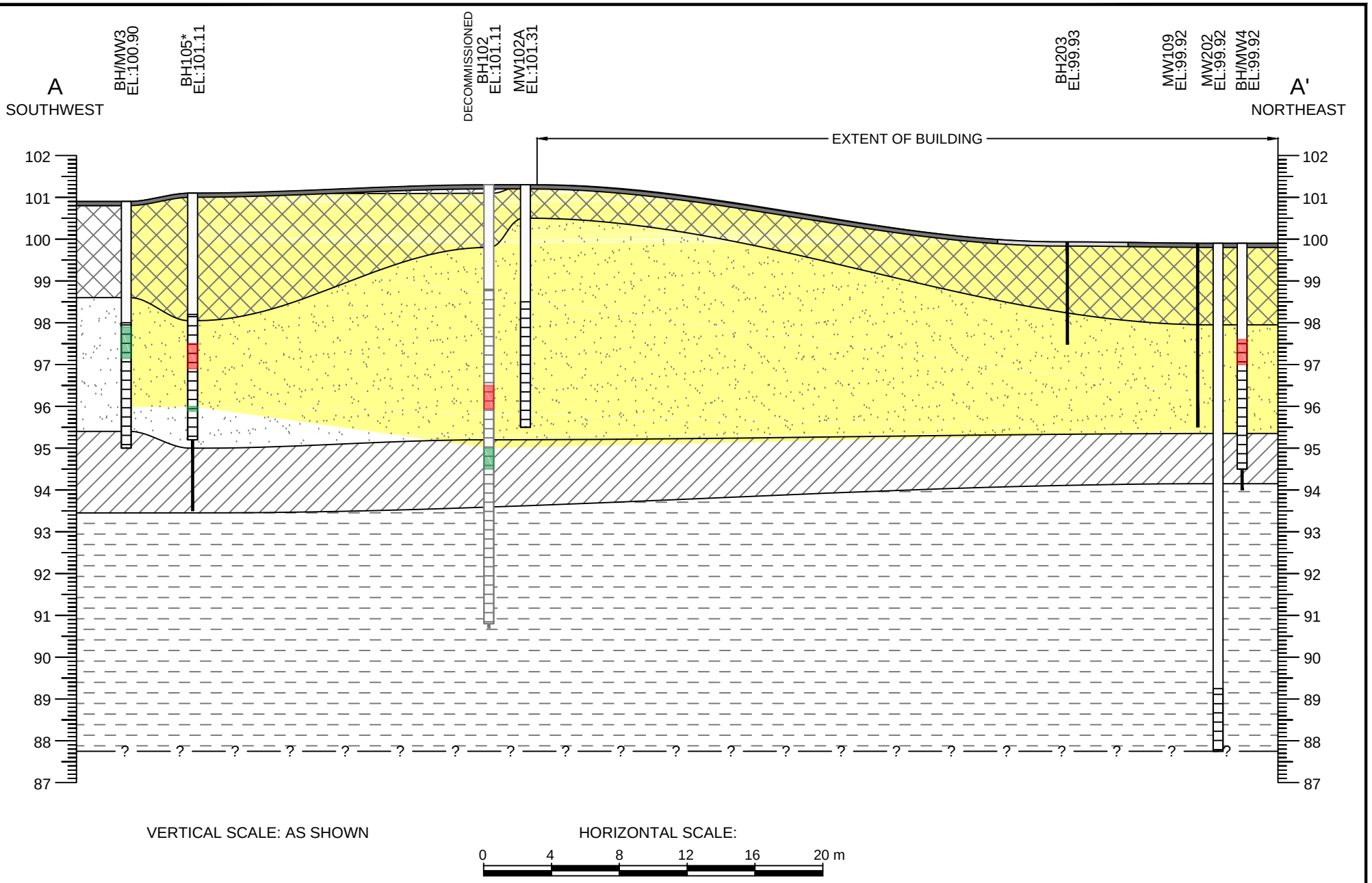
TITLE AND LOCATION:

CROSS SECTION A-A'

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.: HAM-00801683-A0	DWN.: LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 21

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LEGEND:

- ASPHALT
- TOPSOIL
- FILL
- SAND
- SILTY SILT TILL
- BEDROCK
- SAMPLE MEETS TABLE 2 SCS
- SAMPLE EXCEEDS TABLE 2 SCS
- EXTENT OF IMPACT
- * FOR CHEMICAL CHARACTERIZATION ONLY

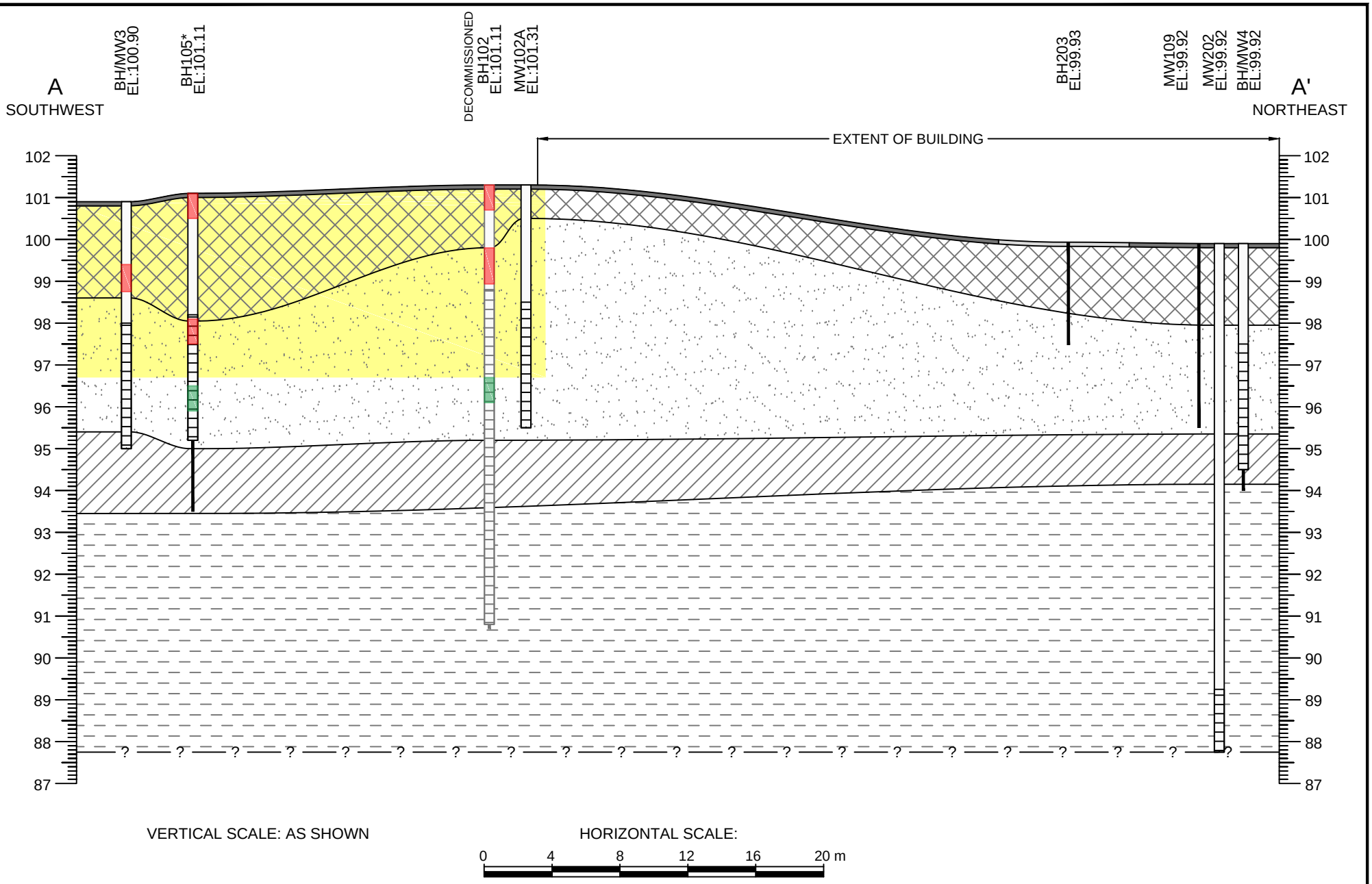
TITLE AND LOCATION:

SOIL ANALYTICAL RESULTS VOCs

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.: HAM-00801683-A0	DWN.: LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 21A

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LEGEND:

- ASPHALT
- TOPSOIL
- FILL
- SAND
- SILTY SILT TILL
- BEDROCK
- SAMPLE MEETS TABLE 2 SCS
- SAMPLE EXCEEDS TABLE 2 SCS
- EXTENT OF IMPACT
- * FOR CHEMICAL CHARACTERIZATION ONLY

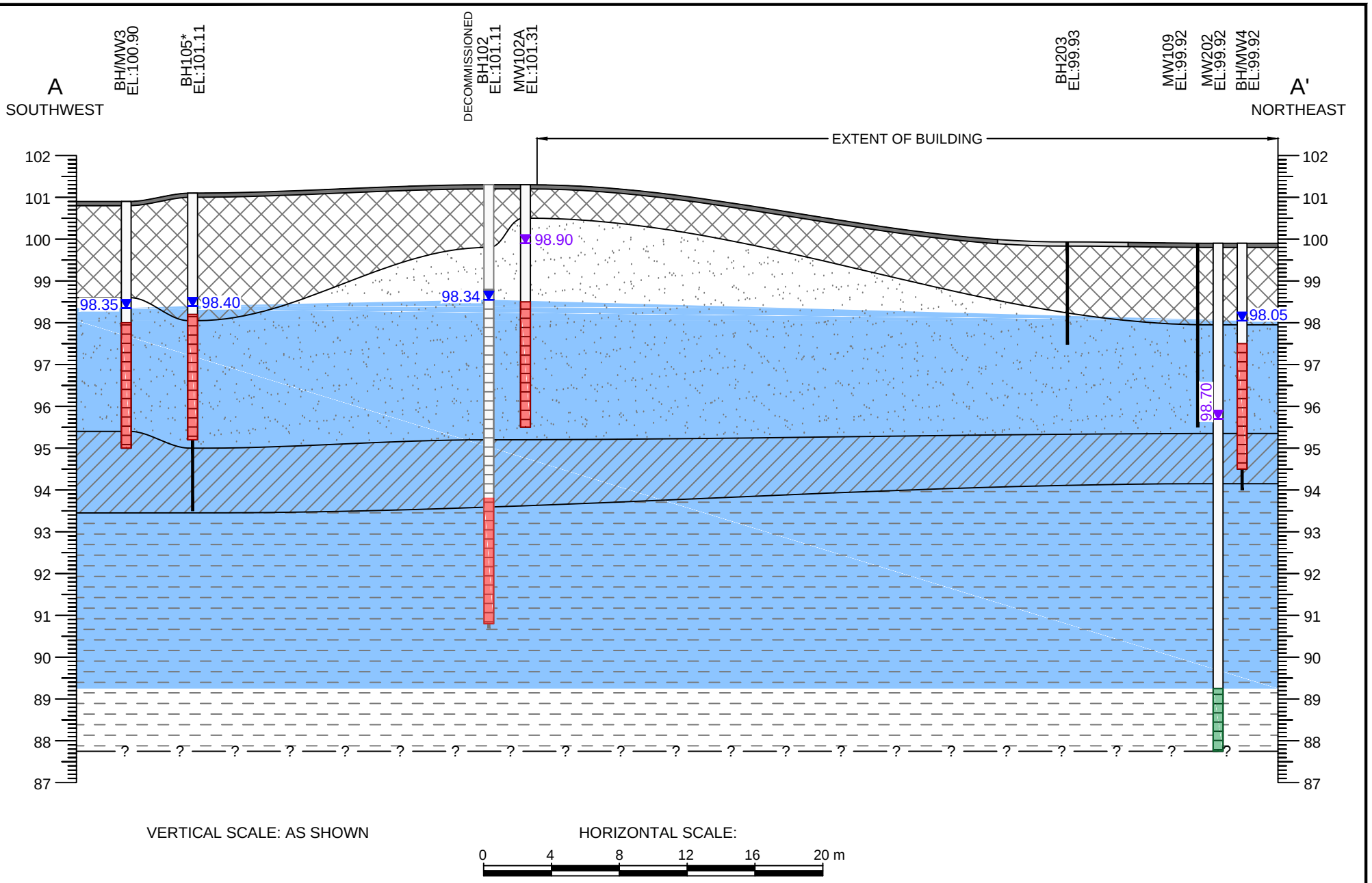
TITLE AND LOCATION:

SOIL ANALYTICAL RESULTS EC/SAR

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.: HAM-00801683-A0	DWN.: LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 21B

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LEGEND:

- ASPHALT
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- SAMPLE MEETS TABLE 2 SCS
- SAMPLE EXCEEDS TABLE 2 SCS
- EXTENT OF IMPACT
- * FOR CHEMICAL CHARACTERIZATION ONLY
- GROUNDWATER ELEVATION (MAY 21, 2019)
- GROUNDWATER ELEVATION (JUNE 20, 2019)

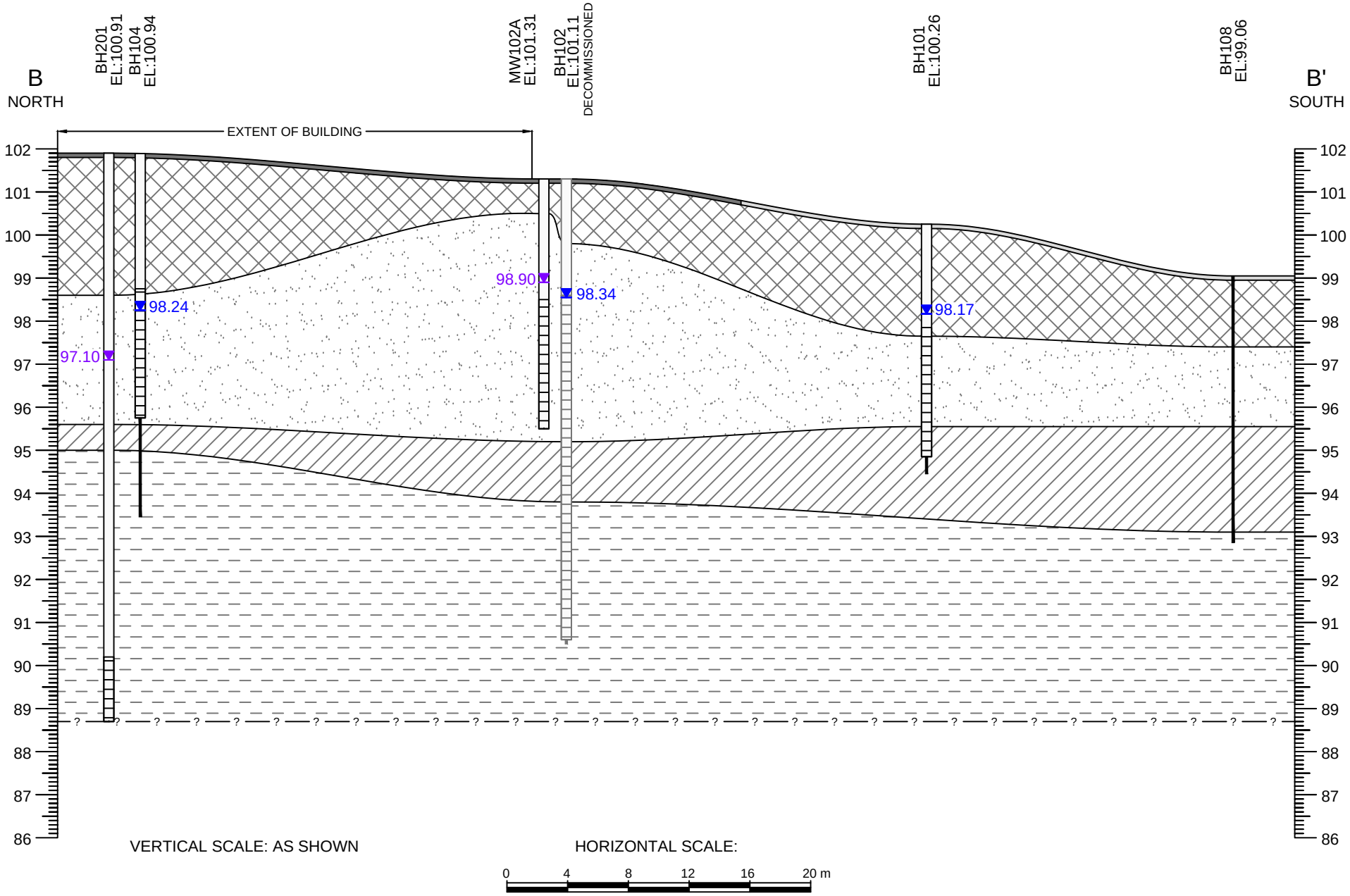
TITLE AND LOCATION:

GROUNDWATER ANALYTICAL RESULTS VOCs

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.: HAM-00801683-A0	DWN.: LE
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- GROUNDWATER ELEVATION AS MEASURED ON MAY 21, 2019
- GROUNDWATER ELEVATION AS MEASURED ON JUNE 20, 2019
- * FOR CHEMICAL CHARACTERIZATION ONLY

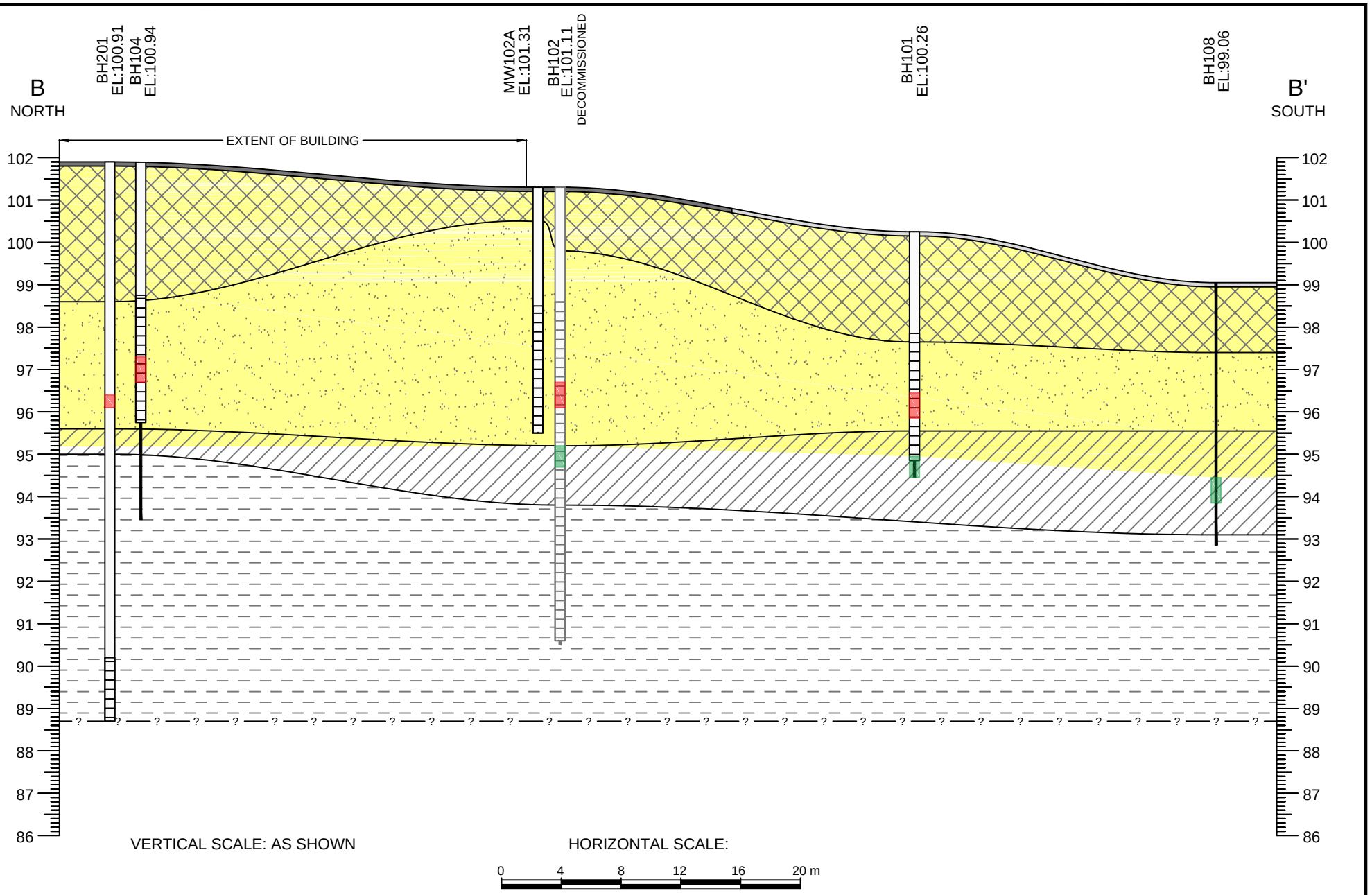
TITLE AND LOCATION:

CROSS SECTION B-B'

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.:	DWN.:
HAM-00801683-A0	LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 22

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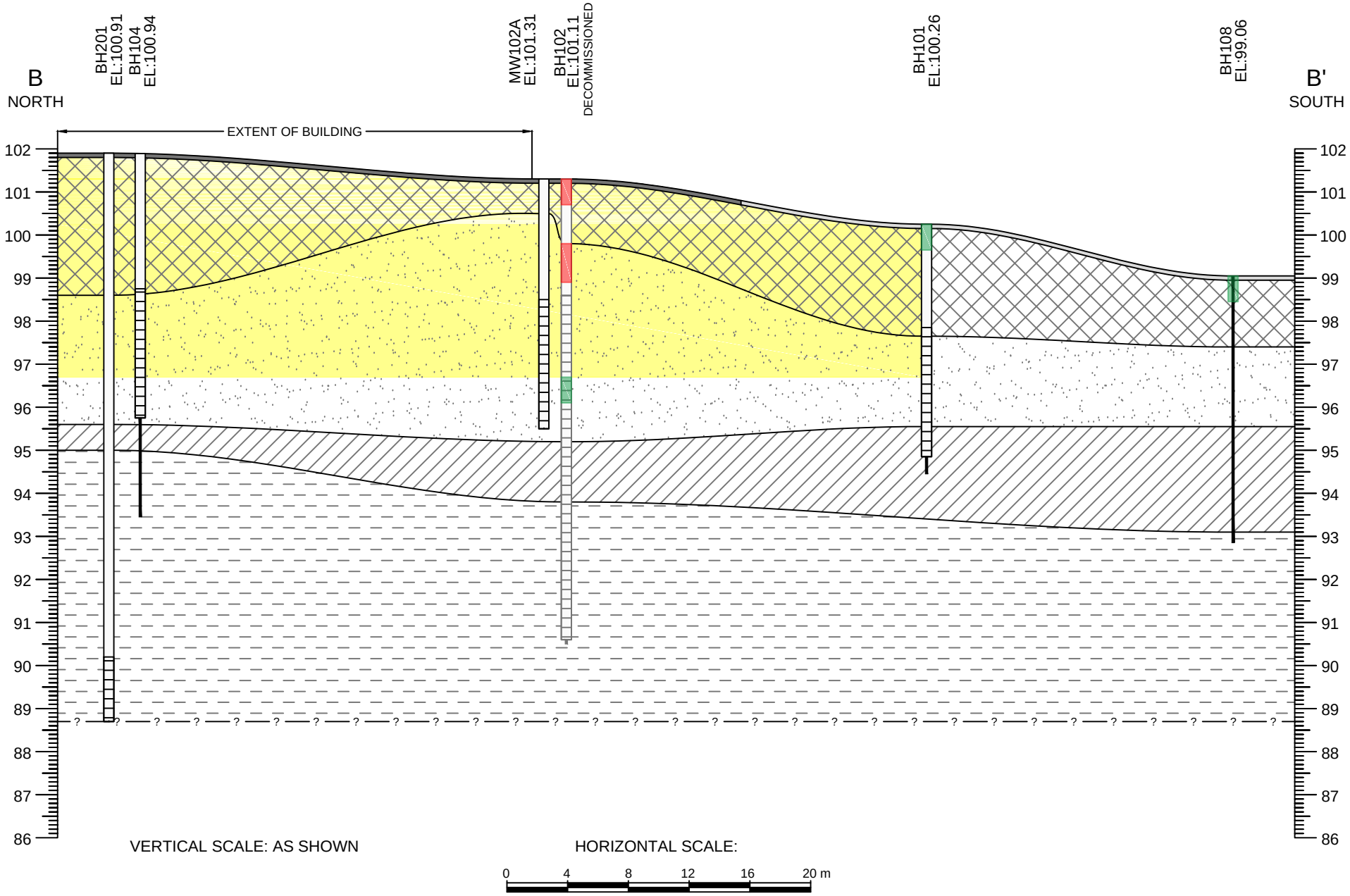
TITLE AND LOCATION:

SOIL ANALYTICAL RESULTS VOCs

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.: HAM-00801683-A0	DWN.: LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 22A

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- EXTENT OF IMPACT
- * FOR CHEMICAL CHARACTERIZATION ONLY

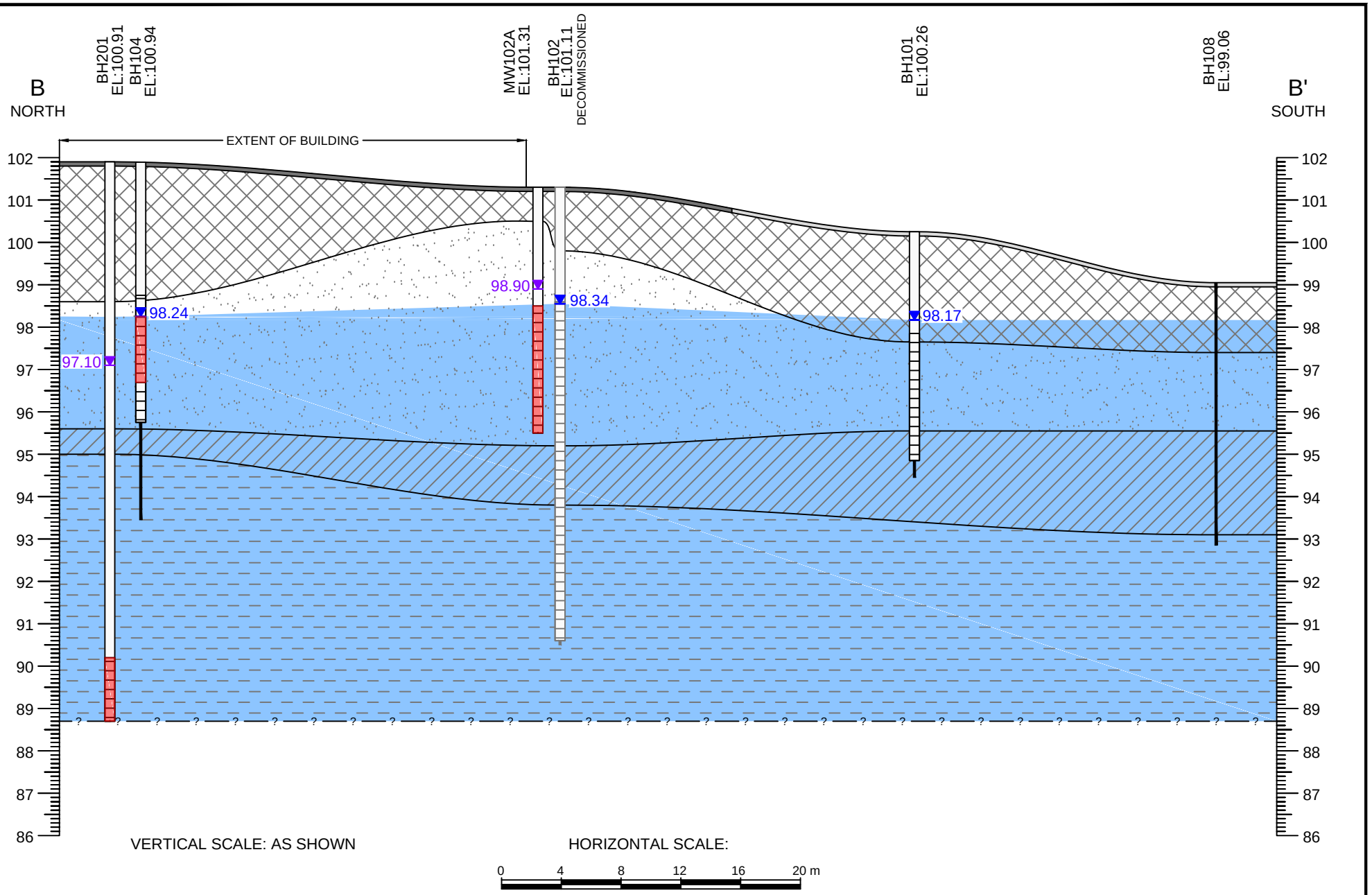
TITLE AND LOCATION:

SOIL ANALYTICAL RESULTS EC/SAR

PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

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- GROUNDWATER ELEVATION (JUNE 20, 2019)

TITLE AND LOCATION:

GROUNDWATER ANALYTICAL RESULTS
VOCs
PHASE TWO ESA
418 AND 422 GUELPH LINE,
BURLINGTON, ONTARIO

PROJECT NO.: HAM-00801683-A0	DWN.: LE
SCALE: AS NOTED	CK: SH
DATE: JULY 2019	FIG. NO.: 22C

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Tables

TABLE 1
AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APECs)
(Refer to clause 16(2)(a), Schedule D, O.Reg. 153/04)
418 & 422 Guelph Line, Burlington, Ontario
(On-Site and within 250 m)

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 1: Vent pipe for potential former AST	North of the Site building addressed as 418 Guelph Line	PCA#28- Gasoline and Associated Products Storage in Fixed Tanks	On-Site	Petroleum Hydrocarbons (PHCs) and Benzene, Toluene, ethylbenzene and Xylenes (BTEX), and Metals	Soil and Groundwater
APEC 2: Presence of greenhouses on Site	East portion of Site	PCA#40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-Site	OCs	Soil
APEC 3: De-icing salt application to parking areas	On-Site parking areas on northwest portion of the Site	PCA "Other" – Use of salt for de-icing purposes (asphalt paved areas).	On-Site	Electrical Conductivity (EC), Sodium Absorption Ratio (SAR)	Soil
APEC 4: Fill and vent pipes associated with off Site UST at 422 Guelph Line	Northeast portion of the Site at 422 Guelph Line	PCA#28- Gasoline and Associated Products Storage in Fixed Tanks	Off-Site	PHCs, BTEX, and Metals	Soil and Groundwater
APEC 5: Various automotive repair facilities on southwest adjacent property addressed as 2432 New Street	Southwest boundary of the Site	PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	PHCs, and Volatile Organic Compounds (VOCs)	Groundwater
APEC 6A: Motorcycle Repair Center north adjacent to Site at 2434 New Street	North portion of the Site	PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	PHCs, and VOCs	Groundwater
APEC 6B: Fill / vent pipe on building situated on north adjacent property (2434 New Street)	North portion of the Site	PCA#28: Gasoline and Associated Products Storage in Fixed Tanks.	Off-Site	PHCs, BTEX	Groundwater
APEC 7: Dry cleaning facility 25 m east of the Site at 415 Guelph Line	East boundary of the Site	PCA#37 - Operation of Dry-Cleaning Equipment (where chemicals are used)	Off-Site	Volatile Organic Compounds (VOCs)	Groundwater
APEC 8: Bulk paint storage 25 m east of the Site at 417 Guelph Line	East boundary of the Site	PCA#39 - Paints Manufacturing, Processing and Bulk Storage	Off-Site	Volatile Organic Compounds (VOCs)	Groundwater
APEC 9: Automotive Service Station 30 m north of the Site at 433 Guelph Line	Northeast boundary of the Site	PCA#28 – Gasoline and Associated products in fixed tanks.	Off-Site	PHCs, and Volatile Organic Compounds (VOCs)	Groundwater
APEC 10: Automotive service centre 60 m northwest of Site at 458 Guelph Line with associated USTs	Northwest boundary of the Site	PCA#28 – Gasoline and Associated products in fixed tanks.	Off-Site	PHCs, and Volatile Organic Compounds (VOCs)	Groundwater

TABLE 1
AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APECs)
(Refer to clause 16(2)(a), Schedule D, O.Reg. 153/04)
418 & 422 Guelph Line, Burlington, Ontario
(On-Site and within 250 m)

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 11A: Automotive service centre 75 m north / northeast of Site at 3001 New Street (formerly 457 Guelph Line) with associated USTs	North boundary of the Site	PCA#28 – Gasoline and Associated products in fixed tanks	Off-Site	PHCs, and Volatile Organic Compounds (VOCs)	Groundwater
APEC 11B: Automotive service centre 75 m north / northeast of Site at 3001 New Street (formerly 457 Guelph Line) with associated USTs	North boundary of the Site	PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	PHCs, and Volatile Organic Compounds (VOCs)	Groundwater
APEC 12: Dry cleaning facility 180 m northwest of the Site at 480 Guelph Line	Northwest boundary of the Site	PCA#37 - Operation of Dry-Cleaning Equipment (where chemicals are used)	Off-Site	Volatile Organic Compounds (VOCs)	Groundwater
APEC 13: Commercial printing establishment north adjacent of Site at 2442 New Street	North portion of the Site	PCA Other – Commercial printing establishment	Off-Site	VOCs	Groundwater

1. Area of Potential Environmental Concern means the area on, in or under a phase one study area where one or more contaminants are potentially present, as determined through the PI ESA, including through,
(a) identification of post or present uses on, in or under the phase one property, and
(b) identification of potentially contaminating activities.

2. Potentially contaminating activity means a use or activity set out in Column A of Table 2 of Schedule D that is occurring or has occurred in a phase one study area

3. When completing this column, identify all contaminants of potential concern using the Method Groups as identified in the "Protocol for in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 9, 2004, amended as of July 1, 2011, as specified below:

ABNs	PCBs	Metals	EC	SAR
CPs	PAHs	As, Sb, Se	Cr (VI)	
1,4- Dioxane	THMs	Na	Hg	
Dioxins/Furans, PCDDs/PCDFs	VOCs	B-HWS	Methyl Mercury	
Ocs	BTEX	Cl-	high pH	
PHCs	Ca, Mg	CN-	low pH	

4. When submitting a record of site condition for filing, a copy of this table must be attached
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TABLE 2 - Borehole Log Information

HAM-00801683-A0 - Phase Two Environmental Site Assessment

418 & 422 Guelph Line, Burlington, Ontario

Location ID	Ground Elevation	Depth of BH	Bottom Elevation	Date Drilled	Drilling Contractor
BH102A	101.31	5.79	96.20	12-Jun-19	Geo Environmental Drilling
BH201	100.94	12.20	88.74	June 10 & 11, 2019	Geo Environmental Drilling
BH202	99.92	12.20	87.72	June 10 & 11, 2019	Geo Environmental Drilling
BH203	99.93	2.44	97.49	12-Jun-19	Geo Environmental Drilling

TABLE 3 - Summary of Soil Samples Submitted for Chemical Analysis

HAM-00801683-A0 - Phase Two Environmental Site Assessment

418 & 422 Guelph Line, Burlington, Ontario

Soil Sample ID	Sample Depth Interval (m)	Rationale	Analysis
BH201 - SS6	5.49 - 5.79	To vertically delineate VOC impacts	VOCs
BH203 - SS1	0 - 0.61	To address APEC 1: Potential presence of AST at 418 Guelph Line	PHCs +BTEX
QA/QC Samples:			
BH201- SS66 (Duplicate of BH201-SS6)	5.49 - 5.79	QA/QC purposes	VOCs
BH223 - SS1 (Duplicate of BH203-SS1)	0 - 0.61	QA/QC purposes	PHCs +BTEX

TABLE 4 - Monitoring Well Installation Details

HAM-00801683-A0 - Phase Two Environmental Site Assessment

418 & 422 Guelph Line, Burlington, Ontario

Location ID	Ground Elevation (m)	Stickdown/ Stickup (m)	Top of Pipe Elevation (m)	Measured Depth of Top of Screen (m bgs)	Measured Depth of MW (m bgs)	Screen Length (m)	Elevation of Top of Screen (Measured)	Elevation of Bottom of Screen (Measured)	Geologic Units Intercepted by Well Screen	Well Condition
MW102A	101.31	-0.10	101.21	2.71	5.76	3.05	98.60	95.55	Sand	Intact
MW201	100.94	-0.14	100.80	10.63	12.13	1.50	90.31	88.81	Bedrock	Intact
MW202	99.92	-0.15	99.77	10.61	12.11	1.50	89.32	87.82	Bedrock	Intact

TABLE 5 - Summary of Groundwater Samples Submitted for Chemical Analysis

HAM-00801683-A0 - Phase Two Environmental Site Assessment

418 & 422 Guelph Line, Burlington, Ontario

GW Sample ID	Sampling Date	Rationale	Analysis
BH/MW1	May 21, 2019 & June 20, 2019	To address APEC 4, 6A-B, 7, 8, 9, 10, 11A-B, 12 and 13, Confirmatory gw sample to confirm concentrations	PHCs and VOCs
BH/MW2	May 21, 2019 & June 20, 2019	To address APEC 6A-B, 7, 8, 9, 10, 12 and 13, Confirmatory gw sample to confirm concentrations	PHCs and VOCs
MW3	21-May-19	To address APEC 3 & 5, Confirmatory gw sample to confirm concentrations	VOCs
MW4	21-May-19	Confirmatory gw sample to confirm concentrations & to address APEC 7, 8, and 9	VOCs
MW101	21-May-19	Confirmatory gw sample to confirm concentrations	VOCs
MW102	21-May-19	Confirmatory gw sample to confirm concentrations & to address APEC 3	VOCs
MW103	21-May-19	Confirmatory gw sample to confirm concentrations, horizontal delineation of VOC impacts in GW	VOCs
BH104	21-May-19	Confirmatory gw sample to confirm concentrations & to address APEC 6 A-B, 10, 12, 13	PHCs, VOCs
BH105	21-May-19	Confirmatory gw sample to confirm concentrations and to address APEC 3 and 5	VOCs
MW106	21-May-19	Confirmatory gw sample to confirm concentrations	VOCs
MW102A	20-Jun-19	Horizontal delineation of VOC impacts	VOCs
MW201	20-Jun-19	Vertical delineation VOC impacts	VOCs
MW202	20-Jun-19	Vertical delineation VOC impacts	VOCs
QA/QC Samples:			
TRIP BLANK		QA/QC Purposes	VOCs
BH/MW22 (Duplicate of BH/MW2)	20-Jun-19	QA/QC Purposes	PHCs
BH1044 (Duplicate of BH104)	21-May-19	QA/QC Purposes	PHCs
MW44 (Duplicate of MW4)	21-May-19	QA/QC Purposes	VOCs
MW1022A (Duplicate of MW102A)	21-May-19	QA/QC Purposes	VOCs

TABLE 6 - Water Level Depths and Elevations

HAM-00801683-A0 - Phase Two Environmental Site Assessment

418 & 422 Guelph Line, Burlington, Ontario

Location ID	Ground Elevation (m relative)	Stickdown/ Stickup (m)	Top of Pipe Elevation (m relative)	Water Level Depth (TOP)	Water Level Depth (m bgs)	Water Level Depth (m relative)	Date
BH/MW1	100.73	-0.09	100.64	2.52	2.61	98.12	21-May-19
BH/MW2	101.38	-0.13	101.25	2.89	3.02	98.36	21-May-19
BH/MW3	100.9	-0.07	100.83	2.47	2.54	98.36	21-May-19
BH/MW4	99.92	-0.17	99.75	1.70	1.87	98.05	21-May-19
BH101	100.26	-0.07	100.19	2.02	2.09	98.17	21-May-19
BH102	101.31	-0.15	101.16	2.82	2.97	98.34	21-May-19
MW102A	101.31	-0.10	101.21	2.95	3.05	98.26	20-Jun-19
BH103	99.77	-0.16	99.61	1.42	1.58	98.19	21-May-19
BH104	100.94	-0.12	100.82	2.57	2.69	98.25	21-May-19
BH105	101.11	-0.16	100.95	2.54	2.70	98.41	21-May-19
BH106	99.76	-0.13	99.63	1.43	1.56	98.20	21-May-19
MW201	100.94	-0.14	100.80	3.62	3.76	97.18	20-Jun-19
MW202	99.92	-0.15	99.77	2.89	3.04	96.88	20-Jun-19

TABLE 7 - Summary of Horizontal Hydraulic Gradients (Overburden)

HAM-00801683-A0 - Phase Two Environmental Site Assessment

418 & 422 Guelph Line, Burlington, Ontario

Well Pair	Separation Distance (m)	Groundwater Elevations (m)	Elevation Difference (m)	Hydraulic Gradient* (m/m)
BH105 BH/MW4	67.2	97.04 96.68	0.36	0.005
BH/MW2 BH/MW1	36.9	98.35 98.12	0.23	0.006

*The horizontal hydraulic gradient between monitoring well pair is calculated from i = Δh/Δs, where I is the horizontal hydraulic gradient, Δh (m) is the groundwater elevation difference and Δs (m) is the distance apart.

TABLE 8- Vertical Hydraulic Gradient

HAM-00801683-A0 - Phase Two Environmental Site Assessment

418 & 422 Guelph Line, Burlington, Ontario

Well Pair	Groundwater Elevation (m ASL)	Bottom of Well Elevation (m ASL)	hp	z	h	Gradient* (m/m)
BH104	96.87	94.37	2.50	44.37	46.87	-0.049
MW201	97.14	88.81	8.33	38.81	47.14	
BH/MW4	96.68	94.05	2.63	44.05	46.68	0.153
MW202	95.73	87.82	7.91	37.82	45.73	

*The vertical hydraulic gradient between monitoring well pair is calculated from iv = (h2-h1)/(z2-z1)

Appendix A – SAAP

Phase Two Environmental Site Assessment

1. Introduction

This Appendix presents the Sampling and Analysis Plan (SAAP) that was developed in support of the Phase Two Environmental Assessment Work (ESA) for the property located at, 418 & 422 Guelph line, in Burlington, Ontario (hereinafter referred to as the 'Site'). The Phase Two ESA will be conducted to provide further characterization of the Site subsurface conditions and address the Areas of Potential Environmental Concerns (APECs) outlined in EXP March 2019 Phase One ESA to the subsequent filing of a Record of Site Condition (RSC) on the Ontario Ministry of the Environment (MOE) Brownfields Environmental Site Registry, which might be required. 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 measures that will be undertaken to provide for the collection of accurate, reproducible and representative data.

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 petroleum hydrocarbons (PHCs), benzene, toluene, ethylbenzene and xylenes (collectively known as 'BTEX'), and volatile organic compounds (VOCs) in soil and for the analysis of PHCs, BTEX, and VOCs in groundwater. The soil sampling media is to consist of the surface soils and upper overburden materials (depths up to 12.2 m below grade). The soil sampling will be location-specific to assess for the potential presence of PHCs, BTEX, and VOCs, based on the identification of areas of potential environmental concern (APECs). Vapour readings will also be collected in the field to determine samples to be submitted for BTEX and PHC F1-F2 analysis. The soil sample intervals will extend from the surface up to a maximum depth of approximately 12.2 meters (m) below grade surface (bgs).

The groundwater sampling will be location-specific to assess for the potential presence of PHCs, BTEX, and VOCs, based on the identification of APECs. The monitoring well network will comprise of three (3) newly installed wells along with additional locations previously installed by BIG and S2S in 2017.

Vertical control of the boreholes and monitoring wells will be obtained through the completion of an elevation survey with reference to a local structure with a known geodetic elevation. Groundwater flow and direction in the water table aquifer will also be determined through groundwater level measurements and the elevations established from 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;
- Soil Sampling;

- Monitoring Well Installation;
- Monitoring Well Development;
- Groundwater Level Measurements;
- Elevation Survey; and,
- Groundwater Sampling.

The field investigative methods will be performed following the procedures and protocols set out in EXP's standard operating procedures and are outlined below:

3.1 Borehole Drilling

Boreholes will be advanced at the Site to facilitate the collection of soil samples for chemical analysis and geologic characterization; and, for the installation of groundwater monitoring wells. A total of four (4) boreholes are proposed to be advanced at the Site for the environmental investigation, up to a maximum depth of approximately 12.2 m below grade, to provide for the collection of samples of the surficial and overburden materials beneath the Site. The borehole locations will be selected to determine the presence or absence of impacts in the soils and the upper overburden groundwater and to address the APECs outlined in EXP July 2019 Phase One ESA Report.

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, hand augering or digging will be performed beforehand to confirm the location of the utility.

Where there is overlying asphalt or concrete, the overlying material will be mechanically cored to provide access to the underlying soil materials. The borehole drilling program will be conducted by a licensed driller under the oversight of EXP field staff. Auger flights will be cleaned prior to the commencement of drilling at each borehole location.

3.2 Soil Sampling

Soil samples will be collected for chemical analysis and geologic property characterization. The soil samples will be collected using 5 cm diameter, 61 cm long, split spoons and hollow stem augers or a 5 cm diameter, 1.5 m long, duel tube sampling system with interior dedicated vinyl sampling tubes. Upon retrieval from the boreholes, the split spoons or vinyl sampling tubes will be placed on a flat surface and disassembled by drilling personnel to provide access of the recovered cores. 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. Soil stratigraphy encountered in the boreholes will be texturally, visually and olfactory classified in the field and in the laboratory. Soil samples will be logged for colour, grain size, moisture content, density, structures, texture, staining, and field vapour readings. A Photo-ionization Detector (PID) or GastechtorTM will be utilized to screen the soil samples for Total Organic Vapour (TOV). Representative worst-case soil samples from each borehole will be collected and submitted to a certified laboratory for analysis based on TOV readings, sample depth, visual and/or olfactory field observations.

Recommended volumes of soil samples selected for chemical analysis will be collected into pre-cleaned laboratory-supplied glass sample jars/vials identified for the specified analytical test group. Samples intended for PHC/BTEX and VOCs will be collected using a laboratory-supplied soil core sampler, placed into the vials containing methanol for preservation purposes and sealed using Teflon lined septa lids. 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 protocols. New disposable chemical resistant gloves will be used for each soil core to prevent sample cross-contamination.

3.3 Monitoring Well Installation

A proposed total of three (3) boreholes will be instrumented as groundwater monitoring wells installed with 1.5 to 3 m long screens intercepting the native overburden material, where the shallow water table aquifer is expected, extending to depths of approximately 12.2 m below grade. The monitoring wells will be constructed using 51 mm diameter, Schedule 40, PVC riser pipe and number 10 slot size (0.25 mm) well screens. The base of the well screen will be sealed with threaded flush PVC end caps. All well pipe connections will be factory machined threaded flush couplings. The annular space around the well screen will be backfilled with silica sand, to an average height of 0.6 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 0.3 m below grade. The monitoring well will be completed with flush-mounted protective steel casings cemented into place.

3.4 Monitoring Well Development

The newly installed and previous (BIG and S2S, 2017) 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 dedicated low-density polyethylene (LDPE) tubing, equipped with an inertial foot valve to disturb the water column. The wells will be developed until approximately 3 to 5 well volumes of water will be removed and/or until purged dry. 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 labeled, sealed containers.

3.5 Groundwater Level Measurements

Groundwater level measurement will be recorded for the newly installed monitoring well to determine the depth of the water table aquifer beneath the Site. The water level will be measured with respect to the top of the PVC riser pipe 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.

3.6 Elevation Survey

An elevation survey will be conducted to obtain vertical control of the newly installed monitoring well location and boreholes. The top of the PVC riser pipe of the monitoring well and ground surface elevation of the monitoring well and borehole locations will be surveyed against an geodetic benchmark, or if unavailable, against a suitable arbitrary benchmark. Elevations measured against a geodetic/arbitrary benchmark will be recorded as meters above mean sea level (m AMSL). The elevation survey will be accurate to within ± 0.3 cm.

3.7 Field Measurements of Water Quality Parameters

Prior to collecting the groundwater sample, field measurements of water quality parameters will be recorded from the monitoring wells utilizing low-flow purging and sampling methodologies. Groundwater will be purged from the monitoring wells using a peristaltic pump and dedicated LDPE tubing. Field measurements of dissolved oxygen concentration, electrical conductivity, oxidation-reduction potential, pH, temperature, turbidity and water levels will be recorded in three (3) minute intervals during the purging activities using a pre-calibrated multi probe water quality meter, a turbidity meter and a water level meter. Generally well purging will continued until the purged water has chemically stabilized as indicated by field parameter measurements and the well head drawdown is maintained within 10 cm for 3 consecutive readings. In the event that the parameters do not stabilize or the well head drawdown is too significant, the groundwater is to recover to approximately 75% of static levels before sampling.

The multi-meter electrodes will be calibrated prior to receipt of the meter by the supplier using in-house pH and conductivity reference standards. All collected purged water will be stored on-Site in labeled, sealed containers. Equipment used during groundwater monitoring will be thoroughly cleaned and decontaminated between wells.

3.8 Groundwater Sampling

Upon completion the field measurements of water quality parameters, groundwater samples will be collected for chemical analysis using the peristaltic pump and dedicated LDPE tubing. Recommended groundwater sample volumes will be collected into pre-clean 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. Samples for BTEX and VOC analysis will be collected in triplicate vials prepared with concentrated hydrochloric acid or an acceptable substitute as a preservative. Each vial will be inverted and inspected for gas bubbles prior to being placed in the cooler to ensure that no head-space is present.

The groundwater sample will be assigned a unique identification number, and the date, time, project number, company name, location and requested analyses will be documented in a bound hard cover notebook. The sample will be submitted to the contractual laboratory within analytical test group holding times under chain of custody 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 and the collection of appropriate QC samples to provide a measure of sample reproducibility and accuracy. The field QA/QC measures will comprise:

- Decontamination Protocols;
- Equipment Calibration;
- Sample Preservation;
- Sample Documentation; and,
- Field Quality Control Samples.

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 the borehole drilling and soil sampling, soil sampling devices will be cleaned/decontaminated between sampling intervals and auger flights between borehole locations in according with SOP requirements. 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. For hydraulic conductivity tests, the electronic water level meters will be decontaminated between sampling locations. All decontamination fluids will be collected and stored in sealed, labeled 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 pre-chilled insulated coolers packed with ice for storage and transport.

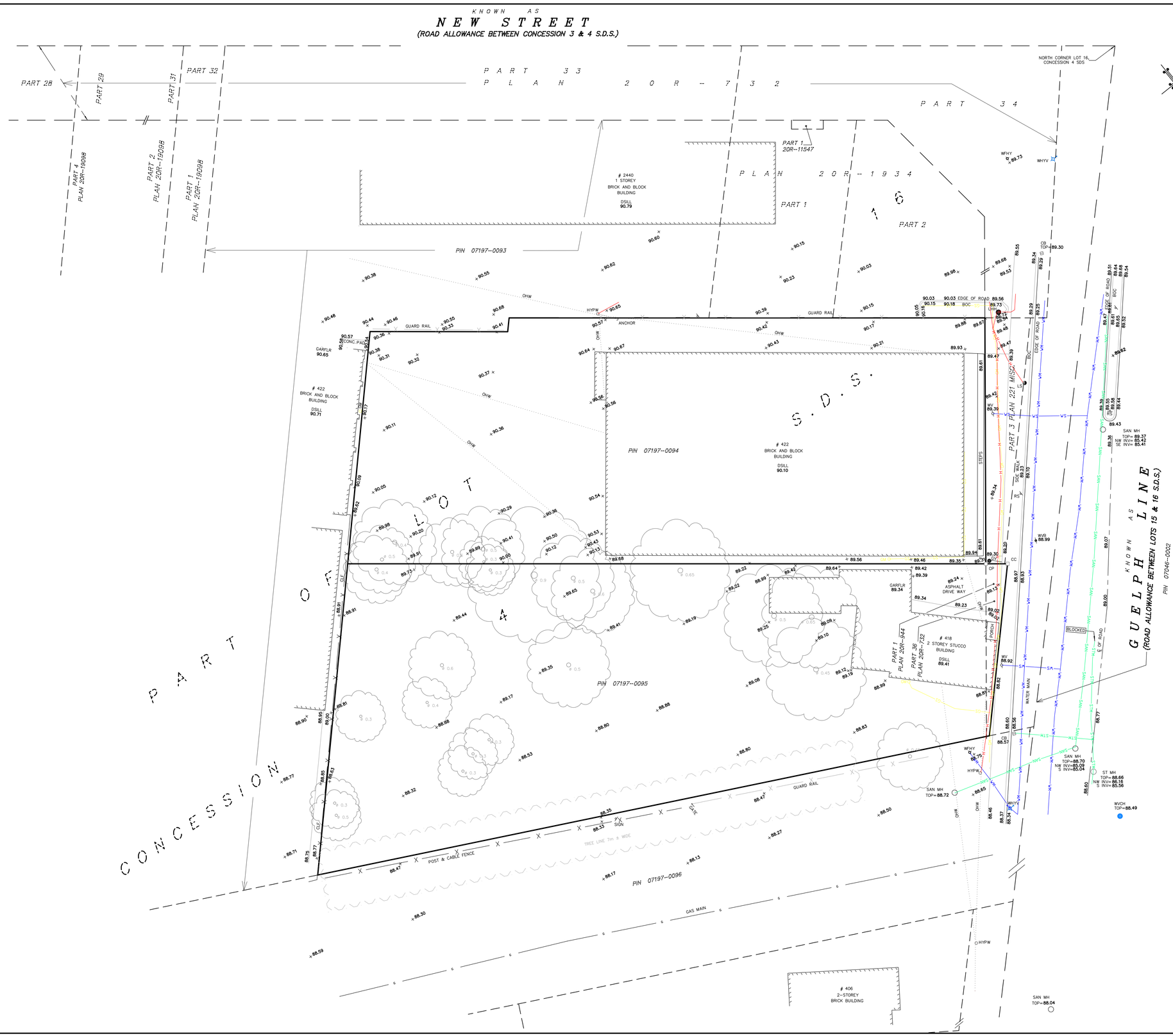
4.4 Sample Documentation

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.

4.5 Field Quality Control

Field quality control samples will be collected to evaluate the accuracy and reproducibility of the field sampling procedures. For groundwater sampling, one (1) field duplicate is to be collected for every ten (10) samples submitted for chemical analysis. For multiple day sampling events, at least one (1) field duplicate soil and groundwater sample will be submitted for chemical analysis. The field duplicate samples will be assessed by calculating the relative percent difference and comparing to the analytical test group specific acceptance criteria.

Appendix B – Survey Plan



SUBSURFACE UTILITY & TOPOGRAPHIC MAPPING

GEOGRAPHIC LOCATION NOTE

PART OF LOT 16
CONCESSION 4 S.D.S.

(GEOGRAPHIC TOWNSHIP OF NELSON)

NOW IN THE

CITY OF BURLINGTON

REGIONAL MUNICIPALITY OF HALTON

SCALE 1 : 200

0 5 10 20 metres

MacKAY, MacKAY & PETERS LIMITED – ONTARIO LAND SURVEYORS

© 2019

ADDRESS: 422 & 418 GUELPH LINE	CLIENT: PRO FUNDS MORTGAGES

Legend :

PIN	DENOTES PROPERTY IDENTIFICATION NUMBER
℄	DENOTES CENTRE LINE
#	DENOTES ROUND
SDS	DENOTES SOUTH OF DUNDAS STREET
BF	DENOTES BOARD FENCE
OHW	DENOTES OVERHEAD WIRE
HYPW	DENOTES HYDRO POLE (WOOD)
WV	DENOTES WATER VALVE
GV	DENOTES GAS VALVE
GM	DENOTES GAS METER
CB	DENOTES CATCH BASIN
ST MH	DENOTES STORM MANHOLE
SAN MH	DENOTES SANITARY MANHOLE
RS	DENOTES ROAD SIGN
LS	DENOTES UTILITY LIGHT STANDARD
DSILL	DENOTES DOOR SILL ELEVATION
GARFLR	DENOTES GARAGE FLOOR ELEVATION
BOC	DENOTES BACK OF CURB
UHH	DENOTES UTILITY HAND HOLE
WFHY	DENOTES WATER FIRE HYDRANT
WHYV	DENOTES WATER HYDRANT VALVE
WVCH	DENOTES WATER VALVE CHAMBER
WVB	DENOTES WATER VALVE BOX
NTS	DENOTES NOT TO SCALE
G	DENOTES GAS MAIN
GAS	DENOTES GAS SERVICE
H	DENOTES HYDRO
WM	DENOTES WATER MAIN
WS	DENOTES WATER SERVICE
SAN	DENOTES SANITARY SEWER
STM	DENOTES STORM SEWER

Benchmark Note:

CITY OF BURLINGTON BENCHMARK No. 273 ELEVATION = 80.809 METRES (CGVD 1928 : 1978 ADJUSTMENT)

BRASS CAP IN TOP OF CURB AT THE NORTHERLY END OF THE RAMP LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF LAKESHORE ROAD AND GUELPH LINE. THE MONUMENT IS LOCATED 5.5 METRES FROM THE END OF THE CURB RETURN ON THE SOUTHEAST CORNER OF THE INTERSECTION, 2.68 METRES FROM A NAIL IN THE FACE OF A WOODEN HYDRO POLE (TRAFFIC SIGNAL POLE) ON THE SOUTHEAST CORNER, AND 19.2 METRES FROM A WOODEN HYDRO POLE (TRAFFIC SIGNAL POLE) ON THE SOUTHWEST CORNER OF THE INTERSECTION.

DISCLAIMER:

LOCATE VALID FOR THIRTY DAYS POST COMPLETION DATE. EXCAVATORS ARE EXPECTED TO FOLLOW CANADIAN COMMON GROUND ALLIANCE "UNDERGROUND INFRASTRUCTURE DAMAGE PREVENTION" BEST PRACTICES VERSION 2 SECTION 4 – EXCAVATION BEST PRACTICES. DETAILED INFORMATION CAN BE FOUND AT HTTP://ORCGA.COM/WP-CONTENT/UPLOADS/2016/12/1-CCGA-BEST-PRACTICES-VOLUME-2.01. LOCATE NOT VALID IF FIELD MARKINGS BECOME UNCLEAR OR WORK AREA HAS BEEN CHANGED. FIELD MARKINGS ARE ESTIMATES ONLY; THE EXACT LOCATION OF UNDERGROUND UTILITIES MUST BE DETERMINED BE HAND DIGGING (HYDRO-VAC AND AIR-VAC) PRIOR TO EXCAVATION WITH MECHANICAL EQUIPMENT. CONTRACTOR/APPLICANT MUST HAND DIG (HYDRO-VAC AND AIR-VAC) WITHIN ONE METRE OF MARKINGS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR/APPLICANT TO OBTAIN FULL PUBLIC LOCATES IN ORDER FOR THE PRIVATE LOCATE TO BE VALID. PRIVATE LOCATES ARE RELIANT UPON THE AVAILABILITY AND ACQUISITION OF COMPLETE RECORDS, TOGETHER WITH THE CONDUCTIVITY OF FACILITIES BEING LOCATED. IF CONTACT IS MADE OR EVEN SUSPECTED WITH ANY UNDERGROUND FACILITY "STOP WORK IMMEDIATELY". SHUT DOWN ALL POWERED EQUIPMENT, FOLLOW HEALTH AND SAFETY PROTOCOL AND NOTIFY THE FACILITY OWNER.

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

DISCLAIMER

UTILITY LOCATES ARE FOR DESIGN PURPOSES ONLY.
VALID PUBLIC AND PRIVATE LOCATES MUST BE OBTAINED BEFORE GROUND DISTURBANCE.

BOUNDARY DATA SHOWN HEREON WAS COMPILED FROM SURVEY RECORDS & REGISTRY OFFICE INFORMATION.

DRAFTING COMPLETED	MAY 8, 2019	COPYRIGHT © 2019
FIELD WORK COMPLETED	APRIL 24, 2019	

CAD FILE: E:\LOCATES\(20) HALTON\19-1021-UL\19-1021-UL.DWG

MMP
LAND SURVEYORS & MAPPERS
MMP Utility Locates
a division of
MacKay, MacKay & Peters Limited
3380 South Service Road
Unit 101
Burlington, ON
L7N 3J5
(905) 639-1375
halton@mmplimited.com
mmpsurveyors.ca
mmplocators.ca

PARTY CHIEF:	A.B.
LOCATOR:	C.P.
DRAWN BY:	M.S.
CHECKED BY:	K.J.D.
PROJECT NO.:	19-1021-UL

Appendix C – Borehole Logs

Log of Borehole BH/MW102A

Project No. HAM-00801683-A0 Drawing No. 1

Project: Phase Two ESA Sheet No. 1 of 1

Location: 418 & 422 Guelph Line, Burlington, ON

Refer to borehole location plan

Date Drilled: June 12, 2019

Drill Type: CME 75-3

Datum: Relative

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	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value (20, 40, 60)	Combustible Vapour Reading (ppm) (25, 50, 75)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
			101.31	0						
		Asphalt	~101.3							
		Sand Fill								
			~100.5	1		0 (H) 0 (I)		100	SS1	
		SAND Brown, trace silt, moist		2		0 (H) 0 (I)		100	SS2	
▽		Wet	~98.3	3						
				4		0 (H) 0 (I)		100	SS3	
				5		0 (H) 0 (I)		100	SS4	
			~95.5	6						
		End of borele. Borehole samples were from auger cuttings.		7						
		NOTES:		8						
		1) This drawing is to be read with the subject report and project number as presented above.		9						
		3) 50.8 mm diameter well installed.		10						
		4) Well screen installed from 2.74 - 5.79 m.		11						
				12						
				13						
				14						
				15						

ENVIRONMENTAL-EXP 418 & 422 GUELPH LINE, BURLINGTON.GPJ 8/2/19

Time	Water Level (m)	Depth to Cave (m)
June 20, 2019	3.054	

EXP Services Inc.
Brampton, Ontario
Telephone: 905-793-9800
Facsimile: 905-793-0641

Log of Borehole BH/MW201

Project No. HAM-00801683-A0 Drawing No. 2

Project: Phase Two ESA Sheet No. 1 of 1

Location: 418 & 422 Guelph Line, Burlington, ON

Refer to borehole location plan

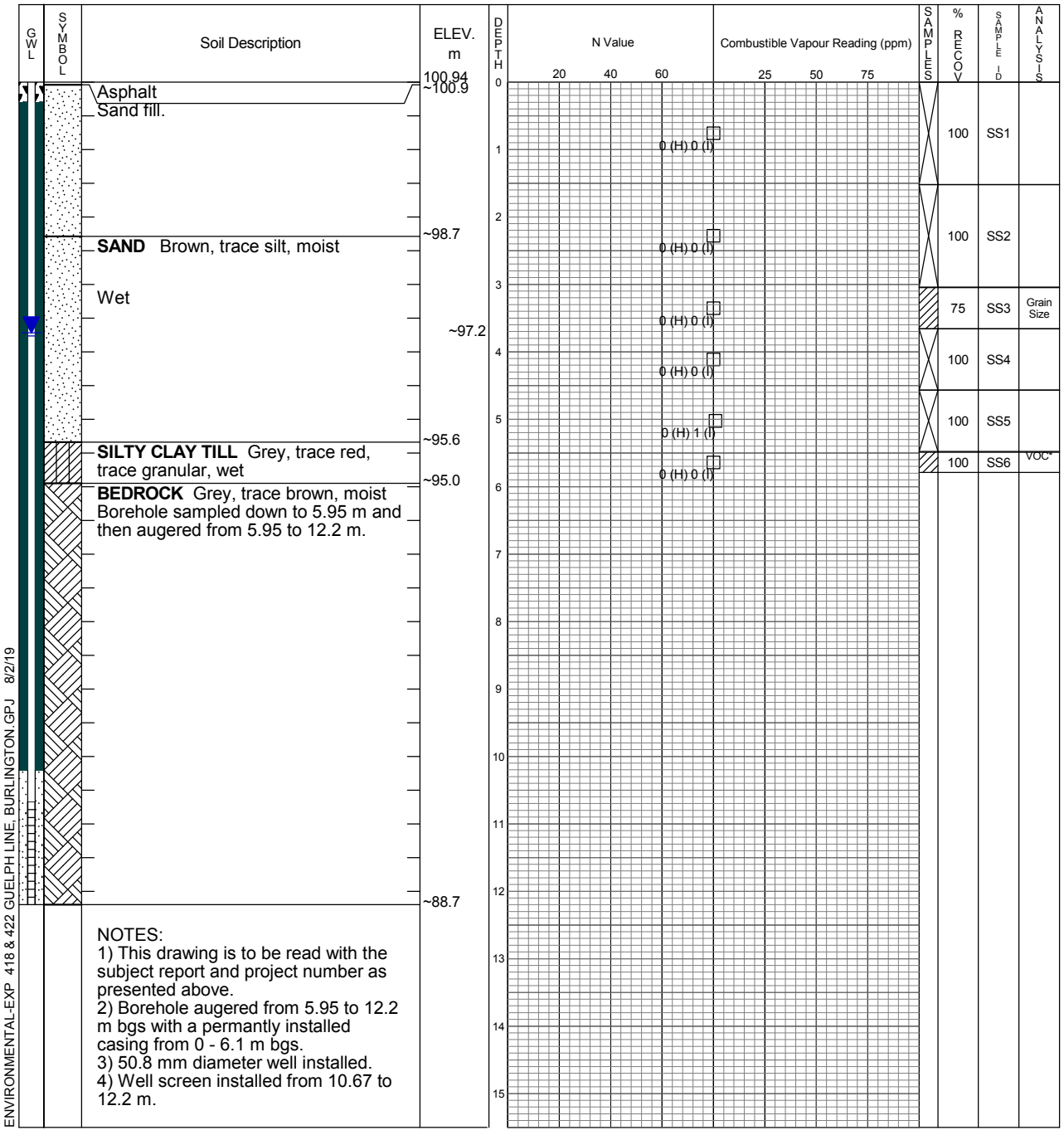
Date Drilled: June 10 & 11, 2019

Drill Type: CME 75-3

Datum: Relative

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	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		



Time	Water Level (m)	Depth to Cave (m)
June 20, 2019	3.764	

EXP Services Inc.
Brampton, Ontario
Telephone: 905-793-9800
Facsimile: 905-793-0641

Log of Borehole BH/MW202

Project No. HAM-00801683-A0 Drawing No. 3

Project: Phase Two ESA Sheet No. 1 of 1

Location: 418 & 422 Guelph Line, Burlington, ON

Refer to borehole location plan

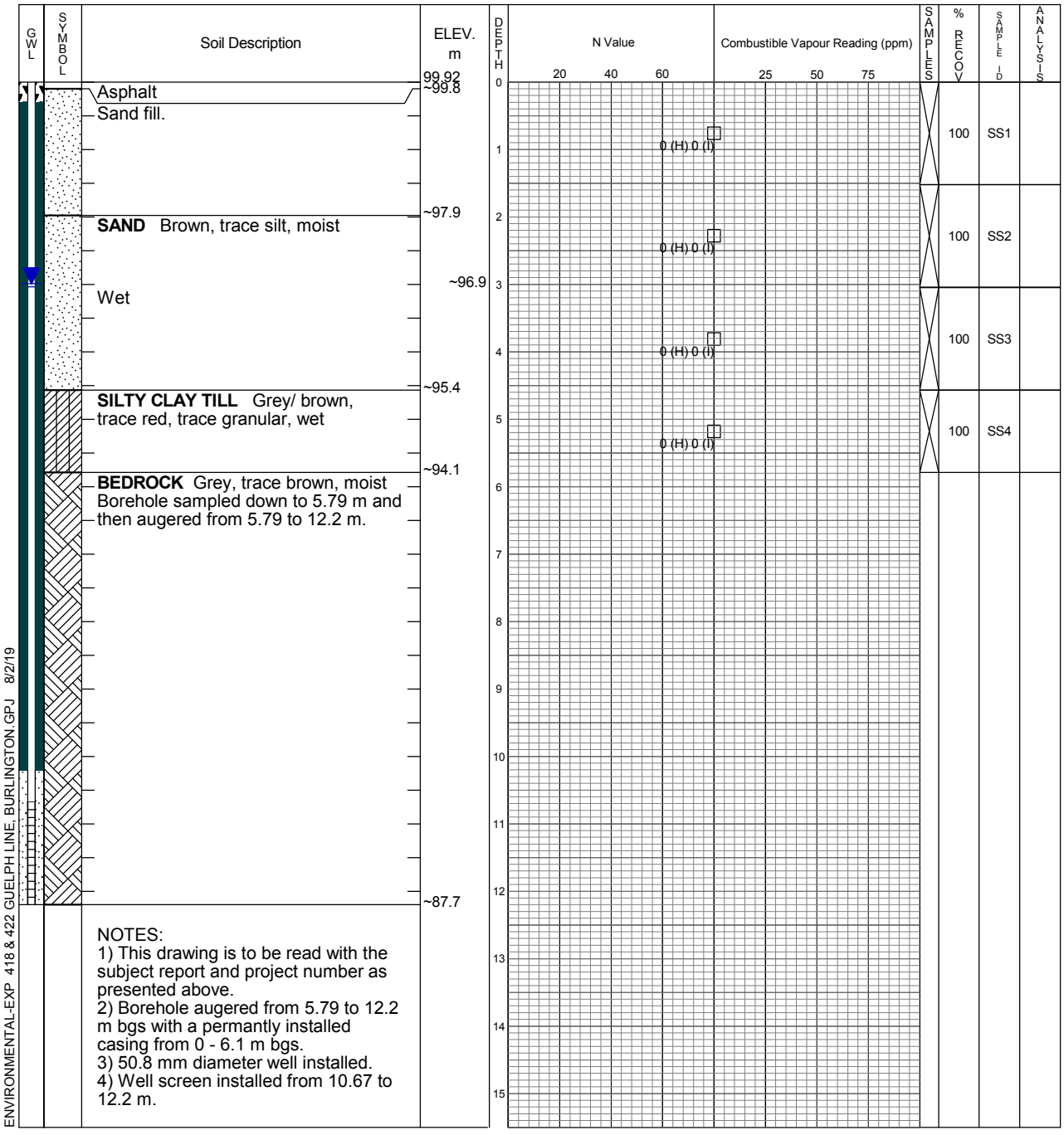
Date Drilled: June 10 & 11, 2019

Drill Type: CME 75-3

Datum: Relative

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	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		



Time	Water Level (m)	Depth to Cave (m)
June 20, 2019	3.038	

EXP Services Inc.
Brampton, Ontario
Telephone: 905-793-9800
Facsimile: 905-793-0641

Log of Borehole BH203

Project No. HAM-00801683-A0 Drawing No. 4

Project: Phase Two ESA Sheet No. 1 of 1

Location: 418 & 422 Guelph Line, Burlington, ON

Refer to borehole location plan

Date Drilled: June 12, 2019

Drill Type: Bosch Electric

Datum: Relative

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	VOC	Volatile Organic Compounds
PEST	Organochlorine Pesticides		

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value	Combustible Vapour Reading (ppm)	SAMPLES	% RECOV	SAMPLE ID	ANALYSIS
			99.93	0	20 40 60	25 50 75				
		Topsoil, trace rootlets, brown, moist	~99.8							
		SAND Brown, moist				0 ppm		75	SS1	PHC* BTEX*
				1		0 ppm		75	SS2	
						0 ppm		83	SS3	
		Wet		2		0 ppm		83	SS4	Grain Size
			~97.5							
		Borehole completed to 2.44 m. NOTES: 1) This drawing is to be read with the subject report and project number as presented above.		3 4 5 6 7 8 9 10 11 12 13 14 15						

ENVIRONMENTAL-EXP 418 & 422 GUELPH LINE, BURLINGTON.GPJ 8/2/19

EXP Services Inc.
Brampton, Ontario
Telephone: 905-793-9800
Facsimile: 905-793-0641

Time	Water Level (m)	Depth to Cave (m)

Appendix D – Analytical tables

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	BH1-SS5	BH2-SS5	BH3-SS5	BH101-5	BH102-4
Lab ID		DZO990	DZO992	DZO996	-	-
Sampling Date		1-Mar-17	1-Mar-17	1-Mar-17	7-Sep-17	6-Sep-17
Soil Sample Depth (m)		3 - 3.76	3 - 3.76	3 - 3.76	3.0-3.7	2.3-2.9
Consultant		BIG	BIG	BIG	S2S	S2S
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		13-Mar-17	13-Mar-17	13-Mar-17	-	-
Certificate of Analysis Number		B743310	B743310	B743310	-	-
PHC F1 (C6-C10)	55	<10	<10	<10	<10	<10
PHC F1 (C6-C10) - BTEX	55	<10	<10	<10	-	-
PHC F2 (C10-C16)	98	<10	<10	<10	<10	<10
PHC F3 (C16-C34)	300	<50	<50	<50	<50	<50
PHC F4 (C34-C50)	2800	<50	<50	<50	<50	<50
Reached baseline at C50?	-	Yes	Yes	Yes	Yes	Yes
PHC F4 (C34-C50)-gravimetric	2800	-	-	-	-	-

All soil concentrations reported in µg/g.
< = Parameter below detection limit, as indicated
NV = No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS.

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	BH103-4	BH104-6	BH105-5	BH106-4	BH107-1
Lab ID		-	-	-	-	-
Sampling Date		5-Sep-17	7-Sep-17	6-Sep-17	5-Sep-17	7-Sep-17
Soil Sample Depth (m)		2.3-2.9	4.6-5.2	3.0-3.7	2.3-2.9	0 - 0.6
Consultant		S2S	S2S	S2S	S2S	S2S
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		-	-	-	-	-
Certificate of Analysis Number		-	-	-	-	-
PHC F1 (C6-C10)	55	<10	<10	<10	<10	<10
PHC F1 (C6-C10) - BTEX	55	-	-	-	-	-
PHC F2 (C10-C16)	98	<10	<10	<10	<10	<10
PHC F3 (C16-C34)	300	<50	<50	<50	<50	<50
PHC F4 (C34-C50)	2800	<50	<50	<50	<50	<50
Reached baseline at C50?	-	Yes	Yes	Yes	Yes	Yes
PHC F4 (C34-C50)-gravimetric	2800	-	-	-	-	-

All soil concentrations reported in µg/g.
≤ Parameter below detection limit, as indicated
NV No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (201

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	BH108-4	BH109-5	BH203-SS1	BH223-SS1
Lab ID		-	-	JZM239	JZM240
Sampling Date		5-Sep-17	7-Sep-17	12-Jun-19	12-Jun-19
Soil Sample Depth (m)		2.3-2.9	3.0-3.7	0 - 0.61	0 - 0.61
Consultant		EXP	EXP	EXP	EXP
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		-	-	18-Jun-19	18-Jun-19
Certificate of Analysis Number		-	-	B9G1769	B9G1769
PHC F1 (C6-C10)	55	<10	<10	<10	<10
PHC F1 (C6-C10) - BTEX	55	-	-	<10	<10
PHC F2 (C10-C16)	98	<10	<10	<10	<10
PHC F3 (C16-C34)	300	<50	<50	<50	<50
PHC F4 (C34-C50)	2800	<50	<50	<50	<50
Reached baseline at C50?	-	Yes	Yes	YES	YES
PHC F4 (C34-C50)-gravimetric	2800	-	-	-	-

All soil concentrations reported in µg/g.
≤ = Parameter below detection limit, as indicated
NV = No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (201

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	BH1-SS5	BH2-SS5	BH3-SS5	BH4-SS4	BH101-6	BH101-8	BH102-6	BH102-7	BH103-6	BH104-6	BH105-6	BH105-7	BH106-6	BH108-6
Lab ID		DZO990	DZO992	DZO996	DZO999	-	-	-	-	-	-	-	-	-	-
Sampling Date		1-Mar-17	1-Mar-17	1-Mar-17	1-Mar-17	7-Sep-17	7-Sep-17	6-Sep-17	6-Sep-17	5-Sep-17	7-Sep-17	6-Sep-17	6-Sep-17	5-Sep-17	5-Sep-17
Soil Sample Depth (m)		3 - 3.76	3 - 3.76	3 - 3.76	2.29 - 2.9	3.8-4.4	5.3-5.8	4.6-5.2	6.1-6.6	4.6-5.2	4.6-5.2	4.6-5.2	6.1-6.2	4.6-5.2	4.6-5.2
Consultant		BIG	BIG	BIG	BIG	S2S	S2S	S2S	S2S	S2S	S2S	S2S	S2S	S2S	S2S
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		13-Mar-17	13-Mar-17	13-Mar-17	13-Mar-17	-	-	-	-	-	-	-	-	-	-
Certificate of Analysis Number		B743310	B743310	B743310	B743310	-	-	-	-	-	-	-	-	-	-
Acetone	16	<0.50	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	0.21	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.081	<0.020	<0.020	<0.020	<0.020
Bromodichloromethane	1.5	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromoform	0.27	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromomethane	0.05	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Carbon Tetrachloride	0.05	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chlorobenzene	2.4	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroform	0.05	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibromochloromethane	2.3	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichlorobenzene	1.2	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,3-Dichlorobenzene	4.8	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,4-Dichlorobenzene	0.083	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dichlorodifluoromethane	16	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethane	0.47	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloroethane	0.05	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1-Dichloroethylene	0.05	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
cis-1,2-Dichloroethylene	1.9	<0.050	-	<0.050	0.19	<0.050	<0.050	<0.050	<0.050	<0.050	1.2	<0.050	<0.050	<0.050	<0.050
trans-1,2-Dichloroethylene	0.084	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,2-Dichloropropane	0.05	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
cis-1,3-Dichloropropene	0.05	<0.030	-	<0.030	<0.030	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
trans-1,3-Dichloropropene	0.05	<0.040	-	<0.040	<0.040	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ethylbenzene	1.1	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylene Dibromide (1,2-Dibromoethane)	0.05	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Hexane (n)	2.8	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methylene chloride (Dichloromethane)	0.1	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl ethyl ketone (2-Butanone)	16	<0.50	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	1.7	<0.50	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Methyl t-butyl ether (MTBE)	0.75	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Styrene	0.7	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,1,2-Tetrachloroethane	0.058	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2,2-Tetrachloroethane	0.05	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tetrachloroethylene	0.28	<0.050	-	<0.050	**0.72**	**1.9**	<0.050	**0.3**	<0.050	<0.050	**18**	**0.69**	<0.050	<0.050	<0.050
Toluene	2.3	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
1,1,1-Trichloroethane	0.38	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1,1,2-Trichloroethane	0.05	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Trichloroethylene	0.061	<0.050	-	<0.050	<0.050	<0.050	<0.050	**0.081**	<0.050	<0.050	**0.92**	<0.050	<0.050	<0.050	<0.050
Trichlorofluoromethane	4	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vinyl Chloride	0.02	<0.020	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	**0.056**	<0.020	<0.020	<0.020	<0.020
m-Xylene + p-Xylene	NV	<0.020	<0.040	<0.020	<0.020	-									
o-Xylene	NV	<0.020	<0.020	<0.020	<0.020	-									
Xylenes (total)	3.1	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020

1,3-Dichloropropene (cis + trans)

All soil concentrations reported in µg/g.

<0.050 Parameter below detection limit, as indicated

NV No value

Bold Concentration exceeds MECP (2011) SCS.

Non-detect but detection limit exceeds the MECP (2011) SCS.

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	BH101-5	BH102-4	BH103-4	BH104-6	BH105-5	BH106-4	BH107-1	BH108-4	BH109-5	BH201-SS6	BH201-SS66
Lab ID		-	-	-	-	-	-	-	-	-	JYV313	JYV314
Sampling Date		7-Sep-17	6-Sep-17	5-Sep-17	7-Sep-17	6-Sep-17	5-Sep-17	7-Sep-17	5-Sep-17	7-Sep-17	12-Jun-19	12-Jun-19
Soil Sample Depth (m)		3.0-3.7	2.3-2.9	2.3-2.9	4.6-5.2	3.0-3.7	2.3-2.9	0 - 0.6	2.3-2.9	3.0-3.7	5.49 - 5.79	5.49 - 5.79
Consultant		S2S	S2S	S2S	S2S	S2S	S2S	S2S	S2S	S2S	EXP	EXP
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		-	-	-	-	-	-	-	-	-	14-Jun-19	14-Jun-19
Certificate of Analysis Number		-	-	-	-	-	-	-	-	-	B9F8564	B9F8564
Acetone	16	-	-	-	-	-	-	-	-	-	<0.50	<0.50
Benzene	0.21	<0.020	<0.020	<0.020	0.081	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Bromodichloromethane	1.5	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Bromoform	0.27	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Bromomethane	0.05	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Carbon Tetrachloride	0.05	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Chlorobenzene	2.4	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Chloroform	0.05	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Dibromochloromethane	2.3	-	-	-	-	-	-	-	-	-	<0.050	<0.050
1,2-Dichlorobenzene	1.2	-	-	-	-	-	-	-	-	-	<0.050	<0.050
1,3-Dichlorobenzene	4.8	-	-	-	-	-	-	-	-	-	<0.050	<0.050
1,4-Dichlorobenzene	0.083	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Dichlorodifluoromethane	16	-	-	-	-	-	-	-	-	-	<0.050	<0.050
1,1-Dichloroethane	0.47	-	-	-	-	-	-	-	-	-	<0.050	<0.050
1,2-Dichloroethane	0.05	-	-	-	-	-	-	-	-	-	<0.050	<0.050
1,1-Dichloroethylene	0.05	-	-	-	-	-	-	-	-	-	<0.050	<0.050
cis-1,2-Dichloroethylene	1.9	-	-	-	-	-	-	-	-	-	<0.050	<0.050
trans-1,2-Dichloroethylene	0.084	-	-	-	-	-	-	-	-	-	<0.050	<0.050
1,2-Dichloropropane	0.05	-	-	-	-	-	-	-	-	-	<0.050	<0.050
cis-1,3-Dichloropropene	0.05	-	-	-	-	-	-	-	-	-	<0.030	<0.030
trans-1,3-Dichloropropene	0.05	-	-	-	-	-	-	-	-	-	<0.040	<0.040
Ethylbenzene	1.1	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylene Dibromide (1,2-Dibromoethane)	0.05	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Hexane (n)	2.8	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Methylene chloride (Dichloromethane)	0.1	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Methyl ethyl ketone (2-Butanone)	16	-	-	-	-	-	-	-	-	-	<0.50	<0.50
Methyl Isobutyl Ketone	1.7	-	-	-	-	-	-	-	-	-	<0.50	<0.50
Methyl t-butyl ether (MTBE)	0.75	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Styrene	0.7	-	-	-	-	-	-	-	-	-	<0.050	<0.050
1,1,1,2-Tetrachloroethane	0.058	-	-	-	-	-	-	-	-	-	<0.050	<0.050
1,1,2,2-Tetrachloroethane	0.05	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Tetrachloroethylene	0.28	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Toluene	2.3	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
1,1,1-Trichloroethane	0.38	-	-	-	-	-	-	-	-	-	<0.050	<0.050
1,1,2-Trichloroethane	0.05	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Trichloroethylene	0.061	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Trichlorofluoromethane	4	-	-	-	-	-	-	-	-	-	<0.050	<0.050
Vinyl Chloride	0.02	-	-	-	-	-	-	-	-	-	**0.052**	**0.056**
m-Xylene + p-Xylene	NV	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.020	<0.020
o-Xylene	NV	-	-	-	-	-	-	-	-	-	<0.020	<0.020
Xylenes (total)	3.1	-	-	-	-	-	-	-	-	-	<0.020	<0.020
1,3-Dichloropropene (cis + trans)											<0.050	<0.050

All soil concentrations reported in µg/g.

"<" Parameter below detection limit, as indicated

"NV" No value

Bold Concentration exceeds MECP (2011) SCS.

Non-detect but detection limit exceeds the MECP (2011) SC

Sample ID	MOECC (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	BH2-SS4	BH3-SS2	BH4-SS3	BH101-1	BH101-5
Lab ID		DZO991	DZO994	DZO998	-	-
Sampling Date		1-Mar-17	1-Mar-17	1-Mar-17	7-Sep-17	7-Sep-17
Soil Sample Depth (m)		2.3 - 2.9	0.7 - 1.37	1.5 - 2.13	0 - 0.6	3 - 3.7
Consultant		BIG	BIG	BIG	S2S	S2S
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		13-Mar-17	13-Mar-17	13-Mar-17	-	-
Certificate of Analysis Number		B743310	B743310	B743310	-	-
Acenaphthene	7.9	<0.0050	<0.0050	<0.0050	0.063	<0.0050
Acenaphthylene	0.15	<0.0050	<0.0050	<0.0050	<0.050	<0.0050
Anthracene	0.67	<0.0050	<0.0050	<0.0050	0.093	<0.0050
Benzo(a)anthracene	0.5	<0.0050	0.011	<0.0050	0.3	<0.0050
Benzo(a)pyrene	0.3	<0.0050	0.011	<0.0050	0.3	<0.0050
Benzo(b)fluoranthene	0.78	0.0068	0.02	<0.0050	0.39	<0.0050
Benzo(ghi)perylene	6.6	<0.0050	0.009	<0.0050	0.2	<0.0050
Benzo(k)fluoranthene	0.78	<0.0050	0.0069	<0.0050	0.12	<0.0050
Chrysene	7	<0.0050	0.014	<0.0050	0.28	<0.0050
Dibenz(a,h)anthracene	0.1	<0.0050	<0.0050	<0.0050	<0.050	<0.0050
Fluoranthene	0.69	0.014	0.042	<0.0050	0.64	<0.0050
Fluorene	62	<0.0050	<0.0050	<0.0050	<0.050	<0.0050
Indeno(1,2,3-cd)pyrene	0.38	<0.0050	0.0094	<0.0050	0.2	<0.0050
1-Methylnaphthalene	0.99	<0.0050	<0.0050	<0.0050	-	-
2-Methylnaphthalene	0.99	<0.0050	<0.0050	<0.0050	-	-
1&2-Methylnaphthalene	0.99	<0.0071	<0.0071	<0.0071	<0.071	<0.071
Naphthalene	0.6	<0.0050	<0.0050	<0.0050	<0.050	<0.0050
Phenanthrene	6.2	0.008	0.024	<0.0050	0.51	<0.0050
Pyrene	78	0.01	0.034	<0.0050	0.55	<0.0050

All soil concentrations reported in µg/g.
Parameter below detection limit, as indicated
No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS.

Sample ID	MOECC (2011) Table 3: Full Depth Generic SCS in a Non-Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	BH102-1	BH103-2	BH104-5	BH105-1	BH106-1	BH108-1	BH109-5
Lab ID		-	-	-	-	-	-	-
Sampling Date		6-Sep-17	5-Sep-17	7-Sep-17	6-Sep-17	5-Sep-17	5-Sep-17	7-Sep-17
Soil Sample Depth (m)		0 - 0.2	0.8 - 1.4	3 - 3.7	0 - 0.6	0 - 0.6	0 - 0.6	3 - 3.7
Consultant		S2S	S2S	S2S	S2S	S2S	S2S	S2S
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		-	-	-	-	-	-	-
Certificate of Analysis Number		-	-	-	-	-	-	-
Acenaphthene	7.9	<0.0050	<0.0050	<0.0050	<0.0050	0.015	<0.0050	<0.0050
Acenaphthylene	0.15	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Anthracene	0.67	<0.0050	<0.0050	<0.0050	<0.0050	0.022	<0.0050	<0.0050
Benzo(a)anthracene	0.5	0.012	<0.0050	<0.0050	<0.0050	0.094	0.0098	<0.0050
Benzo(a)pyrene	0.3	0.014	<0.0050	<0.0050	<0.0050	0.1	0.013	<0.0050
Benzo(b)fluoranthene	0.78	0.02	<0.0050	<0.0050	<0.0050	0.13	0.02	<0.0050
Benzo(ghi)perylene	6.6	0.011	<0.0050	<0.0050	<0.0050	0.07	0.012	<0.0050
Benzo(k)fluoranthene	0.78	0.0064	<0.0050	<0.0050	<0.0050	0.047	0.0063	<0.0050
Chrysene	7	0.012	<0.0050	<0.0050	<0.0050	0.088	0.011	<0.0050
Dibenz(a,h)anthracene	0.1	<0.0050	<0.0050	<0.0050	<0.0050	0.014	<0.0050	<0.0050
Fluoranthene	0.69	0.028	<0.0050	<0.0050	<0.0050	0.25	0.026	<0.0050
Fluorene	62	<0.0050	<0.0050	<0.0050	<0.0050	0.0081	<0.0050	<0.0050
Indeno(1,2,3-cd)pyrene	0.38	0.011	<0.0050	<0.0050	<0.0050	0.074	0.011	<0.0050
1-Methylnaphthalene	0.99	-	-	-	-	-	-	-
2-Methylnaphthalene	0.99	-	-	-	-	-	-	-
1&2-Methylnaphthalene	0.99	<0.0071	<0.0071	<0.071	<0.071	<0.0071	<0.0071	<0.071
Naphthalene	0.6	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Phenanthrene	6.2	0.016	<0.0050	<0.0050	<0.0050	0.13	0.016	<0.0050
Pyrene	78	0.023	<0.0050	<0.0050	<0.0050	0.2	0.02	<0.0050

All soil concentrations reported in µg/g.
"<" = Parameter below detection limit, as indicated
"NV" = No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011)

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	BH5-SS1	BH6-SS1	BH7-SS1	BH107-1
Lab ID		DZP000	DZP001	DZP002	-
Sampling Date		1-Mar-17	1-Mar-17	1-Mar-17	7-Sep-17
Soil Sample Depth (m)		0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6
Consultant		BIG	BIG	BIG	S2S
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		13-Mar-17	13-Mar-17	13-Mar-17	-
Certificate of Analysis Number		B743310	B743310	B743310	-
Aroclor 1242	NV	<0.015	<0.015	<0.015	-
Aroclor 1248	NV	<0.015	<0.015	<0.015	-
Aroclor 1254	NV	<0.015	<0.015	<0.015	-
Aroclor 1260	NV	<0.015	<0.015	<0.015	-
Total Polychlorinated Biphenyls	0.35	<0.015	<0.015	<0.015	<0.010

All soil concentrations reported in µg/g.

< = Parameter below detection limit, as indicated

NV = No value

Bold Concentration exceeds MECP (2011) SCS.

Non-detect but detection limit exceeds the MECP (2011) SCS.

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	BH1-SS2	BH2-SS4	BH3-SS1	BH3-SS2	BH3-SS3	BH4-SS2	BH4-SS3	BH5-SS1
Lab ID		DZO989	DZO991	DZO993	DZO994	DZO995	DZO997	DZO998	DZP000
Sampling Date		1-Mar-17	1-Mar-17	1-Mar-17	1-Mar-17	1-Mar-17	1-Mar-17	1-Mar-17	1-Mar-17
Soil Sample Depth (m)		0.7 - 1.37	2.3 - 2.9	0 - 0.6	0.7 - 1.37	1.5 - 2.13	0.7 - 1.37	1.5 - 2.13	0 - 0.6
Consultant		BIG	BIG	BIG	BIG	BIG	BIG	BIG	BIG
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		13-Mar-17	13-Mar-17	13-Mar-17	13-Mar-17	13-Mar-17	13-Mar-17	13-Mar-17	13-Mar-17
Certificate of Analysis Number		B743310	B743310	B743310	B743310	B743310	B743310	B743310	B743310
Antimony	7.5	<0.20	<0.20	-	<0.20	-	-	<0.20	0.27
Arsenic	18	1.5	1.6	-	2.3	-	-	2.5	1.8
Barium	390	9.4	9.1	-	13	-	-	7.9	17
Beryllium	4	<0.20	<0.20	-	<0.20	-	-	<0.20	0.21
Boron (Total)	120	<5.0	<5.0	-	<5.0	-	-	<5.0	<5.0
Boron (Hot water soluble)	1.5	-	0	-	-	-	-	-	-
Cadmium	1.2	<0.10	<0.10	-	<0.10	-	-	<0.10	<0.10
Chromium (total)	160	4.8	6.6	-	5.5	-	-	8.7	6.4
Chromium VI	8	-	-	-	-	-	-	-	-
Cobalt	22	2	2.4	-	2.2	-	-	2.6	2.6
Copper	140	8.4	9.4	-	11	-	-	9.4	8.7
Lead	120	2.8	3.1	-	6.6	-	-	3.6	6.2
Mercury	0.27	-	-	-	-	-	-	-	0.059
Molybdenum	6.9	<0.50	<0.50	-	<0.50	-	-	<0.50	<0.50
Nickel	100	4.4	5	-	5.1	-	-	5.3	5.4
Selenium	2.4	<0.50	<0.50	-	<0.50	-	-	<0.50	<0.50
Silver	20	<0.20	<0.20	-	<0.20	-	-	<0.20	<0.20
Thallium	1	<0.050	<0.050	-	<0.050	-	-	<0.050	<0.050
Uranium	23	0.25	0.31	-	0.26	-	-	0.3	0.25
Vanadium	86	11	19	-	13	-	-	17	16
Zinc	340	11	11	-	15	-	-	14	19
Electrical Conductivity (mS/cm)	0.7	-	-	-	-	**1.1**	-	-	0.057
Sodium Adsorption Ratio (unitless)	5	-	-	-	-	**27**	-	-	0.44
Free Cyanide	0.051	-	-	-	-	-	-	-	<0.01
pH (pH units)	5-9 (surface soil); 5-11 (subsurface soil)	-	-	8.07	-	-	7.99	-	7.25

All soil concentrations reported in µg/g.
□ Parameter below detection limit, as indicated
□ No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS.

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	BH6-SS1	BH7-SS1	BH101-1	BH102-1	BH102-3	BH102-6	BH103-2
Lab ID		DZP001	DZP002	-	-	-	-	-
Sampling Date		1-Mar-17	1-Mar-17	7-Sep-17	6-Sep-17	6-Sep-17	6-Sep-17	5-Sep-17
Soil Sample Depth (m)		0 - 0.6	0 - 0.6	0 - 0.6	0 - 0.6	1.5 - 2.4	4.6 - 5.2	4.6 - 5.2
Consultant		BIG	BIG	S2S	S2S	S2S	S2S	S2S
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		13-Mar-17	13-Mar-17	-	-	-	-	-
Certificate of Analysis Number		B743310	B743310	-	-	-	-	-
Antimony	7.5	0.35	0.24	<0.20	<0.20	-	-	<0.20
Arsenic	18	3	4.2	2.8	2.6	-	-	1.7
Barium	390	39	38	17	29	-	-	11
Beryllium	4	0.24	0.3	<0.20	0.26	-	-	<0.20
Boron (Total)	120	<5.0	<5.0	<5.0	<5.0	-	-	<5.0
Boron (Hot water soluble)	1.5	-	0.19	0.27	0.15	-	-	0.26
Cadmium	1.2	0.19	0.16	0.15	0.11	-	-	<0.10
Chromium (total)	160	8.4	11	7.1	11	-	-	7.8
Chromium VI	8	-	<0.2	<0.2	<0.2	-	-	<0.2
Cobalt	22	2.9	4.2	2.9	3.5	-	-	2.9
Copper	140	13	12	11	13	-	-	10
Lead	120	42	31	12	27	-	-	4.8
Mercury	0.27	0.12	<0.050	<0.050	0.16	-	-	<0.050
Molybdenum	6.9	<0.50	<0.50	<0.50	1.6	-	-	<0.50
Nickel	100	6.1	9.1	6	6.6	-	-	4.9
Selenium	2.4	<0.50	<0.50	<0.50	<0.50	-	-	<0.50
Silver	20	<0.20	<0.20	<0.20	<0.20	-	-	<0.20
Thallium	1	0.055	0.097	<0.050	<0.050	-	-	<0.050
Uranium	23	0.5	0.38	0.33	0.41	-	-	0.34
Vanadium	86	19	21	21	27	-	-	19
Zinc	340	52	67	42	34	-	-	16
Electrical Conductivity (mS/cm)	0.7	0.14	0.15	0.31	0.3	-	-	0.13
Sodium Adsorption Ratio (unitless)	5	0.28	0.26	0.19	**8.9**	**9.5**	3.2	0.31
Free Cyanide	0.051	<0.01	<0.01	<0.01	<0.01	-	-	<0.01
pH (pH units)	5-9 (surface soil); 5-11 (subsurface soil)	7.58	7.55	**9.6**	7.82	-	-	7.59

All soil concentrations reported in µg/g.
< = Parameter below detection limit, as indicated
NV = No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011)

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	BH105-1	BH105-5	BH105-7	BH106-1	BH108-1	BH108-4
Lab ID		-	-	-	-	-	-
Sampling Date		6-Sep-17	6-Sep-17	6-Sep-17	5-Sep-17	5-Sep-17	5-Sep-17
Soil Sample Depth (m)		0 - 0.6	3.0 - 3.6	4.6 - 5.2	0 - 0.6	0 - 0.6	2.3 - 2.9
Consultant		S2S	S2S	S2S	S2S	S2S	S2S
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		-	-	-	-	-	-
Certificate of Analysis Number		-	-	-	-	-	-
Antimony	7.5	<0.20	-	-	<0.20	<0.20	-
Arsenic	18	2	-	-	2.8	2.2	-
Barium	390	15	-	-	23	32	-
Beryllium	4	<0.20	-	-	0.21	0.21	-
Boron (Total)	120	<5.0	-	-	<5.0	<5.0	-
Boron (Hot water soluble)	1.5	0.096	-	-	0.16	0.15	-
Cadmium	1.2	<0.10	-	-	0.1	<0.10	-
Chromium (total)	160	7.3	-	-	9.4	7.4	-
Chromium VI	8	<0.2	-	-	<0.2	<0.2	-
Cobalt	22	2.6	-	-	3.6	3.3	-
Copper	140	9.8	-	-	13	12	-
Lead	120	5.5	-	-	14	5.1	-
Mercury	0.27	<0.050	-	-	<0.050	<0.050	-
Molybdenum	6.9	<0.50	-	-	<0.50	<0.50	-
Nickel	100	5.3	-	-	7	6.9	-
Selenium	2.4	<0.50	-	-	<0.50	<0.50	-
Silver	20	<0.20	-	-	<0.20	<0.20	-
Thallium	1	<0.050	-	-	<0.050	<0.050	-
Uranium	23	0.28	-	-	0.44	0.36	-
Vanadium	86	20	-	-	25	18	-
Zinc	340	20	-	-	31	18	-
Electrical Conductivity (mS/cm)	0.7	0.22	-	-	0.19	0.097	-
Sodium Adsorption Ratio (unitless)	5	**6.5**	**6.7**	0.55	0.24	0.32	
Free Cyanide	0.051	<0.01	-	-	<0.01	<0.01	-
pH (pH units)	5-9 (surface soil); 5-11 (subsurface soil)	7.71		-	7.83	7.82	7.75

All soil concentrations reported in µg/g.
< = Parameter below detection limit, as indicated
NV = No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011)

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition Residential/Parkland/Institutional Land Use (coarse textured soil)	BH5-SS1	BH6-SS1	BH7-SS1
Lab ID		DZP000	DZP001	DZP002
Sampling Date		1-Mar-17	1-Mar-17	1-Mar-17
Soil Sample Depth (m)		0 - 0.6	0 - 0.6	0 - 0.6
Consultant		BIG	BIG	BIG
Laboratory		Maxxam	Maxxam	Maxxam
Date of Analysis		13-Mar-17	13-Mar-17	13-Mar-17
Certificate of Analysis Number		B743310	B743310	B743310
Chlordane (Total)	0.05	<0.0020	<0.0020	0.0028
o,p-DDD + p,p-DDD	NV	<0.0020	<0.0020	<0.0020
o,p-DDE + p,p-DDE	NV	0.011	0.057	0.009
o,p-DDT + p,p-DDT	NV	0.006	0.037	0.0063
Total Endosulfan	0.04	<0.0020	<0.0020	<0.0020
Aldrin	0.05	<0.0020	<0.0020	<0.0020
a-Chlordane	NV	<0.0020	<0.0020	<0.0020
g-Chlordane	NV	<0.0020	<0.0020	0.0028
o,p-DDD	NV	<0.0020	<0.0020	<0.0020
p,p-DDD	NV	<0.0020	<0.0020	<0.0020
o,p-DDE	NV	<0.0020	<0.0020	<0.0020
p,p-DDE	NV	0.011	0.057 (1)	0.009
o,p-DDT	NV	<0.0020	0.0091	<0.0020
p,p-DDT	NV	0.006	0.028	0.0063
Dieldrin	0.05	<0.0020	<0.0020	0.002
Lindane	0.056	<0.0020	<0.0020	<0.0020
Endosulfan I (alpha)	NV	<0.0020	<0.0020	<0.0020
Endosulfan II (beta)	NV	<0.0020	<0.0020	<0.0020
Endrin	0.04	<0.0020	<0.0020	<0.0020
Heptachlor	0.15	<0.0020	<0.0020	<0.0020
Heptachlor epoxide	0.05	<0.0020	<0.0020	0.0026
Hexachlorobenzene	0.52	<0.0020	<0.0020	<0.0020
Hexachlorobutadiene	0.012	<0.0020	<0.0020	<0.0020
Hexachloroethane	0.089	<0.0020	<0.0020	<0.0020
Methoxychlor	0.13	<0.0050	<0.0050	<0.0050

All soil concentrations reported in µg/g.
< = Parameter below detection limit, as indicated
NV = No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS.

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition All Types of Land Use (coarse textured soil)	MW1	MW1	BH/MW1	BH/MW1	MW2
Lab ID		DZS214	-	JTY916	KBS243	DZS215
Sampling Date		3-Mar-17	12-Sep-17	21-May-19	20-Jun-19	3-Mar-17
Screen Depth Interval (m)		2.13 - 5.18	2.13 - 5.18	2.13 - 5.18	2.13 - 5.18	3.05 - 6.1
Consultant		BIG	S2S	EXP	EXP	BIG
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		-	-	27-May-19	27-Jun-19	-
Certificate of Analysis Number		B744029	-	B9D6751	B9H1571	B744029
PHC F1 (C6-C10)	750	**1200 (1)**	**1800**	<25	<25	**1600**
PHC F1 (C6-C10) - BTEX	750	**1100**	-	<25	<25	**1600**
PHC F2 (C10-C16)	150	<100	<100	<100	<100	<100
PHC F3 (C16-C34)	500	<200	<200	<200	<200	<200
PHC F4 (C34-C50)	500	<200	<200	<200	<200	<200
Reached baseline at C50?	-	Yes	Yes	YES	YES	Yes
PHC F4 (C34-C50)-gravimetric	500	-	-	-	-	-

All groundwater concentrations reported in µg/L.
≤ Parameter below detection limit, as indicated
NV No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS.

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition All Types of Land Use (coarse textured soil)	MW2	BH/MW2	BH/MW2	BH/MW22 (DUP of BH/MW2)	MW3
Lab ID		-	JTY917	KBS244	KBS245	DZS216
Sampling Date		12-Sep-17	21-May-19	20-Jun-19	20-Jun-19	3-Mar-17
Screen Depth Interval (m)		3.05 - 6.1	3.05 - 6.1	3.05 - 6.1	3.05 - 6.1	2.9 - 5.95
Consultant		S2S	EXP	EXP	EXP	BIG
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		-	27-May-19	27-Jun-19	27-Jun-19	-
Certificate of Analysis Number		-	B9D6751	B9H1571	B9H1571	B744029
PHC F1 (C6-C10)	750	**1200**	<25	<25	<25	<25
PHC F1 (C6-C10) - BTEX	750	-	<25	<25	<25	<25
PHC F2 (C10-C16)	150	<100	<100	<100	<100	<100
PHC F3 (C16-C34)	500	<200	<200	<200	210	<200
PHC F4 (C34-C50)	500	<200	<200	<200	<200	<200
Reached baseline at C50?	-	Yes	YES	YES	YES	Yes
PHC F4 (C34-C50)-gravimetric	500	-	-	-	-	-

All groundwater concentrations reported in µg/L.

≤ Parameter below detection limit, as indicated

NV No value

Bold Concentration exceeds MECP (2011) SCS.

Non-detect but detection limit exceeds the MECP (2011) SCS.

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition All Types of Land Use (coarse textured soil)	MW3	MW4	BH101	BH103	BH104
Lab ID		-	-	-	-	-
Sampling Date		13-Sep-17	12-Sep-17	13-Sep-17	13-Sep-17	12-Sep-17
Screen Depth Interval (m)		2.9 - 5.95	2.4 - 5.4	2.3 - 10.7	2.1- 5.1	2.2 - 5.2
Consultant		S2S	S2S	S2S	S2S	S2S
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		-	-	-	-	-
Certificate of Analysis Number		-	-	-	-	-
PHC F1 (C6-C10)	750	<25	400	83	140	43
PHC F1 (C6-C10) - BTEX	750	-	-	-	-	-
PHC F2 (C10-C16)	150	<100	<100	<100	<100	<100
PHC F3 (C16-C34)	500	<200	<200	<200	<200	<200
PHC F4 (C34-C50)	500	<200	<200	<200	<200	<200
Reached baseline at C50?	-	Yes	Yes	Yes	Yes	Yes
PHC F4 (C34-C50)-gravimetric	500	-	-	-	-	-

All groundwater concentrations reported in µg/L.
< = Parameter below detection limit, as indicated
NV = No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS.

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition All Types of Land Use (coarse textured soil)	BH104	BH1044 (DUP of BH104)	BH105	BH106
Lab ID		JTY924	JTY925	-	-
Sampling Date		21-May-19	21-May-19	13-Sep-17	13-Sep-17
Screen Depth Interval (m)		2.2 - 5.2	2.2 - 5.2	2.9 - 5.9	1.5 - 4.5
Consultant		EXP	EXP	S2S	S2S
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		27-May-19	27-May-19	-	-
Certificate of Analysis Number		B9D6751	B9D6751	-	-
PHC F1 (C6-C10)	750	33	<25	42	140
PHC F1 (C6-C10) - BTEX	750	33	<25	-	-
PHC F2 (C10-C16)	150	<100	<100	<100	<100
PHC F3 (C16-C34)	500	<200	<200	<200	<200
PHC F4 (C34-C50)	500	<200	<200	<200	<200
Reached baseline at C50?	-	YES	YES	Yes	Yes
PHC F4 (C34-C50)-gravimetric	500	-	-	-	-

All groundwater concentrations reported in µg/L.
< = Parameter below detection limit, as indicated
NV = No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS.

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition All Types of Land Use (coarse textured soil)	MW1	MW1	BH/MW1	BH/MW1	MW2	MW2	BH/MW2	BH/MW2	BH/ MW22 (Dup of MW2)	MW3
Lab ID		DZS214	-	JTY916	KBS243	DZS215	-	JTY917	KBS244	KBS245	DZS216
Sampling Date		3-Mar-17	12-Sep-17	21-May-19	20-Jun-19	3-Mar-17	12-Sep-17	21-May-19	20-Jun-19	20-Jun-19	3-Mar-17
Screen Depth Interval (m)		2.13 - 5.18	2.13 - 5.18	2.13 - 5.18	2.13 - 5.18	3.05 - 6.1	3.05 - 6.1	3.05 - 6.1	3.05 - 6.1	3.05 - 6.1	2.9 - 5.95
Consultant		BIG	S2S	EXP	EXP	BIG	S2S	EXP	EXP	EXP	BIG
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		-	-	27-May-19	27-Jun-19	-	-	27-May-19	27-Jun-19	27-Jun-19	-
Certificate of Analysis Number		B744029	-	B9D6751	B9H1571	B744029	-	B9D6751	B9H1571	B9H1571	B744029
Acetone	2700	<200	<200	<10	-	-	<200	<10	-	-	<10
Benzene	5	**43**	**45**	<0.20	<0.20	**5.6**	<4.0	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	16	<10	<10	<0.50	-	-	<10	<0.50	-	-	<0.50
Bromoform	25	<20	<20	<1.0	-	-	<20	<1.0	-	-	<1.0
Bromomethane	0.89	<0.50	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50
Carbon Tetrachloride	0.79	<0.20	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20
Chlorobenzene	30	<4.0	<4.0	<0.20	-	-	<4.0	<0.20	-	-	<0.20
Chloroform	2.4	<0.20	<0.20	0.47	-	-	<0.20	0.27	-	-	<0.20
Dibromochloromethane	25	<10	<10	<0.50	-	-	<10	<0.50	-	-	<0.50
1,2-Dichlorobenzene	3	<0.50	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50
1,3-Dichlorobenzene	59	<10	<10	<0.50	-	-	<10	<0.50	-	-	<0.50
1,4-Dichlorobenzene	1	<0.50	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50
Dichlorodifluoromethane	590	<20	<20	<1.0	-	-	<20	<1.0	-	-	<1.0
1,1-Dichloroethane	5	<4.0	<4.0	<0.20	-	-	<4.0	<0.20	-	-	<0.20
1,2-Dichloroethane	1.6	<0.50	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50
1,1-Dichloroethylene	1.6	**18**	**25**	<0.20	-	-	0.69	<0.20	-	-	<0.20
cis-1,2-Dichloroethylene	1.6	**2900**	**3800**	**12**	-	-	**110**	1.5	-	-	**3.3**
trans-1,2-Dichloroethylene	1.6	**25**	**37**	<0.50	-	-	**4.5**	<0.50	-	-	<0.50
1,2-Dichloropropane	5	<4.0	<4.0	<0.20	-	-	<4.0	<0.20	-	-	<0.20
cis-1,3-Dichloropropene	0.5	<0.30	<0.50	<0.30	-	-	<0.50	<0.30	-	-	<0.30
trans-1,3-Dichloropropene	0.5	<0.40	<0.50	<0.40	-	-	<0.50	<0.40	-	-	<0.40
Ethylbenzene	2.4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylene Dibromide (1,2-Dibromoethane)	0.2	<0.20	<0.20	<0.20	-	-	<0.20	<0.20	-	-	<0.20
Hexane (n)	51	<20	<20	<1.0	-	-	<20	<1.0	-	-	<1.0
Methylene chloride (Dichloromethane)	50	<40	<40	<2.0	-	-	<40	<2.0	-	-	<2.0
Methyl ethyl ketone (2-Butanone)	1800	<200	<200	<10	-	-	<200	<10	-	-	<10
Methyl Isobutyl Ketone	640	<100	<100	<5.0	-	-	<100	<5.0	-	-	<5.0
Methyl t-butyl ether (MTBE)	15	<10	<10	<0.50	-	-	<10	<0.50	-	-	<0.50
Styrene	5.4	<0.50	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50
1,1,1,2-Tetrachloroethane	1.1	<0.50	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50
1,1,2,2-Tetrachloroethane	1	<0.50	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50
Tetrachloroethylene	1.6	**4400**	**6400**	**17**	-	-	**4100**	**34**	-	-	**47**
Toluene	24	<4.0	<4.0	<0.20	<0.20	0.53	<4.0	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	200	<4.0	<4.0	<0.20	-	-	<4.0	<0.20	-	-	<0.20
1,1,2-Trichloroethane	4.7	<0.50	<0.50	<0.50	-	-	<0.50	<0.50	-	-	<0.50
Trichloroethylene	1.6	**690**	**660**	**1.8**	-	-	**370**	**8.3**	-	-	**23**
Trichlorofluoromethane	150	<10	<10	<0.50	-	-	<10	<0.50	-	-	<0.50
Vinyl Chloride	0.5	**580**	**770**	**0.55**	-	-	**13**	<0.20	-	-	**1.8**
m-Xylene + p-Xylene	NV	<4.0	-	<0.20	<0.40	<0.40	-	<0.20	<0.40	<0.40	<0.20
o-Xylene	NV	<4.0	-	<0.20	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Xylenes (total)	300	<4.0	<4.0	<0.20	<0.40	<0.40	<4.0	<0.20	<0.40	<0.40	<0.20

All groundwater concentrations reported in µg/L.
< Parameter below detection limit, as indicated
NV No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS.

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition All Types of Land Use (coarse textured soil)	MW3	MW3	MW4	MW4	MW4	MW44 (DUP of MW4)	BH101	MW101	MW102	MW102A
Lab ID		JTY918	-	DZS217	-	JTY919	JTY920	-	JTY921	JTY922	KBS239
Sampling Date		21-May-19	13-Sep-17	3-Mar-17	12-Sep-17	21-May-19	21-May-19	13-Sep-17	21-May-19	21-May-19	20-Jun-19
Screen Depth Interval (m)		2.9 - 5.95	2.9 - 5.95	2.4 - 5.4	2.4 - 5.4	2.4 - 5.4	2.4 - 5.4	2.4 - 5.4	2.4 - 5.4	2.3 - 10.7	2.74-5.79
Consultant		EXP	S2S	BIG	S2S	EXP	EXP	S2S	EXP	EXP	EXP
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		27-May-19	-	-	-	27-May-19	27-May-19	-	27-May-19	27-May-19	27-Jun-19
Certificate of Analysis Number		B9D6751	-	B744029	-	B9D6751	B9D6751	-	B9D6751	B9D6751	B9H1571
Acetone	2700	<10	<10	<50	<100	<10	<10	<10	<10	<10	<10
Benzene	5	<0.20	<0.20	2.4	**6.9**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	16	<0.50	<0.50	<2.5	<5.0	5.5	5.4	<0.50	<0.50	<0.50	<0.50
Bromoform	25	<1.0	<1.0	<5.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	0.89	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	0.79	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	30	<0.20	<0.20	<1.0	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	2.4	<0.20	<0.20	<1.0	<2.0	**18**	**18**	<0.20	<0.20	0.47	0.3
Dibromochloromethane	25	<0.50	<0.50	<2.5	<5.0	3.4	3.3	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	3	<0.50	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	59	<0.50	<0.50	<2.5	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	590	<1.0	<1.0	<5.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	5	<0.20	<0.20	<1.0	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50
1,2-Dichloroethane	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	1.6	<0.20	<0.20	**2.8**	**5.4**	<0.20	<0.20	<0.20	<0.20	0.23	<0.50
cis-1,2-Dichloroethylene	1.6	**4.3**	0.68	**1200**	**1900**	**18**	**19**	**5.8**	**3.3**	**9.8**	**13**
trans-1,2-Dichloroethylene	1.6	<0.50	<0.50	**11**	**23**	0.75	0.71	<0.50	<0.50	0.51	0.76
1,2-Dichloropropane	5	<0.20	<0.20	<1.0	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	0.5	<0.30	<0.50	<0.30	<0.50	<0.30	<0.30	<0.50	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	0.5	<0.40	<0.50	<0.40	<0.50	<0.40	<0.40	<0.50	<0.40	<0.40	<0.40
Ethylbenzene	2.4	<0.20	<0.20	<1.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylene Dibromide (1,2-Dibromoethane)	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Hexane (n)	51	<1.0	<20	<5.0	<20	<1.0	<1.0	<20	<1.0	<1.0	<1.0
Methylene chloride (Dichloromethane)	50	<2.0	<2.0	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Methyl ethyl ketone (2-Butanone)	1800	<10	<10	<50	<100	<10	<10	<10	<10	<10	<10
Methyl Isobutyl Ketone	640	<5.0	<5.0	<25	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl t-butyl ether (MTBE)	15	<0.50	<0.50	<2.5	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	5.4	<0.50	<0.50	<2.5	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	1.6	**36**	**20**	**700**	**1100**	**110**	**120**	**290**	**48**	**50**	**120**
Toluene	24	<0.20	<0.20	<1.0	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	200	<0.20	<0.20	<1.0	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	4.7	<0.50	<0.50	<2.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	1.6	**13**	**20**	**84**	**230**	**5.7**	**5.8**	**43**	**13**	**57**	**92**
Trichlorofluoromethane	150	<0.50	<0.50	<2.5	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	0.5	**2.1**	<0.20	**75**	**290**	<0.20	<0.20	0.41	<0.20	**0.91**	**0.64**
m-Xylene + p-Xylene	NV	<0.20	-	<1.0	-	<0.20	<0.20	-	<0.20	<0.20	<0.20
o-Xylene	NV	<0.20	-	<1.0	-	<0.20	<0.20	-	<0.20	<0.20	<0.20
Xylenes (total)	300	<0.20	<0.20	<1.0	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

All groundwater concentrations reported in µg/L.
"<" Parameter below detection limit, as indicated
"NV" No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition All Types of Land Use (coarse textured soil)	MW1022A (DUP MW102A)	BH103	MW103	BH104	BH104	BH105	BH105	BH106	MW106	MW201	MW201
Lab ID		KBS240	-	JTY923	-	JTY924	-	JTY926	-	JTY927	KBS241	KDK391
Sampling Date		20-Jun-19	13-Sep-17	21-May-19	12-Sep-17	21-May-19	13-Sep-17	21-May-19	13-Sep-17	21-May-19	20-Jun-19	28-Jun-19
Screen Depth Interval (m)		2.74-5.79	2.1- 5.1	2.1- 5.1	2.2 - 5.2	2.2 - 5.2	2.9 - 5.9	2.9 - 5.9	1.5 - 4.5	1.5 - 4.5	10.67 - 12.2	10.67 - 12.2
Consultant		EXP	S2S	EXP	S2S	EXP	S2S	EXP	S2S	EXP	EXP	EXP
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		27-Jun-19	-	27-May-19	-	27-May-19	-	27-May-19	-	27-May-19	27-Jun-19	4-Jul-19
Certificate of Analysis Number		B9H1571	-	B9D6751	-	B9D6751	-	B9D6751	-	B9D6751	B9H1571	B9H8969
Acetone	2700	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Benzene	5	<0.20	0.32	<0.20	2.3	<0.20	0.41	<0.20	0.65	<0.20	<0.20	<0.20
Bromodichloromethane	16	<0.50	<0.50	2.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	0.89	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	0.79	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	30	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	2.4	0.3	<0.20	**8.3**	<0.20	0.43	<0.20	<0.20	<0.20	0.41	<0.20	<0.20
Dibromochloromethane	25	<0.50	<0.50	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	59	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	590	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	5	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
1,2-Dichloroethane	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	1.6	<0.50	0.2	<0.20	1.1	1	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
cis-1,2-Dichloroethylene	1.6	**13**	**39**	1.1	**450**	**310**	**8.5**	0.75	**23**	**3.3**	<0.50	<0.50
trans-1,2-Dichloroethylene	1.6	0.74	1.5	<0.50	**7.4**	**9**	<0.50	<0.50	1	<0.50	<0.50	<0.50
1,2-Dichloropropane	5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	0.5	<0.30	<0.50	<0.30	<0.50	<0.30	<0.50	<0.30	<0.50	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	0.5	<0.40	<0.50	<0.40	<0.50	<0.40	<0.50	<0.40	<0.50	<0.40	<0.40	<0.40
Ethylbenzene	2.4	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylene Dibromide (1,2-Dibromoethane)	0.2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Hexane (n)	51	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene chloride (Dichloromethane)	50	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Methyl ethyl ketone (2-Butanone)	1800	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Methyl Isobutyl Ketone	640	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl t-butyl ether (MTBE)	15	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	5.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	1.6	**120**	**420**	**35**	**120**	**32**	**120**	**13**	**430**	**27**	0.5	0.5
Toluene	24	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	200	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	4.7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	1.6	**92**	**74**	**2.2**	**24**	**31**	**34**	**2.4**	**83**	**14**	<0.20	<0.20
Trichlorofluoromethane	150	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	0.5	**0.62**	**6.4**	<0.20	**20**	<0.20	**6.5**	<0.20	**1.5**	<0.20	**0.87**	**1.1**
m-Xylene + p-Xylene	NV	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	<0.20	<0.20
o-Xylene	NV	<0.20	-	<0.20	-	<0.20	-	<0.20	-	<0.20	<0.20	<0.20
Xylenes (total)	300	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

All groundwater concentrations reported in µg/L.
< Parameter below detection limit, as indicated
NV No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition All Types of Land Use (coarse textured soil)	MW202	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK LOT # 3634
Lab ID		KBS242	-	-	JTY928	KBS246
Sampling Date		20-Jun-19	12-Sep-17	13-Sep-17	21-May-19	20-Jun-19
Screen Depth Interval (m)		10.67 - 12.2	NA	NA	NA	NA
Consultant		EXP	S2S	S2S	EXP	EXP
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		27-Jun-19	-	-	27-May-19	27-Jun-19
Certificate of Analysis Number		B9H1571	-	-	B9D6751	B9H1571
Acetone	2700	<10	<10	<10	<10	<10
Benzene	5	<0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	16	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	25	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	0.89	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	0.79	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	30	<0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	2.4	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	25	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	3	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	59	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	1	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	590	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	5	<0.50	<0.20	<0.20	<0.20	<0.50
1,2-Dichloroethane	1.6	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	1.6	<0.50	<0.20	<0.20	<0.20	<0.50
cis-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	5	<0.20	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	0.5	<0.30	<0.50	<0.50	<0.30	<0.30
trans-1,3-Dichloropropene	0.5	<0.40	<0.50	<0.50	<0.40	<0.40
Ethylbenzene	2.4	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylene Dibromide (1,2-Dibromoethane)	0.2	<0.20	<0.20	<0.20	<0.20	<0.20
Hexane (n)	51	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene chloride (Dichloromethane)	50	<2.0	<2.0	<2.0	<2.0	<2.0
Methyl ethyl ketone (2-Butanone)	1800	<10	<10	<10	<10	<10
Methyl Isobutyl Ketone	640	<5.0	<5.0	<5.0	<5.0	<5.0
Methyl t-butyl ether (MTBE)	15	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	5.4	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	1.1	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	1	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	1.6	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	24	<0.20	<0.20	0.64	<0.20	<0.20
1,1,1-Trichloroethane	200	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	4.7	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	1.6	<0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	150	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	0.5	<0.20	<0.20	<0.20	<0.20	<0.20
m-Xylene + p-Xylene	NV	<0.20	-	-	<0.20	<0.20
o-Xylene	NV	<0.20	-	-	<0.20	<0.20
Xylenes (total)	300	<0.20	<0.20	<0.20	<0.20	<0.20

All groundwater concentrations reported in µg/L.
"<" Parameter below detection limit, as indicated
"NV" No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS

Sample Location	MECP (2011) Table 3: Full Depth Generic SCS	MW1	MW2	MW3	MW4	MW101	BH103	BH104	BH105	BH106
Laboratory ID		-	-	-	-	-	-	-	-	-
Sampling Date		12-Sep-17	12-Sep-17	13-Sep-17	12-Sep-17	13-Sep-17	13-Sep-17	12-Sep-17	13-Sep-17	13-Sep-17
Screen Interval Depth (m)		2.13 - 5.18	3.05 - 6.1	2.9 - 5.95	2.4 - 5.4	2.3 - 10.7	2.1- 5.1	2.2 - 5.2	2.9 - 5.9	1.5 - 4.5
Consultant		S2S	S2S	S2S	S2S	S2S	S2S	S2S	S2S	S2S
Laboratory		Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam	Maxxam
Date of Analysis		-	-	-	-	-	-	-	-	-
Certificate of Analysis Number		-	-	-	-	-	-	-	-	-
Acenaphthene	4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene	2.4	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)anthracene	1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(b/j)fluoranthene	0.1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(ghi)perylene	0.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	0.1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chrysene	0.1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibenzo(a,h)anthracene	0.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene	0.41	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluorene	120	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	0.2	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
1-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-
1,2-Methylnaphthalene	3	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071	<0.071
Naphthalene	11	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phenanthrene	1	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Pyrene	4.1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

All groundwater concentrations reported in µg/L.
< = Parameter below detection limit, as indicated
NV = No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS.

Sample ID	MOECC (2011) Table 2: Full Depth Generic SCS in a Potable Groundwater Condition All Types of Land Use (coarse textured soil)	MW3
Lab ID		-
Sampling Date		13-Sep-17
Screen Depth Interval (m)		2.9 - 5.9
Consultant		S2S
Laboratory		Maxxam
Certificate of Analysis Number		-
Antimony	6	<0.50
Arsenic	25	<1.0
Barium	1000	110
Beryllium	4	<0.50
Boron (Total)	5000	85
Cadmium	2.7	<0.10
Chromium (total)	50	<5.0
Chromium VI	25	<5.0
Cobalt	3.8	<0.50
Copper	87	<0.50
Lead	10	<0.50
Mercury	0.29	<0.1
Molybdenum	70	0.68
Nickel	100	1.5
Selenium	10	4.3
Silver	1.5	<0.10
Thallium	2	<0.050
Uranium	20	1.7
Vanadium	6.2	0.69
Zinc	1100	42
Sodium	490000	**1200000**
Chloride	790000	**2000000**
Free Cyanide	66	<1

All groundwater concentrations reported in µg/L.
< = Parameter below detection limit, as indicated
NV = No value
Bold Concentration exceeds MECP (2011) SCS.
Non-detect but detection limit exceeds the MECP (2011) SCS.
Parameter detected and no SCS provided

Appendix E – Certificates of Analysis

Maxxam
A Bureau Veritas Group Company

Your P.O. #: HAM-ENV
Your Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your C.O.C. #: 717908-01-01

Attention: Stephanie Hsia

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

Report Date: 2019/05/27
Report #: R5727141
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9D6751
Received: 2019/05/22, 15:35

Sample Matrix: Water
Samples Received: 13

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	12	N/A	2019/05/27		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Water	1	N/A	2019/05/24	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	4	2019/05/25	2019/05/27	CAM SOP-00316	CCME PHC-CWS m
Volatile Organic Compounds and F1 PHCs	3	N/A	2019/05/24	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Water	9	N/A	2019/05/24	CAM SOP-00228	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025 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. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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. When sampling is not conducted by Maxxam, results relate to the supplied 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.

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

Your P.O. #: HAM-ENV
Your Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your C.O.C. #: 717908-01-01

Attention: Stephanie Hsia

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

Report Date: 2019/05/27
Report #: R5727141
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9D6751
Received: 2019/05/22, 15:35

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Christine Gripton, Senior Project Manager
Email: CGripton@maxxam.ca
Phone# (519)652-9444
==========
This report has been generated and distributed using a secure automated process.
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 Job #: B9D6751
Report Date: 2019/05/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 PHCS, BTEX/F1-F4 (WATER)

Maxxam ID		JTY925		
Sampling Date		2019/05/21 11:55		
COC Number		717908-01-01		
	UNITS	**BH1044**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons				
Benzene	ug/L	<0.20	0.20	6138471
Toluene	ug/L	<0.20	0.20	6138471
Ethylbenzene	ug/L	<0.20	0.20	6138471
o-Xylene	ug/L	<0.20	0.20	6138471
p+m-Xylene	ug/L	<0.40	0.40	6138471
Total Xylenes	ug/L	<0.40	0.40	6138471
F1 (C6-C10)	ug/L	<25	25	6138471
F1 (C6-C10) - BTEX	ug/L	<25	25	6138471
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	6140591
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	6140591
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	6140591
Reached Baseline at C50	ug/L	Yes		6140591
Surrogate Recovery (%)				
1,4-Difluorobenzene	%	100		6138471
4-Bromofluorobenzene	%	98		6138471
D10-Ethylbenzene	%	99		6138471
D4-1,2-Dichloroethane	%	103		6138471
o-Terphenyl	%	102		6140591

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B9D6751
Report Date: 2019/05/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Maxxam ID		JTY916	JTY917	JTY924		
Sampling Date		2019/05/21 12:35	2019/05/21 11:15	2019/05/21 11:55		
COC Number		717908-01-01	717908-01-01	717908-01-01		
	UNITS	**BH/MW1**	**BH/MW2**	**BH104**	**RDL**	**QC Batch**
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	0.50	6135679
Volatile Organics						
Acetone (2-Propanone)	ug/L	<10	<10	<10	10	6133921
Benzene	ug/L	<0.20	<0.20	<0.20	0.20	6133921
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	0.50	6133921
Bromoform	ug/L	<1.0	<1.0	<1.0	1.0	6133921
Bromomethane	ug/L	<0.50	<0.50	<0.50	0.50	6133921
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	0.20	6133921
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	0.20	6133921
Chloroform	ug/L	0.47	0.27	0.43	0.20	6133921
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	0.50	6133921
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	6133921
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	6133921
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	6133921
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	1.0	6133921
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	6133921
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	6133921
1,1-Dichloroethylene	ug/L	<0.20	<0.20	1.0	0.20	6133921
cis-1,2-Dichloroethylene	ug/L	12	1.5	310	0.50	6133921
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	9.0	0.50	6133921
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	0.20	6133921
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	0.30	6133921
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	0.40	6133921
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	6133921
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	0.20	6133921
Hexane	ug/L	<1.0	<1.0	<1.0	1.0	6133921
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	2.0	6133921
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	10	6133921
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	5.0	6133921
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	0.50	6133921
Styrene	ug/L	<0.50	<0.50	<0.50	0.50	6133921
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	6133921
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	6133921

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B9D6751
Report Date: 2019/05/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Maxxam ID		JTY916	JTY917	JTY924		
Sampling Date		2019/05/21 12:35	2019/05/21 11:15	2019/05/21 11:55		
COC Number		717908-01-01	717908-01-01	717908-01-01		
	UNITS	**BH/MW1**	**BH/MW2**	**BH104**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	17	34	32	0.20	6133921
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	6133921
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	6133921
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	6133921
Trichloroethylene	ug/L	1.8	8.3	31	0.20	6133921
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	0.50	6133921
Vinyl Chloride	ug/L	0.55	<0.20	<0.20	0.20	6133921
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	6133921
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	6133921
Total Xylenes	ug/L	<0.20	<0.20	<0.20	0.20	6133921
F1 (C6-C10)	ug/L	<25	<25	33 (1)	25	6133921
F1 (C6-C10) - BTEX	ug/L	<25	<25	33	25	6133921
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	100	6140591
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	<200	200	6140591
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	200	6140591
Reached Baseline at C50	ug/L	Yes	Yes	Yes		6140591
Surrogate Recovery (%)						
o-Terphenyl	%	102	104	104		6140591
4-Bromofluorobenzene	%	88	88	88		6133921
D4-1,2-Dichloroethane	%	117	116	115		6133921
D8-Toluene	%	101	100	100		6133921

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

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Maxxam Job #: B9D6751
Report Date: 2019/05/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 VOCS BY HS (WATER)

Maxxam ID		JTY918			JTY918			JTY919		
Sampling Date		2019/05/21 10:30			2019/05/21 10:30			2019/05/21 12:30		
COC Number		717908-01-01			717908-01-01			717908-01-01		
	UNITS	**MW3**	**RDL**	**QC Batch**	**MW3 Lab-Dup**	**RDL**	**QC Batch**	**MW4**	**RDL**	**QC Batch**
Calculated Parameters										
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	6135679				<0.50	0.50	6135679
Volatile Organics										
Acetone (2-Propanone)	ug/L	<10	10	6138176	<10	10	6138176	<10	10	6138176
Benzene	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
Bromodichloromethane	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	5.5	0.50	6138176
Bromoform	ug/L	<1.0	1.0	6138176	<1.0	1.0	6138176	<1.0	1.0	6138176
Bromomethane	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	<0.50	0.50	6138176
Carbon Tetrachloride	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
Chlorobenzene	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
Chloroform	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	18	0.20	6138176
Dibromochloromethane	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	3.4	0.50	6138176
1,2-Dichlorobenzene	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	<0.50	0.50	6138176
1,3-Dichlorobenzene	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	<0.50	0.50	6138176
1,4-Dichlorobenzene	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	<0.50	0.50	6138176
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	6138176	<1.0	1.0	6138176	<1.0	1.0	6138176
1,1-Dichloroethane	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
1,2-Dichloroethane	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	<0.50	0.50	6138176
1,1-Dichloroethylene	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
cis-1,2-Dichloroethylene	ug/L	4.3	0.50	6138176	4.3	0.50	6138176	18	0.50	6138176
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	0.75	0.50	6138176
1,2-Dichloropropane	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	6138176	<0.30	0.30	6138176	<0.30	0.30	6138176
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	6138176	<0.40	0.40	6138176	<0.40	0.40	6138176
Ethylbenzene	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
Ethylene Dibromide	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
Hexane	ug/L	<1.0	1.0	6138176	<1.0	1.0	6138176	<1.0	1.0	6138176
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	6138176	<2.0	2.0	6138176	<2.0	2.0	6138176
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	6138176	<10	10	6138176	<10	10	6138176
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	6138176	<5.0	5.0	6138176	<5.0	5.0	6138176
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	<0.50	0.50	6138176
Styrene	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	<0.50	0.50	6138176
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	<0.50	0.50	6138176

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

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Maxxam Job #: B9D6751
Report Date: 2019/05/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 VOCS BY HS (WATER)

Maxxam ID		JTY918			JTY918			JTY919		
Sampling Date		2019/05/21 10:30			2019/05/21 10:30			2019/05/21 12:30		
COC Number		717908-01-01			717908-01-01			717908-01-01		
	UNITS	**MW3**	**RDL**	**QC Batch**	**MW3 Lab-Dup**	**RDL**	**QC Batch**	**MW4**	**RDL**	**QC Batch**
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	<0.50	0.50	6138176
Tetrachloroethylene	ug/L	36	0.20	6138176	35	0.20	6138176	110	0.20	6138176
Toluene	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
1,1,1-Trichloroethane	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
1,1,2-Trichloroethane	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	<0.50	0.50	6138176
Trichloroethylene	ug/L	13	0.20	6138176	13	0.20	6138176	5.7	0.20	6138176
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	6138176	<0.50	0.50	6138176	<0.50	0.50	6138176
Vinyl Chloride	ug/L	2.1	0.20	6138176	2.0	0.20	6138176	<0.20	0.20	6138176
p+m-Xylene	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
o-Xylene	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
Total Xylenes	ug/L	<0.20	0.20	6138176	<0.20	0.20	6138176	<0.20	0.20	6138176
Surrogate Recovery (%)										
4-Bromofluorobenzene	%	108		6138176	107		6138176	106		6138176
D4-1,2-Dichloroethane	%	115		6138176	120		6138176	120		6138176
D8-Toluene	%	90		6138176	88		6138176	87		6138176

RDL = Reportable Detection Limit
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Maxxam Job #: B9D6751
Report Date: 2019/05/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 VOCS BY HS (WATER)

Maxxam ID		JTY920	JTY921	JTY922	JTY923	JTY926		
Sampling Date		2019/05/21 12:30	2019/05/21 11:00	2019/05/21 13:00	2019/05/21 12:00	2019/05/21 10:35		
COC Number		717908-01-01	717908-01-01	717908-01-01	717908-01-01	717908-01-01		
	UNITS	**MW44**	**MW101**	**MW102**	**MW103**	**BH105**	**RDL**	**QC Batch**
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6135679
Volatile Organics								
Acetone (2-Propanone)	ug/L	<10	<10	<10	<10	<10	10	6138176
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6138176
Bromodichloromethane	ug/L	5.4	<0.50	<0.50	2.4	<0.50	0.50	6138176
Bromoform	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6138176
Bromomethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6138176
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6138176
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6138176
Chloroform	ug/L	18	<0.20	0.47	8.3	<0.20	0.20	6138176
Dibromochloromethane	ug/L	3.3	<0.50	<0.50	1.1	<0.50	0.50	6138176
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6138176
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6138176
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6138176
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6138176
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6138176
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6138176
1,1-Dichloroethylene	ug/L	<0.20	<0.20	0.23	<0.20	<0.20	0.20	6138176
cis-1,2-Dichloroethylene	ug/L	19	3.3	9.8	1.1	0.75	0.50	6138176
trans-1,2-Dichloroethylene	ug/L	0.71	<0.50	0.51	<0.50	<0.50	0.50	6138176
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6138176
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	6138176
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	6138176
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6138176
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6138176
Hexane	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6138176
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6138176
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	<10	<10	10	6138176
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	6138176
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6138176
Styrene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6138176
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6138176
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6138176

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B9D6751
Report Date: 2019/05/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 VOCS BY HS (WATER)

Maxxam ID		JTY920	JTY921	JTY922	JTY923	JTY926		
Sampling Date		2019/05/21 12:30	2019/05/21 11:00	2019/05/21 13:00	2019/05/21 12:00	2019/05/21 10:35		
COC Number		717908-01-01	717908-01-01	717908-01-01	717908-01-01	717908-01-01		
	UNITS	**MW44**	**MW101**	**MW102**	**MW103**	**BH105**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	120	48	50	35	13	0.20	6138176
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6138176
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6138176
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6138176
Trichloroethylene	ug/L	5.8	13	57	2.2	2.4	0.20	6138176
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6138176
Vinyl Chloride	ug/L	<0.20	<0.20	0.91	<0.20	<0.20	0.20	6138176
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6138176
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6138176
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6138176
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	105	85	105	85	106		6138176
D4-1,2-Dichloroethane	%	118	123	119	122	122		6138176
D8-Toluene	%	87	87	88	88	88		6138176

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B9D6751
Report Date: 2019/05/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 VOCS BY HS (WATER)

Maxxam ID		JTY927	JTY928		
Sampling Date		2019/05/21 11:30	2019/05/21		
COC Number		717908-01-01	717908-01-01		
	UNITS	**MW106**	**TRIP BLANK**	**RDL**	**QC Batch**
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	0.50	6135679
Volatile Organics					
Acetone (2-Propanone)	ug/L	<10	<10	10	6138176
Benzene	ug/L	<0.20	<0.20	0.20	6138176
Bromodichloromethane	ug/L	<0.50	<0.50	0.50	6138176
Bromoform	ug/L	<1.0	<1.0	1.0	6138176
Bromomethane	ug/L	<0.50	<0.50	0.50	6138176
Carbon Tetrachloride	ug/L	<0.20	<0.20	0.20	6138176
Chlorobenzene	ug/L	<0.20	<0.20	0.20	6138176
Chloroform	ug/L	0.41	<0.20	0.20	6138176
Dibromochloromethane	ug/L	<0.50	<0.50	0.50	6138176
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	6138176
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	6138176
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	6138176
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	1.0	6138176
1,1-Dichloroethane	ug/L	<0.20	<0.20	0.20	6138176
1,2-Dichloroethane	ug/L	<0.50	<0.50	0.50	6138176
1,1-Dichloroethylene	ug/L	<0.20	<0.20	0.20	6138176
cis-1,2-Dichloroethylene	ug/L	3.3	<0.50	0.50	6138176
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	6138176
1,2-Dichloropropane	ug/L	<0.20	<0.20	0.20	6138176
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	0.30	6138176
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	0.40	6138176
Ethylbenzene	ug/L	<0.20	<0.20	0.20	6138176
Ethylene Dibromide	ug/L	<0.20	<0.20	0.20	6138176
Hexane	ug/L	<1.0	<1.0	1.0	6138176
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	6138176
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	10	6138176
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	5.0	6138176
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	0.50	6138176
Styrene	ug/L	<0.50	<0.50	0.50	6138176
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	6138176
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	6138176

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B9D6751
Report Date: 2019/05/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 VOCS BY HS (WATER)

Maxxam ID		JTY927	JTY928		
Sampling Date		2019/05/21 11:30	2019/05/21		
COC Number		717908-01-01	717908-01-01		
	UNITS	**MW106**	**TRIP BLANK**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	27	<0.20	0.20	6138176
Toluene	ug/L	<0.20	<0.20	0.20	6138176
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	0.20	6138176
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	0.50	6138176
Trichloroethylene	ug/L	14	<0.20	0.20	6138176
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	0.50	6138176
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	6138176
p+m-Xylene	ug/L	<0.20	<0.20	0.20	6138176
o-Xylene	ug/L	<0.20	<0.20	0.20	6138176
Total Xylenes	ug/L	<0.20	<0.20	0.20	6138176
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	84	106		6138176
D4-1,2-Dichloroethane	%	123	121		6138176
D8-Toluene	%	88	88		6138176

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Sampler Initials: PM

TEST SUMMARY

Maxxam ID: JTY916 **Collected:** 2019/05/21
Sample ID: BH/MW1 **Shipped:**
Matrix: Water **Received:** 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6135679	N/A	2019/05/27	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6140591	2019/05/25	2019/05/27	Prabhjot Gulati
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6133921	N/A	2019/05/24	Rebecca McClean

Maxxam ID: JTY917 **Collected:** 2019/05/21
Sample ID: BH/MW2 **Shipped:**
Matrix: Water **Received:** 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6135679	N/A	2019/05/27	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6140591	2019/05/25	2019/05/27	Prabhjot Gulati
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6133921	N/A	2019/05/24	Rebecca McClean

Maxxam ID: JTY918 **Collected:** 2019/05/21
Sample ID: MW3 **Shipped:**
Matrix: Water **Received:** 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6135679	N/A	2019/05/27	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6138176	N/A	2019/05/24	Juan Pangilinan

Maxxam ID: JTY918 Dup **Collected:** 2019/05/21
Sample ID: MW3 **Shipped:**
Matrix: Water **Received:** 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds in Water	GC/MS	6138176	N/A	2019/05/24	Juan Pangilinan

Maxxam ID: JTY919 **Collected:** 2019/05/21
Sample ID: MW4 **Shipped:**
Matrix: Water **Received:** 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6135679	N/A	2019/05/27	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6138176	N/A	2019/05/24	Juan Pangilinan

Maxxam ID: JTY920 **Collected:** 2019/05/21
Sample ID: MW44 **Shipped:**
Matrix: Water **Received:** 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6135679	N/A	2019/05/27	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6138176	N/A	2019/05/24	Juan Pangilinan

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Maxxam Job #: B9D6751
Report Date: 2019/05/27

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TEST SUMMARY

Maxxam ID: JTY921 **Collected:** 2019/05/21
Sample ID: MW101 **Shipped:**
Matrix: Water **Received:** 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6135679	N/A	2019/05/27	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6138176	N/A	2019/05/24	Juan Pangilinan

Maxxam ID: JTY922 **Collected:** 2019/05/21
Sample ID: MW102 **Shipped:**
Matrix: Water **Received:** 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6135679	N/A	2019/05/27	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6138176	N/A	2019/05/24	Juan Pangilinan

Maxxam ID: JTY923 **Collected:** 2019/05/21
Sample ID: MW103 **Shipped:**
Matrix: Water **Received:** 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6135679	N/A	2019/05/27	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6138176	N/A	2019/05/24	Juan Pangilinan

Maxxam ID: JTY924 **Collected:** 2019/05/21
Sample ID: BH104 **Shipped:**
Matrix: Water **Received:** 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6135679	N/A	2019/05/27	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6140591	2019/05/25	2019/05/27	Prabhjot Gulati
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6133921	N/A	2019/05/24	Rebecca McClean

Maxxam ID: JTY925 **Collected:** 2019/05/21
Sample ID: BH1044 **Shipped:**
Matrix: Water **Received:** 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6138471	N/A	2019/05/24	Joe Paino
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6140591	2019/05/25	2019/05/27	Prabhjot Gulati

Maxxam ID: JTY926 **Collected:** 2019/05/21
Sample ID: BH105 **Shipped:**
Matrix: Water **Received:** 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6135679	N/A	2019/05/27	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6138176	N/A	2019/05/24	Juan Pangilinan

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Maxxam Job #: B9D6751
Report Date: 2019/05/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

TEST SUMMARY

Maxxam ID: JTY927
Sample ID: MW106
Matrix: Water

Collected: 2019/05/21
Shipped:
Received: 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6135679	N/A	2019/05/27	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6138176	N/A	2019/05/24	Juan Pangilinan

Maxxam ID: JTY928
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2019/05/21
Shipped:
Received: 2019/05/22

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6135679	N/A	2019/05/27	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6138176	N/A	2019/05/24	Juan Pangilinan

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GENERAL COMMENTS

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

Package 1	1.7°C

Results relate only to the items tested.

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Maxxam Job #: B9D6751
Report Date: 2019/05/27

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6133921	4-Bromofluorobenzene	2019/05/24	97	70 - 130	98	70 - 130	90	%		
6133921	D4-1,2-Dichloroethane	2019/05/24	118	70 - 130	110	70 - 130	111	%		
6133921	D8-Toluene	2019/05/24	101	70 - 130	103	70 - 130	100	%		
6138176	4-Bromofluorobenzene	2019/05/24	122	70 - 130	99	70 - 130	90	%		
6138176	D4-1,2-Dichloroethane	2019/05/24	111	70 - 130	106	70 - 130	112	%		
6138176	D8-Toluene	2019/05/24	106	70 - 130	108	70 - 130	91	%		
6138471	1,4-Difluorobenzene	2019/05/24	103	70 - 130	99	70 - 130	104	%		
6138471	4-Bromofluorobenzene	2019/05/24	102	70 - 130	100	70 - 130	101	%		
6138471	D10-Ethylbenzene	2019/05/24	100	70 - 130	99	70 - 130	101	%		
6138471	D4-1,2-Dichloroethane	2019/05/24	103	70 - 130	102	70 - 130	102	%		
6140591	o-Terphenyl	2019/05/27	106	60 - 130	105	60 - 130	102	%		
6133921	1,1,1,2-Tetrachloroethane	2019/05/24	100	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
6133921	1,1,1-Trichloroethane	2019/05/24	94	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
6133921	1,1,2,2-Tetrachloroethane	2019/05/24	116	70 - 130	110	70 - 130	<0.50	ug/L	NC	30
6133921	1,1,2-Trichloroethane	2019/05/24	116	70 - 130	111	70 - 130	<0.50	ug/L	NC	30
6133921	1,1-Dichloroethane	2019/05/24	104	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
6133921	1,1-Dichloroethylene	2019/05/24	97	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
6133921	1,2-Dichlorobenzene	2019/05/24	102	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
6133921	1,2-Dichloroethane	2019/05/24	113	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
6133921	1,2-Dichloropropane	2019/05/24	104	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
6133921	1,3-Dichlorobenzene	2019/05/24	102	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
6133921	1,4-Dichlorobenzene	2019/05/24	108	70 - 130	110	70 - 130	<0.50	ug/L	NC	30
6133921	Acetone (2-Propanone)	2019/05/24	132	60 - 140	119	60 - 140	<10	ug/L	3.0	30
6133921	Benzene	2019/05/24	97	70 - 130	97	70 - 130	<0.20	ug/L	8.5	30
6133921	Bromodichloromethane	2019/05/24	104	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
6133921	Bromoform	2019/05/24	105	70 - 130	100	70 - 130	<1.0	ug/L	NC	30
6133921	Bromomethane	2019/05/24	106	60 - 140	107	60 - 140	<0.50	ug/L	NC	30
6133921	Carbon Tetrachloride	2019/05/24	94	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
6133921	Chlorobenzene	2019/05/24	97	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
6133921	Chloroform	2019/05/24	104	70 - 130	103	70 - 130	<0.20	ug/L	6.5	30
6133921	cis-1,2-Dichloroethylene	2019/05/24	101	70 - 130	99	70 - 130	<0.50	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6133921	cis-1,3-Dichloropropene	2019/05/24	124	70 - 130	108	70 - 130	<0.30	ug/L	NC	30
6133921	Dibromochloromethane	2019/05/24	115	70 - 130	112	70 - 130	<0.50	ug/L	NC	30
6133921	Dichlorodifluoromethane (FREON 12)	2019/05/24	76	60 - 140	79	60 - 140	<1.0	ug/L	NC	30
6133921	Ethylbenzene	2019/05/24	96	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
6133921	Ethylene Dibromide	2019/05/24	112	70 - 130	106	70 - 130	<0.20	ug/L	NC	30
6133921	F1 (C6-C10) - BTEX	2019/05/24					<25	ug/L	NC	30
6133921	F1 (C6-C10)	2019/05/24	91	60 - 140	101	60 - 140	<25	ug/L	17	30
6133921	Hexane	2019/05/24	89	70 - 130	92	70 - 130	<1.0	ug/L	NC	30
6133921	Methyl Ethyl Ketone (2-Butanone)	2019/05/24	138	60 - 140	122	60 - 140	<10	ug/L	NC	30
6133921	Methyl Isobutyl Ketone	2019/05/24	126	70 - 130	114	70 - 130	<5.0	ug/L	NC	30
6133921	Methyl t-butyl ether (MTBE)	2019/05/24	99	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
6133921	Methylene Chloride(Dichloromethane)	2019/05/24	110	70 - 130	106	70 - 130	<2.0	ug/L	NC	30
6133921	o-Xylene	2019/05/24	95	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
6133921	p+m-Xylene	2019/05/24	91	70 - 130	94	70 - 130	<0.20	ug/L	21	30
6133921	Styrene	2019/05/24	97	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
6133921	Tetrachloroethylene	2019/05/24	94	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
6133921	Toluene	2019/05/24	NC	70 - 130	96	70 - 130	<0.20	ug/L	13	30
6133921	Total Xylenes	2019/05/24					<0.20	ug/L	21	30
6133921	trans-1,2-Dichloroethylene	2019/05/24	95	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
6133921	trans-1,3-Dichloropropene	2019/05/24	148 (1)	70 - 130	126	70 - 130	<0.40	ug/L	NC	30
6133921	Trichloroethylene	2019/05/24	93	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
6133921	Trichlorofluoromethane (FREON 11)	2019/05/24	94	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
6133921	Vinyl Chloride	2019/05/24	95	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
6138176	1,1,1,2-Tetrachloroethane	2019/05/24	104	70 - 130	106	70 - 130	<0.50	ug/L	NC	30
6138176	1,1,1-Trichloroethane	2019/05/24	101	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
6138176	1,1,2,2-Tetrachloroethane	2019/05/24	115	70 - 130	115	70 - 130	<0.50	ug/L	NC	30
6138176	1,1,2-Trichloroethane	2019/05/24	115	70 - 130	113	70 - 130	<0.50	ug/L	NC	30
6138176	1,1-Dichloroethane	2019/05/24	111	70 - 130	109	70 - 130	<0.20	ug/L	NC	30
6138176	1,1-Dichloroethylene	2019/05/24	101	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
6138176	1,2-Dichlorobenzene	2019/05/24	98	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
6138176	1,2-Dichloroethane	2019/05/24	113	70 - 130	109	70 - 130	<0.50	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6138176	1,2-Dichloropropane	2019/05/24	113	70 - 130	111	70 - 130	<0.20	ug/L	NC	30
6138176	1,3-Dichlorobenzene	2019/05/24	95	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
6138176	1,4-Dichlorobenzene	2019/05/24	97	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
6138176	Acetone (2-Propanone)	2019/05/24	118	60 - 140	119	60 - 140	<10	ug/L	NC	30
6138176	Benzene	2019/05/24	106	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
6138176	Bromodichloromethane	2019/05/24	107	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
6138176	Bromoform	2019/05/24	105	70 - 130	106	70 - 130	<1.0	ug/L	NC	30
6138176	Bromomethane	2019/05/24	108	60 - 140	103	60 - 140	<0.50	ug/L	NC	30
6138176	Carbon Tetrachloride	2019/05/24	99	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
6138176	Chlorobenzene	2019/05/24	99	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
6138176	Chloroform	2019/05/24	107	70 - 130	105	70 - 130	<0.20	ug/L	NC	30
6138176	cis-1,2-Dichloroethylene	2019/05/24	106	70 - 130	105	70 - 130	<0.50	ug/L	0.86	30
6138176	cis-1,3-Dichloropropene	2019/05/24	110	70 - 130	104	70 - 130	<0.30	ug/L	NC	30
6138176	Dibromochloromethane	2019/05/24	106	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
6138176	Dichlorodifluoromethane (FREON 12)	2019/05/24	89	60 - 140	88	60 - 140	<1.0	ug/L	NC	30
6138176	Ethylbenzene	2019/05/24	93	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
6138176	Ethylene Dibromide	2019/05/24	111	70 - 130	110	70 - 130	<0.20	ug/L	NC	30
6138176	Hexane	2019/05/24	109	70 - 130	112	70 - 130	<1.0	ug/L	NC	30
6138176	Methyl Ethyl Ketone (2-Butanone)	2019/05/24	129	60 - 140	130	60 - 140	<10	ug/L	NC	30
6138176	Methyl Isobutyl Ketone	2019/05/24	129	70 - 130	134 (1)	70 - 130	<5.0	ug/L	NC	30
6138176	Methyl t-butyl ether (MTBE)	2019/05/24	102	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
6138176	Methylene Chloride(Dichloromethane)	2019/05/24	118	70 - 130	114	70 - 130	<2.0	ug/L	NC	30
6138176	o-Xylene	2019/05/24	89	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
6138176	p+m-Xylene	2019/05/24	94	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
6138176	Styrene	2019/05/24	78	70 - 130	90	70 - 130	<0.50	ug/L	NC	30
6138176	Tetrachloroethylene	2019/05/24	92	70 - 130	98	70 - 130	<0.20	ug/L	2.8	30
6138176	Toluene	2019/05/24	105	70 - 130	107	70 - 130	<0.20	ug/L	NC	30
6138176	Total Xylenes	2019/05/24					<0.20	ug/L	NC	30
6138176	trans-1,2-Dichloroethylene	2019/05/24	104	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
6138176	trans-1,3-Dichloropropene	2019/05/24	122	70 - 130	113	70 - 130	<0.40	ug/L	NC	30
6138176	Trichloroethylene	2019/05/24	95	70 - 130	97	70 - 130	<0.20	ug/L	2.0	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6138176	Trichlorofluoromethane (FREON 11)	2019/05/24	99	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
6138176	Vinyl Chloride	2019/05/24	106	70 - 130	103	70 - 130	<0.20	ug/L	4.2	30
6138471	Benzene	2019/05/24	98	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
6138471	Ethylbenzene	2019/05/24	102	70 - 130	106	70 - 130	<0.20	ug/L	NC	30
6138471	F1 (C6-C10) - BTEX	2019/05/24					<25	ug/L	NC	30
6138471	F1 (C6-C10)	2019/05/24	80	70 - 130	99	70 - 130	<25	ug/L	NC	30
6138471	o-Xylene	2019/05/24	99	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
6138471	p+m-Xylene	2019/05/24	108	70 - 130	111	70 - 130	<0.40	ug/L	NC	30
6138471	Toluene	2019/05/24	103	70 - 130	107	70 - 130	<0.20	ug/L	NC	30
6138471	Total Xylenes	2019/05/24					<0.40	ug/L	NC	30
6140591	F2 (C10-C16 Hydrocarbons)	2019/05/27	112	50 - 130	102	60 - 130	<100	ug/L	1.6	30
6140591	F3 (C16-C34 Hydrocarbons)	2019/05/27	114	50 - 130	110	60 - 130	<200	ug/L	NC	30
6140591	F4 (C34-C50 Hydrocarbons)	2019/05/27	114	50 - 130	111	60 - 130	<200	ug/L		

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 (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 recovery was above the upper control limit. This may represent a high bias in some results for this specific analyte. For results that were not detected (ND), this potential bias has no impact.

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Maxxam Job #: B9D6751
Report Date: 2019/05/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

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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Your P.O. #: HAM-ENV
Your Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your C.O.C. #: 688766-07-01

Attention: Stephanie Hsia

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

Report Date: 2019/06/14
Report #: R5754598
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9F8564
Received: 2019/06/11, 17:15

Sample Matrix: Soil
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	2	N/A	2019/06/13		EPA 8260C m
Moisture	2	N/A	2019/06/12	CAM SOP-00445	Carter 2nd ed 51.2 m
Sieve, 75um	1	N/A	2019/06/13	CAM SOP-00467	Carter 2nd ed m
Volatile Organic Compounds in Soil	2	N/A	2019/06/12	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs 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 BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs 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. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs 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 BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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. When sampling is not conducted by BV Labs, results relate to the supplied 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.

Your P.O. #: HAM-ENV
Your Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your C.O.C. #: 688766-07-01

Attention: Stephanie Hsia

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

Report Date: 2019/06/14
Report #: R5754598
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9F8564
Received: 2019/06/11, 17:15

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Christine Gripton, Senior Project Manager
Email: Christine.Gripton@bvlabs.com
Phone# (519)652-9444
==========
This report has been generated and distributed using a secure automated process.
BV Labs 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.

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 VOCS BY HS (SOIL)

BV Labs ID		JYV313	JYV314		
Sampling Date		2019/06/10 11:30	2019/06/10 11:30		
COC Number		688766-07-01	688766-07-01		
	UNITS	**BH201-SS6**	**BH201-SS66**	**RDL**	**QC Batch**
Inorganics					
Moisture	%	9.5	9.1	1.0	6172762
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	0.050	6169560
Volatile Organics					
Acetone (2-Propanone)	ug/g	<0.50	<0.50	0.50	6172085
Benzene	ug/g	<0.020	<0.020	0.020	6172085
Bromodichloromethane	ug/g	<0.050	<0.050	0.050	6172085
Bromoform	ug/g	<0.050	<0.050	0.050	6172085
Bromomethane	ug/g	<0.050	<0.050	0.050	6172085
Carbon Tetrachloride	ug/g	<0.050	<0.050	0.050	6172085
Chlorobenzene	ug/g	<0.050	<0.050	0.050	6172085
Chloroform	ug/g	<0.050	<0.050	0.050	6172085
Dibromochloromethane	ug/g	<0.050	<0.050	0.050	6172085
1,2-Dichlorobenzene	ug/g	<0.050	<0.050	0.050	6172085
1,3-Dichlorobenzene	ug/g	<0.050	<0.050	0.050	6172085
1,4-Dichlorobenzene	ug/g	<0.050	<0.050	0.050	6172085
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	<0.050	0.050	6172085
1,1-Dichloroethane	ug/g	<0.050	<0.050	0.050	6172085
1,2-Dichloroethane	ug/g	<0.050	<0.050	0.050	6172085
1,1-Dichloroethylene	ug/g	<0.050	<0.050	0.050	6172085
cis-1,2-Dichloroethylene	ug/g	<0.050	<0.050	0.050	6172085
trans-1,2-Dichloroethylene	ug/g	<0.050	<0.050	0.050	6172085
1,2-Dichloropropane	ug/g	<0.050	<0.050	0.050	6172085
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	0.030	6172085
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	0.040	6172085
Ethylbenzene	ug/g	<0.020	<0.020	0.020	6172085
Ethylene Dibromide	ug/g	<0.050	<0.050	0.050	6172085
Hexane	ug/g	<0.050	<0.050	0.050	6172085
Methylene Chloride(Dichloromethane)	ug/g	<0.050	<0.050	0.050	6172085
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	<0.50	0.50	6172085
Methyl Isobutyl Ketone	ug/g	<0.50	<0.50	0.50	6172085
Methyl t-butyl ether (MTBE)	ug/g	<0.050	<0.050	0.050	6172085
Styrene	ug/g	<0.050	<0.050	0.050	6172085

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: B9F8564
Report Date: 2019/06/14

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 VOCS BY HS (SOIL)

BV Labs ID		JYV313	JYV314		
Sampling Date		2019/06/10 11:30	2019/06/10 11:30		
COC Number		688766-07-01	688766-07-01		
	UNITS	**BH201-SS6**	**BH201-SS66**	**RDL**	**QC Batch**
1,1,1,2-Tetrachloroethane	ug/g	<0.050	<0.050	0.050	6172085
1,1,2,2-Tetrachloroethane	ug/g	<0.050	<0.050	0.050	6172085
Tetrachloroethylene	ug/g	<0.050	<0.050	0.050	6172085
Toluene	ug/g	<0.020	<0.020	0.020	6172085
1,1,1-Trichloroethane	ug/g	<0.050	<0.050	0.050	6172085
1,1,2-Trichloroethane	ug/g	<0.050	<0.050	0.050	6172085
Trichloroethylene	ug/g	<0.050	<0.050	0.050	6172085
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	<0.050	0.050	6172085
Vinyl Chloride	ug/g	0.052	0.056	0.020	6172085
p+m-Xylene	ug/g	<0.020	<0.020	0.020	6172085
o-Xylene	ug/g	<0.020	<0.020	0.020	6172085
Total Xylenes	ug/g	<0.020	<0.020	0.020	6172085
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	93	93		6172085
D10-o-Xylene	%	112	115		6172085
D4-1,2-Dichloroethane	%	101	101		6172085
D8-Toluene	%	99	99		6172085

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9F8564
Report Date: 2019/06/14

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

RESULTS OF ANALYSES OF SOIL

BV Labs ID		JYV312	JYV312		
Sampling Date		2019/06/10 11:30	2019/06/10 11:30		
COC Number		688766-07-01	688766-07-01		
	UNITS	**BH201-SS3**	**BH201-SS3 Lab-Dup**	**RDL**	**QC Batch**
Miscellaneous Parameters					
Grain Size	%	COARSE	COARSE	N/A	6174385
Sieve - #200 (<0.075mm)	%	42	41	1	6174385
Sieve - #200 (>0.075mm)	%	58	59	1	6174385

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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BV Labs Job #: B9F8564
Report Date: 2019/06/14

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

TEST SUMMARY

BV Labs ID: JYV312
Sample ID: BH201-SS3
Matrix: Soil

Collected: 2019/06/10
Shipped:
Received: 2019/06/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sieve, 75um	SIEV	6174385	N/A	2019/06/13	Prgya Panchal

BV Labs ID: JYV312 Dup
Sample ID: BH201-SS3
Matrix: Soil

Collected: 2019/06/10
Shipped:
Received: 2019/06/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sieve, 75um	SIEV	6174385	N/A	2019/06/14	Prgya Panchal

BV Labs ID: JYV313
Sample ID: BH201-SS6
Matrix: Soil

Collected: 2019/06/10
Shipped:
Received: 2019/06/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6169560	N/A	2019/06/13	Automated Statchk
Moisture	BAL	6172762	N/A	2019/06/12	Mithunaa Sasitheepan
Volatile Organic Compounds in Soil	GC/MS	6172085	N/A	2019/06/12	Karen Hughes

BV Labs ID: JYV314
Sample ID: BH201-SS66
Matrix: Soil

Collected: 2019/06/10
Shipped:
Received: 2019/06/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6169560	N/A	2019/06/13	Automated Statchk
Moisture	BAL	6172762	N/A	2019/06/12	Mithunaa Sasitheepan
Volatile Organic Compounds in Soil	GC/MS	6172085	N/A	2019/06/12	Karen Hughes

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BV Labs Job #: B9F8564
Report Date: 2019/06/14

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
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Sampler Initials: PM

GENERAL COMMENTS

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

Package 1	1.0°C

Results relate only to the items tested.

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BV Labs Job #: B9F8564
Report Date: 2019/06/14

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6172085	4-Bromofluorobenzene	2019/06/12	97	60 - 140	99	60 - 140	95	%				
6172085	D10-o-Xylene	2019/06/12	125	60 - 130	96	60 - 130	97	%				
6172085	D4-1,2-Dichloroethane	2019/06/12	97	60 - 140	104	60 - 140	108	%				
6172085	D8-Toluene	2019/06/12	108	60 - 140	107	60 - 140	96	%				
6172085	1,1,1,2-Tetrachloroethane	2019/06/12	100	60 - 140	106	60 - 130	<0.050	ug/g	NC	50		
6172085	1,1,1-Trichloroethane	2019/06/12	97	60 - 140	98	60 - 130	<0.050	ug/g	NC	50		
6172085	1,1,2,2-Tetrachloroethane	2019/06/12	93	60 - 140	111	60 - 130	<0.050	ug/g	NC	50		
6172085	1,1,2-Trichloroethane	2019/06/12	99	60 - 140	111	60 - 130	<0.050	ug/g	NC	50		
6172085	1,1-Dichloroethane	2019/06/12	97	60 - 140	101	60 - 130	<0.050	ug/g	NC	50		
6172085	1,1-Dichloroethylene	2019/06/12	106	60 - 140	106	60 - 130	<0.050	ug/g	NC	50		
6172085	1,2-Dichlorobenzene	2019/06/12	91	60 - 140	96	60 - 130	<0.050	ug/g	NC	50		
6172085	1,2-Dichloroethane	2019/06/12	94	60 - 140	105	60 - 130	<0.050	ug/g	NC	50		
6172085	1,2-Dichloropropane	2019/06/12	90	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
6172085	1,3-Dichlorobenzene	2019/06/12	95	60 - 140	96	60 - 130	<0.050	ug/g	NC	50		
6172085	1,4-Dichlorobenzene	2019/06/12	101	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		
6172085	Acetone (2-Propanone)	2019/06/12	90	60 - 140	115	60 - 140	<0.50	ug/g	NC	50		
6172085	Benzene	2019/06/12	96	60 - 140	100	60 - 130	<0.020	ug/g	NC	50		
6172085	Bromodichloromethane	2019/06/12	91	60 - 140	100	60 - 130	<0.050	ug/g	NC	50		
6172085	Bromoform	2019/06/12	91	60 - 140	107	60 - 130	<0.050	ug/g	NC	50		
6172085	Bromomethane	2019/06/12	98	60 - 140	101	60 - 140	<0.050	ug/g	NC	50		
6172085	Carbon Tetrachloride	2019/06/12	95	60 - 140	96	60 - 130	<0.050	ug/g	NC	50		
6172085	Chlorobenzene	2019/06/12	93	60 - 140	98	60 - 130	<0.050	ug/g	NC	50		
6172085	Chloroform	2019/06/12	90	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
6172085	cis-1,2-Dichloroethylene	2019/06/12	92	60 - 140	98	60 - 130	<0.050	ug/g	NC	50		
6172085	cis-1,3-Dichloropropene	2019/06/12	94	60 - 140	99	60 - 130	<0.030	ug/g	NC	50		
6172085	Dibromochloromethane	2019/06/12	96	60 - 140	107	60 - 130	<0.050	ug/g	NC	50		
6172085	Dichlorodifluoromethane (FREON 12)	2019/06/12	89	60 - 140	89	60 - 140	<0.050	ug/g	NC	50		
6172085	Ethylbenzene	2019/06/12	97	60 - 140	98	60 - 130	<0.020	ug/g	NC	50		
6172085	Ethylene Dibromide	2019/06/12	93	60 - 140	106	60 - 130	<0.050	ug/g	NC	50		
6172085	Hexane	2019/06/12	110	60 - 140	109	60 - 130	<0.050	ug/g	NC	50		
6172085	Methyl Ethyl Ketone (2-Butanone)	2019/06/12	92	60 - 140	121	60 - 140	<0.50	ug/g	NC	50		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6172085	Methyl Isobutyl Ketone	2019/06/12	91	60 - 140	117	60 - 130	<0.50	ug/g	NC	50		
6172085	Methyl t-butyl ether (MTBE)	2019/06/12	84	60 - 140	91	60 - 130	<0.050	ug/g	NC	50		
6172085	Methylene Chloride(Dichloromethane)	2019/06/12	85	60 - 140	92	60 - 130	<0.050	ug/g	NC	50		
6172085	o-Xylene	2019/06/12	98	60 - 140	100	60 - 130	<0.020	ug/g	NC	50		
6172085	p+m-Xylene	2019/06/12	108	60 - 140	108	60 - 130	<0.020	ug/g	NC	50		
6172085	Styrene	2019/06/12	101	60 - 140	106	60 - 130	<0.050	ug/g	NC	50		
6172085	Tetrachloroethylene	2019/06/12	95	60 - 140	95	60 - 130	<0.050	ug/g	NC	50		
6172085	Toluene	2019/06/12	98	60 - 140	99	60 - 130	<0.020	ug/g	NC	50		
6172085	Total Xylenes	2019/06/12					<0.020	ug/g	NC	50		
6172085	trans-1,2-Dichloroethylene	2019/06/12	99	60 - 140	102	60 - 130	<0.050	ug/g	NC	50		
6172085	trans-1,3-Dichloropropene	2019/06/12	102	60 - 140	108	60 - 130	<0.040	ug/g	NC	50		
6172085	Trichloroethylene	2019/06/12	94	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
6172085	Trichlorofluoromethane (FREON 11)	2019/06/12	97	60 - 140	97	60 - 130	<0.050	ug/g	NC	50		
6172085	Vinyl Chloride	2019/06/12	101	60 - 140	102	60 - 130	<0.020	ug/g	NC	50		
6172762	Moisture	2019/06/12							4.0	20		
6174385	Sieve - #200 (<0.075mm)	2019/06/14							0.87	20	57	53 - 58
6174385	Sieve - #200 (>0.075mm)	2019/06/14							0.61	20	43	42 - 47

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.

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 (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).

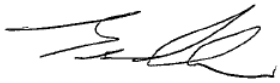
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BV Labs Job #: B9F8564
Report Date: 2019/06/14

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

VALIDATION SIGNATURE PAGE

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



Brad Newman, Scientific Service Specialist

BV Labs 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 P.O. #: HAM-ENV
Your Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your C.O.C. #: 721690-01-01

Attention: Stephanie Hsia

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

Report Date: 2019/06/18
Report #: R5759624
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9G1768
Received: 2019/06/13, 16:11

Sample Matrix: Soil
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	2	N/A	2019/06/18	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	2	2019/06/15	2019/06/17	CAM SOP-00316	CCME CWS m
Moisture	2	N/A	2019/06/14	CAM SOP-00445	Carter 2nd ed 51.2 m
Sieve, 75um	1	N/A	2019/06/17	CAM SOP-00467	Carter 2nd ed m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs 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 BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs 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. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs 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 BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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. When sampling is not conducted by BV Labs, results relate to the supplied 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) 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.
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas Laboratories 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.

Your P.O. #: HAM-ENV
Your Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your C.O.C. #: 721690-01-01

Attention: Stephanie Hsia

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

Report Date: 2019/06/18
Report #: R5759624
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9G1768
Received: 2019/06/13, 16:11

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Christine Gripton, Senior Project Manager
Email: Christine.Gripton@bvlabs.com
Phone# (519)652-9444
==========
This report has been generated and distributed using a secure automated process.
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BV Labs Job #: B9G1768
Report Date: 2019/06/18

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

BV Labs ID		JZM239	JZM240		
Sampling Date		2019/06/12 12:00	2019/06/12 12:00		
COC Number		721690-01-01	721690-01-01		
	UNITS	**BH203-SS1**	**BH223-SS1**	**RDL**	**QC Batch**
Inorganics					
Moisture	%	8.8	10	1.0	6177832
BTEX & F1 Hydrocarbons					
Benzene	ug/g	<0.020	<0.020	0.020	6181721
Toluene	ug/g	<0.020	<0.020	0.020	6181721
Ethylbenzene	ug/g	<0.020	<0.020	0.020	6181721
o-Xylene	ug/g	<0.020	<0.020	0.020	6181721
p+m-Xylene	ug/g	<0.040	<0.040	0.040	6181721
Total Xylenes	ug/g	<0.040	<0.040	0.040	6181721
F1 (C6-C10)	ug/g	<10	<10	10	6181721
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	6181721
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	6178893
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	50	6178893
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	6178893
Reached Baseline at C50	ug/g	Yes	Yes		6178893
Surrogate Recovery (%)					
1,4-Difluorobenzene	%	99	101		6181721
4-Bromofluorobenzene	%	99	100		6181721
D10-Ethylbenzene	%	103	102		6181721
D4-1,2-Dichloroethane	%	101	103		6181721
o-Terphenyl	%	90	88		6178893

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9G1768
Report Date: 2019/06/18

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

RESULTS OF ANALYSES OF SOIL

BV Labs ID		JZM241		
Sampling Date		2019/06/12 12:00		
COC Number		721690-01-01		
	UNITS	**BH203-SS4**	**RDL**	**QC Batch**
Miscellaneous Parameters				
Grain Size	%	COARSE	N/A	6179916
Sieve - #200 (<0.075mm)	%	16	1	6179916
Sieve - #200 (>0.075mm)	%	84	1	6179916

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

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BV Labs Job #: B9G1768
Report Date: 2019/06/18

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

TEST SUMMARY

BV Labs ID: JZM239
Sample ID: BH203-SS1
Matrix: Soil

Collected: 2019/06/12
Shipped:
Received: 2019/06/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6181721	N/A	2019/06/18	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6178893	2019/06/15	2019/06/17	Dorina Popa
Moisture	BAL	6177832	N/A	2019/06/14	Gurpreet Kaur

BV Labs ID: JZM240
Sample ID: BH223-SS1
Matrix: Soil

Collected: 2019/06/12
Shipped:
Received: 2019/06/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6181721	N/A	2019/06/18	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6178893	2019/06/15	2019/06/17	Dorina Popa
Moisture	BAL	6177832	N/A	2019/06/14	Gurpreet Kaur

BV Labs ID: JZM241
Sample ID: BH203-SS4
Matrix: Soil

Collected: 2019/06/12
Shipped:
Received: 2019/06/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sieve, 75um	SIEV	6179916	N/A	2019/06/17	Gurpreet Kaur

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BV Labs Job #: B9G1768
Report Date: 2019/06/18

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

GENERAL COMMENTS

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

Package 1	2.0°C

Results relate only to the items tested.

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BV Labs Job #: B9G1768
Report Date: 2019/06/18

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6178893	o-Terphenyl	2019/06/17	96	60 - 130	94	60 - 130	100	%				
6181721	1,4-Difluorobenzene	2019/06/18	101	60 - 140	100	60 - 140	99	%				
6181721	4-Bromofluorobenzene	2019/06/18	100	60 - 140	101	60 - 140	97	%				
6181721	D10-Ethylbenzene	2019/06/18	105	60 - 140	92	60 - 140	92	%				
6181721	D4-1,2-Dichloroethane	2019/06/18	104	60 - 140	103	60 - 140	102	%				
6177832	Moisture	2019/06/14							4.1	20		
6178893	F2 (C10-C16 Hydrocarbons)	2019/06/17	94	50 - 130	86	80 - 120	<10	ug/g	NC	30		
6178893	F3 (C16-C34 Hydrocarbons)	2019/06/17	91	50 - 130	85	80 - 120	<50	ug/g	NC	30		
6178893	F4 (C34-C50 Hydrocarbons)	2019/06/17	91	50 - 130	90	80 - 120	<50	ug/g	NC	30		
6179916	Sieve - #200 (<0.075mm)	2019/06/17							2.3	20	54	53 - 58
6179916	Sieve - #200 (>0.075mm)	2019/06/17							8.0	20	46	42 - 47
6181721	Benzene	2019/06/18	95	60 - 140	94	60 - 140	<0.020	ug/g	NC	50		
6181721	Ethylbenzene	2019/06/18	95	60 - 140	90	60 - 140	<0.020	ug/g	NC	50		
6181721	F1 (C6-C10) - BTEX	2019/06/18					<10	ug/g	NC	30		
6181721	F1 (C6-C10)	2019/06/18	91	60 - 140	98	80 - 120	<10	ug/g	NC	30		
6181721	o-Xylene	2019/06/18	99	60 - 140	92	60 - 140	<0.020	ug/g	NC	50		
6181721	p+m-Xylene	2019/06/18	96	60 - 140	89	60 - 140	<0.040	ug/g	NC	50		
6181721	Toluene	2019/06/18	97	60 - 140	94	60 - 140	<0.020	ug/g	NC	50		
6181721	Total Xylenes	2019/06/18					<0.040	ug/g	NC	50		

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.

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 (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).

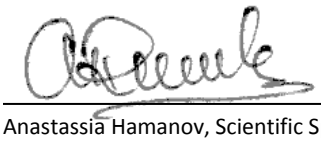
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BV Labs Job #: B9G1768
Report Date: 2019/06/18

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist

BV Labs 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 P.O. #: HAM-ENV
Your Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your C.O.C. #: 723423-03-01

Attention: Stephanie Hsia

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

Report Date: 2019/06/27
Report #: R5774400
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9H1571
Received: 2019/06/21, 16:20

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	5	N/A	2019/06/26		EPA 8260C m
Petroleum Hydro. CCME F1 & BTEX in Water	3	N/A	2019/06/26	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water (1)	3	2019/06/25	2019/06/26	CAM SOP-00316	CCME PHC-CWS m
Volatile Organic Compounds in Water	5	N/A	2019/06/25	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs 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 BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs 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. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs 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 BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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. When sampling is not conducted by BV Labs, results relate to the supplied 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 Bureau Veritas Laboratories 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.

Your P.O. #: HAM-ENV
Your Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your C.O.C. #: 723423-03-01

Attention: Stephanie Hsia

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

Report Date: 2019/06/27
Report #: R5774400
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9H1571
Received: 2019/06/21, 16:20

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Christine Gripton, Senior Project Manager
Email: Christine.Gripton@bvlabs.com
Phone# (519)652-9444
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BV Labs Job #: B9H1571
Report Date: 2019/06/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: SG

O.REG 153 PHCS, BTEX/F1-F4 (WATER)

BV Labs ID		KBS243	KBS244	KBS245		
Sampling Date		2019/06/20 15:05	2019/06/20 13:50	2019/06/20 13:50		
COC Number		723423-03-01	723423-03-01	723423-03-01		
	UNITS	**BH/MW1**	**BH/MW2**	**BH/MW22**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons						
Benzene	ug/L	<0.20	<0.20	<0.20	0.20	6196908
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	6196908
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	6196908
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	6196908
p+m-Xylene	ug/L	<0.40	<0.40	<0.40	0.40	6196908
Total Xylenes	ug/L	<0.40	<0.40	<0.40	0.40	6196908
F1 (C6-C10)	ug/L	<25	<25	<25	25	6196908
F1 (C6-C10) - BTEX	ug/L	<25	<25	<25	25	6196908
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	100	6195797
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	210	200	6195797
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	200	6195797
Reached Baseline at C50	ug/L	Yes	Yes	Yes		6195797
Surrogate Recovery (%)						
1,4-Difluorobenzene	%	102	101	103		6196908
4-Bromofluorobenzene	%	99	96	98		6196908
D10-Ethylbenzene	%	110	111	113		6196908
D4-1,2-Dichloroethane	%	100	101	102		6196908
o-Terphenyl	%	105	103	103		6195797

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9H1571
Report Date: 2019/06/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: SG

O.REG 153 VOCS BY HS (WATER)

BV Labs ID		KBS239	KBS240	KBS241	KBS242	KBS246		
Sampling Date		2019/06/20 13:00	2019/06/20 13:00	2019/06/20 14:30	2019/06/20 15:40	2019/06/20		
COC Number		723423-03-01	723423-03-01	723423-03-01	723423-03-01	723423-03-01		
	UNITS	**MW102A**	**MW1022A**	**MW201**	**MW202**	**TRIP BLANK LOT # 3634**	**RDL**	**QC Batch**
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6191309
Volatile Organics								
Acetone (2-Propanone)	ug/L	<10	<10	<10	<10	<10	10	6192557
Benzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6192557
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557
Bromoform	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6192557
Bromomethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6192557
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6192557
Chloroform	ug/L	0.30	0.30	<0.20	<0.20	<0.20	0.20	6192557
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6192557
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6192557
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557
1,1-Dichloroethylene	ug/L	0.21	0.21	<0.20	<0.20	<0.20	0.20	6192557
cis-1,2-Dichloroethylene	ug/L	13	13	<0.50	<0.50	<0.50	0.50	6192557
trans-1,2-Dichloroethylene	ug/L	0.76	0.74	<0.50	<0.50	<0.50	0.50	6192557
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6192557
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	<0.30	<0.30	0.30	6192557
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	6192557
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6192557
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6192557
Hexane	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	6192557
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	6192557
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	<10	<10	10	6192557
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	6192557
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557
Styrene	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9H1571
Report Date: 2019/06/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: SG

O.REG 153 VOCS BY HS (WATER)

BV Labs ID		KBS239	KBS240	KBS241	KBS242	KBS246		
Sampling Date		2019/06/20 13:00	2019/06/20 13:00	2019/06/20 14:30	2019/06/20 15:40	2019/06/20		
COC Number		723423-03-01	723423-03-01	723423-03-01	723423-03-01	723423-03-01		
	UNITS	**MW102A**	**MW1022A**	**MW201**	**MW202**	**TRIP BLANK LOT # 3634**	**RDL**	**QC Batch**
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557
Tetrachloroethylene	ug/L	120	120	0.50	<0.20	<0.20	0.20	6192557
Toluene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6192557
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6192557
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557
Trichloroethylene	ug/L	92	92	<0.20	<0.20	<0.20	0.20	6192557
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	6192557
Vinyl Chloride	ug/L	0.64	0.62	0.87	<0.20	<0.20	0.20	6192557
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6192557
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6192557
Total Xylenes	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	6192557
Surrogate Recovery (%)								
4-Bromofluorobenzene	%	89	89	90	88	88		6192557
D4-1,2-Dichloroethane	%	112	111	110	113	113		6192557
D8-Toluene	%	93	94	95	95	95		6192557

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

BV Labs Job #: B9H1571
Report Date: 2019/06/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: SG

TEST SUMMARY

BV Labs ID: KBS239
Sample ID: MW102A
Matrix: Water
Collected: 2019/06/20
Shipped:
Received: 2019/06/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6191309	N/A	2019/06/26	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6192557	N/A	2019/06/25	Rebecca McClean

BV Labs ID: KBS240
Sample ID: MW1022A
Matrix: Water
Collected: 2019/06/20
Shipped:
Received: 2019/06/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6191309	N/A	2019/06/26	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6192557	N/A	2019/06/25	Rebecca McClean

BV Labs ID: KBS241
Sample ID: MW201
Matrix: Water
Collected: 2019/06/20
Shipped:
Received: 2019/06/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6191309	N/A	2019/06/26	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6192557	N/A	2019/06/25	Rebecca McClean

BV Labs ID: KBS242
Sample ID: MW202
Matrix: Water
Collected: 2019/06/20
Shipped:
Received: 2019/06/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6191309	N/A	2019/06/26	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6192557	N/A	2019/06/25	Rebecca McClean

BV Labs ID: KBS243
Sample ID: BH/MW1
Matrix: Water
Collected: 2019/06/20
Shipped:
Received: 2019/06/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6196908	N/A	2019/06/26	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6195797	2019/06/25	2019/06/26	Prabhjot Gulati

BV Labs ID: KBS244
Sample ID: BH/MW2
Matrix: Water
Collected: 2019/06/20
Shipped:
Received: 2019/06/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6196908	N/A	2019/06/26	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6195797	2019/06/25	2019/06/26	Prabhjot Gulati

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BV Labs Job #: B9H1571
Report Date: 2019/06/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: SG

TEST SUMMARY

BV Labs ID: KBS245
Sample ID: BH/MW22
Matrix: Water

Collected: 2019/06/20
Shipped:
Received: 2019/06/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	6196908	N/A	2019/06/26	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6195797	2019/06/25	2019/06/26	Prabhjot Gulati

BV Labs ID: KBS246
Sample ID: TRIP BLANK LOT # 3634
Matrix: Water

Collected: 2019/06/20
Shipped:
Received: 2019/06/21

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6191309	N/A	2019/06/26	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6192557	N/A	2019/06/25	Rebecca McClean

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BV Labs Job #: B9H1571
Report Date: 2019/06/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: SG

GENERAL COMMENTS

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

Package 1	4.7°C

Results relate only to the items tested.

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BV Labs Job #: B9H1571
Report Date: 2019/06/27

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: SG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6192557	4-Bromofluorobenzene	2019/06/24	99	70 - 130	100	70 - 130	95	%		
6192557	D4-1,2-Dichloroethane	2019/06/24	106	70 - 130	101	70 - 130	105	%		
6192557	D8-Toluene	2019/06/24	104	70 - 130	105	70 - 130	94	%		
6195797	o-Terphenyl	2019/06/25	104	60 - 130	113	60 - 130	99	%		
6196908	1,4-Difluorobenzene	2019/06/26	102	70 - 130	100	70 - 130	100	%		
6196908	4-Bromofluorobenzene	2019/06/26	99	70 - 130	101	70 - 130	96	%		
6196908	D10-Ethylbenzene	2019/06/26	114	70 - 130	104	70 - 130	107	%		
6196908	D4-1,2-Dichloroethane	2019/06/26	101	70 - 130	100	70 - 130	101	%		
6192557	1,1,1,2-Tetrachloroethane	2019/06/24	101	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
6192557	1,1,1-Trichloroethane	2019/06/24	93	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
6192557	1,1,2,2-Tetrachloroethane	2019/06/24	113	70 - 130	105	70 - 130	<0.50	ug/L	NC	30
6192557	1,1,2-Trichloroethane	2019/06/24	113	70 - 130	106	70 - 130	<0.50	ug/L	NC	30
6192557	1,1-Dichloroethane	2019/06/24	101	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
6192557	1,1-Dichloroethylene	2019/06/24	105	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
6192557	1,2-Dichlorobenzene	2019/06/24	90	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
6192557	1,2-Dichloroethane	2019/06/24	108	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
6192557	1,2-Dichloropropane	2019/06/24	99	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
6192557	1,3-Dichlorobenzene	2019/06/24	88	70 - 130	87	70 - 130	<0.50	ug/L	NC	30
6192557	1,4-Dichlorobenzene	2019/06/24	94	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
6192557	Acetone (2-Propanone)	2019/06/24	129	60 - 140	103	60 - 140	<10	ug/L	20	30
6192557	Benzene	2019/06/24	100	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
6192557	Bromodichloromethane	2019/06/24	98	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
6192557	Bromoform	2019/06/24	106	70 - 130	99	70 - 130	<1.0	ug/L	NC	30
6192557	Bromomethane	2019/06/24	103	60 - 140	95	60 - 140	<0.50	ug/L	NC	30
6192557	Carbon Tetrachloride	2019/06/24	90	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
6192557	Chlorobenzene	2019/06/24	96	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
6192557	Chloroform	2019/06/24	92	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
6192557	cis-1,2-Dichloroethylene	2019/06/24	98	70 - 130	95	70 - 130	<0.50	ug/L	0.48	30
6192557	cis-1,3-Dichloropropene	2019/06/24	103	70 - 130	94	70 - 130	<0.30	ug/L	NC	30
6192557	Dibromochloromethane	2019/06/24	106	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
6192557	Dichlorodifluoromethane (FREON 12)	2019/06/24	89	60 - 140	87	60 - 140	<1.0	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6192557	Ethylbenzene	2019/06/24	94	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
6192557	Ethylene Dibromide	2019/06/24	108	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
6192557	Hexane	2019/06/24	110	70 - 130	108	70 - 130	<1.0	ug/L	NC	30
6192557	Methyl Ethyl Ketone (2-Butanone)	2019/06/24	136	60 - 140	114	60 - 140	<10	ug/L	NC	30
6192557	Methyl Isobutyl Ketone	2019/06/24	128	70 - 130	115	70 - 130	<5.0	ug/L	NC	30
6192557	Methyl t-butyl ether (MTBE)	2019/06/24	91	70 - 130	89	70 - 130	<0.50	ug/L	NC	30
6192557	Methylene Chloride(Dichloromethane)	2019/06/24	93	70 - 130	88	70 - 130	<2.0	ug/L	NC	30
6192557	o-Xylene	2019/06/24	93	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
6192557	p+m-Xylene	2019/06/24	103	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
6192557	Styrene	2019/06/24	99	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
6192557	Tetrachloroethylene	2019/06/24	87	70 - 130	87	70 - 130	<0.20	ug/L	NC	30
6192557	Toluene	2019/06/24	96	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
6192557	Total Xylenes	2019/06/24					<0.20	ug/L	NC	30
6192557	trans-1,2-Dichloroethylene	2019/06/24	99	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
6192557	trans-1,3-Dichloropropene	2019/06/24	117	70 - 130	100	70 - 130	<0.40	ug/L	NC	30
6192557	Trichloroethylene	2019/06/24	92	70 - 130	91	70 - 130	<0.20	ug/L	1.5	30
6192557	Trichlorofluoromethane (FREON 11)	2019/06/24	91	70 - 130	90	70 - 130	<0.50	ug/L	NC	30
6192557	Vinyl Chloride	2019/06/24	103	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
6195797	F2 (C10-C16 Hydrocarbons)	2019/06/26	96	50 - 130	113	60 - 130	<100	ug/L	NC	30
6195797	F3 (C16-C34 Hydrocarbons)	2019/06/26	92	50 - 130	119	60 - 130	<200	ug/L	NC	30
6195797	F4 (C34-C50 Hydrocarbons)	2019/06/26	93	50 - 130	117	60 - 130	<200	ug/L	NC	30
6196908	Benzene	2019/06/26	115	70 - 130	108	70 - 130	<0.20	ug/L	NC	30
6196908	Ethylbenzene	2019/06/26	111	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
6196908	F1 (C6-C10) - BTEX	2019/06/26					<25	ug/L	NC	30
6196908	F1 (C6-C10)	2019/06/26	95	70 - 130	99	70 - 130	<25	ug/L	NC	30
6196908	o-Xylene	2019/06/26	111	70 - 130	106	70 - 130	<0.20	ug/L	NC	30
6196908	p+m-Xylene	2019/06/26	112	70 - 130	105	70 - 130	<0.40	ug/L	NC	30
6196908	Toluene	2019/06/26	115	70 - 130	108	70 - 130	<0.20	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6196908	Total Xylenes	2019/06/26					<0.40	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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BV Labs Job #: B9H1571
Report Date: 2019/06/27

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: SG

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

BV Labs 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 P.O. #: HAM-ENV
Your Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your C.O.C. #: 723423-05-01

Attention: Stephanie Hsia

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

Report Date: 2019/07/04
Report #: R5782710
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9H8969
Received: 2019/06/28, 16:15

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	1	N/A	2019/07/04		EPA 8260C m
Volatile Organic Compounds in Water	1	N/A	2019/07/03	CAM SOP-00228	EPA 8260C m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs 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 BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs 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. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs 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 BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

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. When sampling is not conducted by BV Labs, results relate to the supplied 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.

Your P.O. #: HAM-ENV
Your Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your C.O.C. #: 723423-05-01

Attention: Stephanie Hsia

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

Report Date: 2019/07/04
Report #: R5782710
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9H8969
Received: 2019/06/28, 16:15

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Christine Gripton, Senior Project Manager
Email: Christine.Gripton@bvlabs.com
Phone# (519)652-9444
==========
This report has been generated and distributed using a secure automated process.
BV Labs 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.

BV Labs Job #: B9H8969
Report Date: 2019/07/04

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 VOCS BY HS (WATER)

BV Labs ID		KDK391		
Sampling Date		2019/06/28 08:30		
COC Number		723423-05-01		
	UNITS	**MW201**	**RDL**	**QC Batch**
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	6204204
Volatile Organics				
Acetone (2-Propanone)	ug/L	<10	10	6204907
Benzene	ug/L	<0.20	0.20	6204907
Bromodichloromethane	ug/L	<0.50	0.50	6204907
Bromoform	ug/L	<1.0	1.0	6204907
Bromomethane	ug/L	<0.50	0.50	6204907
Carbon Tetrachloride	ug/L	<0.20	0.20	6204907
Chlorobenzene	ug/L	<0.20	0.20	6204907
Chloroform	ug/L	<0.20	0.20	6204907
Dibromochloromethane	ug/L	<0.50	0.50	6204907
1,2-Dichlorobenzene	ug/L	<0.50	0.50	6204907
1,3-Dichlorobenzene	ug/L	<0.50	0.50	6204907
1,4-Dichlorobenzene	ug/L	<0.50	0.50	6204907
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	6204907
1,1-Dichloroethane	ug/L	<0.20	0.20	6204907
1,2-Dichloroethane	ug/L	<0.50	0.50	6204907
1,1-Dichloroethylene	ug/L	<0.20	0.20	6204907
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	6204907
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	6204907
1,2-Dichloropropane	ug/L	<0.20	0.20	6204907
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	6204907
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	6204907
Ethylbenzene	ug/L	<0.20	0.20	6204907
Ethylene Dibromide	ug/L	<0.20	0.20	6204907
Hexane	ug/L	<1.0	1.0	6204907
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	6204907
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	6204907
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	6204907
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	6204907
Styrene	ug/L	<0.50	0.50	6204907
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	6204907
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	6204907

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

O.REG 153 VOCS BY HS (WATER)

BV Labs ID		KDK391		
Sampling Date		2019/06/28 08:30		
COC Number		723423-05-01		
	UNITS	**MW201**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	<0.20	0.20	6204907
Toluene	ug/L	<0.20	0.20	6204907
1,1,1-Trichloroethane	ug/L	<0.20	0.20	6204907
1,1,2-Trichloroethane	ug/L	<0.50	0.50	6204907
Trichloroethylene	ug/L	<0.20	0.20	6204907
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	6204907
Vinyl Chloride	ug/L	1.1	0.20	6204907
p+m-Xylene	ug/L	<0.20	0.20	6204907
o-Xylene	ug/L	<0.20	0.20	6204907
Total Xylenes	ug/L	<0.20	0.20	6204907
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	96		6204907
D4-1,2-Dichloroethane	%	108		6204907
D8-Toluene	%	92		6204907

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: B9H8969
Report Date: 2019/07/04

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

TEST SUMMARY

BV Labs ID: KDK391
Sample ID: MW201
Matrix: Water

Collected: 2019/06/28
Shipped:
Received: 2019/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6204204	N/A	2019/07/04	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6204907	N/A	2019/07/03	Chandni Khawas

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BV Labs Job #: B9H8969
Report Date: 2019/07/04

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

GENERAL COMMENTS

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

Package 1	3.7°C

Results relate only to the items tested.

Bureau Veritas Laboratories 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

BV Labs Job #: B9H8969
Report Date: 2019/07/04

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6204907	4-Bromofluorobenzene	2019/07/03	99	70 - 130	100	70 - 130	98	%		
6204907	D4-1,2-Dichloroethane	2019/07/03	106	70 - 130	104	70 - 130	107	%		
6204907	D8-Toluene	2019/07/03	102	70 - 130	103	70 - 130	95	%		
6204907	1,1,1,2-Tetrachloroethane	2019/07/03	106	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
6204907	1,1,1-Trichloroethane	2019/07/03	102	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
6204907	1,1,2,2-Tetrachloroethane	2019/07/03	109	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
6204907	1,1,2-Trichloroethane	2019/07/03	104	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
6204907	1,1-Dichloroethane	2019/07/03	100	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
6204907	1,1-Dichloroethylene	2019/07/03	102	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
6204907	1,2-Dichlorobenzene	2019/07/03	94	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
6204907	1,2-Dichloroethane	2019/07/03	104	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
6204907	1,2-Dichloropropane	2019/07/03	93	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
6204907	1,3-Dichlorobenzene	2019/07/03	91	70 - 130	89	70 - 130	<0.50	ug/L	NC	30
6204907	1,4-Dichlorobenzene	2019/07/03	96	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
6204907	Acetone (2-Propanone)	2019/07/03	103	60 - 140	91	60 - 140	<10	ug/L	NC	30
6204907	Benzene	2019/07/03	98	70 - 130	93	70 - 130	<0.20	ug/L	0	30
6204907	Bromodichloromethane	2019/07/03	102	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
6204907	Bromoform	2019/07/03	112	70 - 130	106	70 - 130	<1.0	ug/L	NC	30
6204907	Bromomethane	2019/07/03	115	60 - 140	108	60 - 140	<0.50	ug/L	NC	30
6204907	Carbon Tetrachloride	2019/07/03	101	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
6204907	Chlorobenzene	2019/07/03	92	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
6204907	Chloroform	2019/07/03	98	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
6204907	cis-1,2-Dichloroethylene	2019/07/03	94	70 - 130	90	70 - 130	<0.50	ug/L	NC	30
6204907	cis-1,3-Dichloropropene	2019/07/03	99	70 - 130	90	70 - 130	<0.30	ug/L	NC	30
6204907	Dibromochloromethane	2019/07/03	109	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
6204907	Dichlorodifluoromethane (FREON 12)	2019/07/03	99	60 - 140	97	60 - 140	<1.0	ug/L	NC	30
6204907	Ethylbenzene	2019/07/03	86	70 - 130	84	70 - 130	<0.20	ug/L	0	30
6204907	Ethylene Dibromide	2019/07/03	104	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
6204907	Hexane	2019/07/03	102	70 - 130	99	70 - 130	<1.0	ug/L	NC	30
6204907	Methyl Ethyl Ketone (2-Butanone)	2019/07/03	103	60 - 140	92	60 - 140	<10	ug/L	NC	30
6204907	Methyl Isobutyl Ketone	2019/07/03	103	70 - 130	96	70 - 130	<5.0	ug/L	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6204907	Methyl t-butyl ether (MTBE)	2019/07/03	86	70 - 130	82	70 - 130	<0.50	ug/L	NC	30
6204907	Methylene Chloride(Dichloromethane)	2019/07/03	108	70 - 130	102	70 - 130	<2.0	ug/L	NC	30
6204907	o-Xylene	2019/07/03	86	70 - 130	87	70 - 130	<0.20	ug/L	1.1	30
6204907	p+m-Xylene	2019/07/03	91	70 - 130	89	70 - 130	<0.20	ug/L	1.7	30
6204907	Styrene	2019/07/03	91	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
6204907	Tetrachloroethylene	2019/07/03	96	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
6204907	Toluene	2019/07/03	96	70 - 130	93	70 - 130	<0.20	ug/L	17	30
6204907	Total Xylenes	2019/07/03					<0.20	ug/L	0.48	30
6204907	trans-1,2-Dichloroethylene	2019/07/03	102	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
6204907	trans-1,3-Dichloropropene	2019/07/03	106	70 - 130	95	70 - 130	<0.40	ug/L	NC	30
6204907	Trichloroethylene	2019/07/03	101	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
6204907	Trichlorofluoromethane (FREON 11)	2019/07/03	104	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
6204907	Vinyl Chloride	2019/07/03	104	70 - 130	101	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).

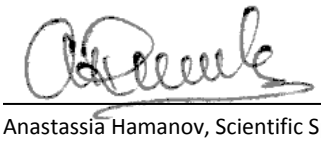
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BV Labs Job #: B9H8969
Report Date: 2019/07/04

exp Services Inc
Client Project #: HAM-00801683-A0
Site Location: GUELPH LINE, BURLINGTON
Your P.O. #: HAM-ENV
Sampler Initials: PM

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, Scientific Specialist

BV Labs 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 F – P2CSM

Phase Two Conceptual Site Model – 418 & 422 Guelph line, Burlington, Ontario

This section presents a 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. These components are discussed in the following sections. The Phase Two CSM was completed in accordance with O. Reg.153/04 as defined by the Ministry of the Environment, Conservation, and Parks (MECP).

1. Introduction

The Site is located on the southwest side of Guelph Line, approximately 35 m southeast of New Street in Burlington, Ontario. The Site is approximately 0.38 hectares (0.94 acres) in size, and is occupied by a one-storey commercial building with a basement and a two-storey residential structure with a basement ("Site buildings"). The Site building at 422 Guelph Line has a footprint of approximately 930 m^2 (10,000 ft^2) and was constructed circa 1958. The basement of this structure covers the entire footprint of the building. The Site building at 418 Guelph Line was reportedly constructed in 1949. At the time of this Phase One ESA, the Site buildings were vacant. The Phase One Study Area consists of properties within a distance of approximately 250 metres from the Site boundaries. The Phase One Study Area and a Surrounding Land Use Plan are shown on Figure 2.

Based on a review of historical aerial photographs, chain of title information, historical maps, and other records, the Site was developed circa 1949.

Refer to Table 1 for the Site identification information.

Table 1: Site Identification Information

Municipal Address	418 Guelph Line, Burlington Ontario
Current Land Use	Commercial
Proposed Land Use	Residential
Legal Description	Part Lot 15 Con 4 NEL SDS as in 388093
Property Identification Number (PIN)	07197-0095 (LT)
Approximate Universal Transverse Mercator (UTM) coordinates	NAD83 17T 598498 m E 4799003 m N
Accuracy Estimate of UTM	10-15 m
Measurement Method	Georeferenced aerial photograph
Site Area	0.19 ha (0.48 acres)
Property Owners, Owner Contact and Address	418 Waldemar Inc. 3410 S Service Road Burlington, ON L7N 3T2

Municipal Address	422 Guelph Line, Burlington Ontario
Current Land Use	Commercial
Proposed Land Use	Residential
Legal Description	Part Lot 16 Con 4 NEL SDS as in 442287
Property Identification Number (PIN)	07197-0094 (LT)
Approximate Universal Transverse Mercator (UTM) coordinates	NAD83 17T 598478 m E 4799019 m N
Accuracy Estimate of UTM	10-15 m
Measurement Method	Georeferenced aerial photograph
Site Area	0.19 ha (0.48 acres)
Property Owners, Owner Contact and Address	422 Waldemar Inc. 3410 S Service Road Burlington, ON L7N 3T2

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 in July 2019 for the Phase One Property. Several potentially contaminating activities (PCAs) were identified on-Site and within 250 m from the Phase One Property site boundaries. All PCAs that were identified within 250 m property are shown on Figure 2. Each PCA was further evaluated to determine if the activity may be contributing to an area of potential environmental concern (APEC) at the Phase One Property.

The QP determined that select PCAs may contribute to an APEC for the property, while several PCAs were determined to not contribute to an APEC at the Phase One Property/Site due to various factors including, but not limited to, relative distance to the Phase One Property/Site, orientation to the Phase One Property/Site; degree and nature of PCA operations, potentially impacted media, etc. Refer to Table 2 for the evaluation of the PCAs in the Phase One Study Area.

Table 2: Potentially Contaminating Activities in the Phase One Study Area

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)?
Site					
1	Site	North of the Site building addressed as 418 Guelph Line	PCA#28-Gasoline and Associated Products Storage in Fixed Tanks	During the Phase One ESA Site visit, a potential vent pipe associated with a potential former AST was observed on the north side of the building at 418 Guelph Line.	Yes, based on the PCA occurring on-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)?
2		Greenhouses on east portion of Site	PCA#40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	Based on a review of the previous report, greenhouses formerly occupied the east portion of the Site. According the City Directories, the Site building addressed as 418 Guelph Line was occupied by a florist from 1961 to 1971. There is a potential for the operations associated with the greenhouses to utilize pesticides.	Yes, based on the PCA occurring on-Site.
3		Asphalt parking on northwest portion of Site.	PCA "Other" – Use of salt for de-icing purposes (asphalt paved areas)	De-icing salt is used on paved parking and roadway areas on the site during the winter months. As such, the shallow soil at the Site may be impacted with salt related contaminants, including electrical conductivity and sodium adsorption ratio.	Yes, based on the PCA occurring on-Site.
Surrounding Properties					
4	Historical UST northeast of the Site (422 Guelph Line).	Northeast adjacent	PCA#28-Gasoline and Associated Products Storage in Fixed Tanks	Based on observations made at the time of the Site visit, and previous reports, one (1) UST was situated northeast adjacent to the Site and used to store heating oil for the Site building. Vent and fill pipes were observed in the basement of the Site building.	Yes, based on the close proximity of the Site
5	2432 New Street (formerly 2440A New Street)	West adjacent	PCA52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Based on the reviewed FIPs the property was occupied by an Auto Repair Centre in 1971 and is shown on a Site plan from 1987. Various auto repair centres were listed on the property in the City Directories from 1967 to 2011.	Yes, based on the close proximity to the Site.
6A	2434 - 2450 New Street	North adjacent	PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain	A review of the City Directories indicated the property addressed as 2434 New Street was occupied by Special Effects Motorcycle Co. in 2011. At the time of the Site visit, suspected fill and vent pipes were observed on the north and south exterior portion of the building addressed as 2434 -2450 New Street.	Yes, due to the proximity to the 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)?
			transportation systems		
6B	2434 - 2450 New Street	North adjacent	PCA#28: Gasoline and Associated Products Storage in Fixed Tanks.	At the time of the Site visit, suspected fill and vent pipes were observed on the north and south exterior portion of the building addressed as 2434 -2450 New Street.	Yes, due to the proximity to the Site.
7	415 Guelph Line	25 m east	PCA#37 – Operation of dry-cleaning equipment where chemicals are used.	A review of the City Directories indicated the property was occupied by City Laundry & Dry Cleaners from 1961 to 1967	Yes, due to the proximity to the Site.
8	417 Guelph Line	25 m east	PCA#39 - Paints Manufacturing, Processing and Bulk Storage	According to the City Directories, the property was occupied by Tone Craft Paints and McFarland John Paint & Wallpaper company from 1967 – 1976.	Yes, due to the proximity to the Site.
9	433 Guelph Line	30 m northeast	PCA#28- Gasoline and Associated Products Storage in Fixed Tanks	Based on the reviewed 1971 FIP one (1) UST was located on the property. A service station was listed in the City Directories from 1957 to 1967.	Yes, based on the proximity to the Site.
10	458 Guelph Line (formerly 2439 New Street and 448 New Street)	60 m north/ northwest	PCA#28- Gasoline and Associated Products Storage in Fixed Tanks	Based on the 1971 FIP, the property was occupied by a gasoline service station with and associated UST. This property was noted to be occupied by a service station in the reviewed City Directories from 1961 to 2011. The ERIS report indicated three (USTs) were noted to be active on the property and gasoline was noted in a borehole due to a gasoline leak in 2001. The gas station was present at the time of the Site visit.	Yes, based on the up-gradient location of this property with respect to the anticipated groundwater flow direction.
11A	3001 New Street (formerly 457 Guelph Line)	75 m north / northeast	PCA#28- Gasoline and Associated Products Storage in Fixed Tanks	Based on the 1971 FIP, the property was occupied by an auto clinic with an associated UST. . This property was noted to be occupied by a service station in the reviewed City Directories from 1957 to 1991.	Yes, based on the up-gradient location of this property with respect to the anticipated groundwater flow direction.

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)?
11B	3001 New Street (formerly 457 Guelph Line)	75 m north/ northeast	PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Based on the 1971 FIP, the property was occupied by an auto clinic with an associated UST.	Yes, based on the up-gradient location of this property with respect to the anticipated groundwater flow direction
12	480 Guelph Line	180 m northwest	PCA#37 - Operation of Dry-Cleaning Equipment (where chemicals are used)	According to the ERIS report, James H Parker Ltd. / Parkers Cleaner's occupied the property and was listed as a generator of halogenated solvents from 1986 to 2017. The operation listed as 'Parkers of Burlington Fine Drycleaners and Launderers' is noted to be a dry-cleaning facility with waste reporting data between 2004 and 2016.	Yes, due to up-gradient from the Site.
13	2442 New Street	North adjacent	PCA Other – Commercial printing operation	According to the ERIS report and City Directories, the property was occupied by Print Three – a commercial printing operation, from 1991 to 1996.	Yes, due to the proximity to the Site and the historic timeframe of the operation.
14	409 Guelph Line	30 m east	PCA Other – Commercial printing operation	According to the ERIS report and City Directories, the property was occupied by Print Three – a commercial printing operation, from 2001 to 2011.	No due to the recent timeframe of the operation and the trans-gradient location with respect to the anticipated groundwater flow direction
15	2411 New Street	110 m west	PCA#37 - Operation of Dry-Cleaning Equipment (where chemicals are used).	According to the City Directories, the property was occupied by Lulu's Cleaning Service from 1986.	No, due to the separation distance from the Site and trans-gradient to the 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)?
16	466 Guelph Line	125 m north	PCA Other – Hazardous waste generator	According to the ERIS report, the property was occupied by DRSSL Limited and a registered waste generator of halogenated solvents and residues from 2016 to 2018.	No, due to the separation distance from the Site
17	3040 New Street	125 m northeast	PCA#37 - Operation of Dry-Cleaning Equipment (where chemicals are used)	According to the ERIS report, Parkers Cleaners (Burlington) Ltd. was listed as a registered generator of aliphatic solvents and residues in 2018. Parkers of Burlington Dry-Cleaning & Landers occupied the property at the time of the Site visit.	No, due to the separation distance from the Site
18	451 Guelph Line	165 m north	PCA#37 – Operation of dry-cleaning equipment where chemicals are used.	Based on the reviewed 1971 FIP, the property was occupied by a dry-cleaner. The ERIS report indicated the property was occupied by Star Cleaners and a registered waste generator of halogenated solvents from 1986 to 2005. ERIS also indicated Fracarsan Corp. was a tenant and listed as a waste generator of halogenated solvents in 2013. A review of the City Directories identified the property was occupied by various dry-cleaning operations from 1961 to 2006.	No, based on the separation distance from the Site.
19	3009 New Street	180 m north	PCA Other – Hazardous waste generator	According to the ERIS report, Dr. David Robertson was a tenant of the property and listed as a waste generator of halogenated solvents in 2016.	No, due to the separation distance from the Site
20	3017 New Street	190 m north	PCA#37 - Operation of Dry Cleaning Equipment (where chemicals are used)	Roseland Dry Cleaners occupied the property and it was noted to be a same day service facility, and as such; dry cleaning operations are likely to occur on the property.	No, due to the separation distance from the Site

(1 a) Distances are approximately only. 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 had occurred in a phase one study area

2.2 Areas of Potential Environmental Concern

Based on the evaluation of the PCAs located within the Phase One Study Area, areas of potential environmental concern (APECs) were identified, as presented in Figure 4, and summarized in Table 3 below.

Table 3: Areas of Potential Environmental Concern (APECs)

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)[1]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 1: Vent pipe for potential former AST	North of the Site building addressed as 418 Guelph Line	PCA#28- Gasoline and Associated Products Storage in Fixed Tanks	On-Site	Petroleum Hydrocarbons (PHCs) and Benzene, Toluene, ethylbenzene and Xylenes (BTEX), and Metals	Soil and Groundwater
APEC 2: Presence of greenhouses on Site	East portion of Site	PCA#40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-Site	OC Pesticides	Soil
APEC 3: De-icing salt application to parking areas	On-Site parking areas on northwest portion of the Site	PCA"Other"-De-icing Salt	On-Site	Electrical Conductivity (EC), Sodium Absorption Ratio (SAR)	Soil
APEC 4: Fill and vent pipes associated with off Site UST at 422 Guelph Line	Northeast portion of the Site at 422 Guelph Line	PCA#28- Gasoline and Associated Products Storage in Fixed Tanks	Off-Site	PHCs, BTEX, and Metals	Soil and Groundwater
APEC 5: Various automotive repair facilities on west adjacent at 2432 New Street	West portion of the Site	PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	PHCs, and Volatile Organic Compounds (VOCs)	Groundwater
APEC 6A: Former Motorcycle Repair Center north adjacent to Site at 2434 New Street	North portion of the Site	PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	PHCs, and VOCs	Groundwater

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)[1]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 6B: Fill / vent pipe on building situated on north adjacent property (2434 New Street)	North portion of the Site	PCA#28: Gasoline and Associated Products Storage in Fixed Tanks.	Off-Site	PHCs, BTEX	Groundwater
APEC 7: Dry cleaning facility 25 m east of the Site at 415 Guelph Line	East boundary of the Site	PCA#37 - Operation of Dry Cleaning Equipment (where chemicals are used)	Off-Site	VOCs	Groundwater
APEC 8: Bulk paint storage 25 m east of the Site at 417 Guelph Line	North portion of the Site	PCA#28: Gasoline and Associated Products Storage in Fixed Tanks.	Off-Site	PHCs, BTEX	Groundwater
APEC 9: Automotive Service Station 30 m north of the Site at 433 Guelph Line	Northeast boundary of the Site	PCA#28 – Gasoline and Associated products in fixed tanks.	Off-Site	PHCs, VOCs	Groundwater
APEC 10: Service Centre 60 m north/northwest of Site at 458 Guelph Line with associated USTs	North portion of Site	PCA#28 – Gasoline and Associated products in fixed tanks.	Off-Site	PHCs, BTEX	Groundwater
APEC 11A: Automotive service centre 75 m north of Site at 3001 New Street (formerly 457 Guelph Line) with associated USTs	North boundary of the Site	PCA#28 – Gasoline and Associated products in fixed tanks	Off-Site	PHCs, BTEX	Groundwater
APEC 11B: Automotive service centre 75 m north of Site at 3001 New Street (formerly 457 Guelph Line) with associated USTs	North boundary of the Site	PCA#52 – Storage, maintenance, fueling and repair of equipment, vehicles, and material used to maintain transportation systems	Off-Site	PHCs, VOCs	Groundwater
APEC 12: Dry cleaning facility 180 m northwest of the Site at 480 Guelph Line	Northwest boundary of the Site	PCA#37 - Operation of Dry-Cleaning Equipment (where chemicals are used)	Off-Site	VOCs	Groundwater

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)[1]	Location of PCA (on-Site or off-Site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC 13: Commercial printing establishment north adjacent of Site at 2442 New Street	North portion of the Site	PCA Other – Commercial printing establishment	Off-Site	VOCs	Groundwater

Notes:

Area of Potential Environmental Concern means the area on, in or under a phase one study area where one or more contaminants are potentially present, as determined through the PI ESA, including through (a) identification of post or present uses on, in or under the phase one property, and (b) identification of potentially contaminating activities.

(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.

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

Refer to Figures 4 and 5B for the location of APECs on the Site. Boreholes/monitoring wells advanced on the Site to investigate the identified APECs are shown on Figures 5A and 5B.

2.3 Underground Utilities

The Site utilities and services were identified at the Site based on the survey plan provided by the client (provided in Appendix B) and relevant utility infrastructure observed during the Site reconnaissance. The Site utilities are shown on Figure 3, where available. The hydro is overhead along Guelph Line, and along the western perimeter, gas and communication utility lines are located north of the Site.

3. Physical Site Description

3.1 Geological and Hydrogeological Conditions

The Site and surrounding areas are expected to be consist of Glaciomarine deposits, consisting primarily of sand and gravel as well as nearshore and beach deposits.

The bedrock in the general area was part of the Queenston Formation. The bedrock is described as consisting of shale, limestone, dolostone, and siltstone.

A review of the topographic map indicated that the closest body of water is the Lake Ontario, which is located approximately 810 m southeast of the Site. EXP notes that the direction of localized groundwater flow may be influenced by disturbed soil (fill), underground utilities and/or underground building structures in the area. As such, the measured groundwater flow direction may not be representative of the regional area.

Based on the review of available resources from the Ministry of Natural Resources, City of Niagara Falls and MECP, no areas of natural significance were identified at the Site or within the Phase One Study Area.

The general stratigraphy at the Site, as observed in the boreholes, consisted of asphalt/ topsoil generally overlying layers of fill followed by sand, overlain by silty clay/ bedrock. A brief description of the soil stratigraphy at the Site, in order of depth, is summarized in the following sections.

3.1.1 Surface Material

Topsoil with thickness of approximately 100 mm and asphalt of approximately 50 - 100 mm was encountered at the surface of all boreholes.

3.1.2 Fill Material

Fill material was encountered below the asphalt/ topsoil in majority of the boreholes extending to depths between 0.05 m bgs and 2.13 m bgs. The fill comprised generally of sand, with trace silt and gravel.

3.1.3. Native Material

Fine sand, and silty clay material was encountered below the fill material and extended to depths of approximately 5.95 m bgs.

3.1.4 Bedrock

Bedrock was encountered at BH201and BH202 to the maximum investigated depth of 12.2 m.

3.2 Hydrogeology

Based on the groundwater contour map delineated for the Site, the groundwater is anticipated to flow in a south/southeast direction. Refer to Table 4 for the Site hydrogeology characteristics based on groundwater monitoring observations.

Table 4: Site Hydrogeology Characteristics

Location	Observation
Depth to Groundwater	1.56 m bgs to 3.76 m bgs
Groundwater Elevation	96.88 m to 98.41 m
Direction of Groundwater Flow	South/southeast
Horizontal Hydraulic Gradient	0.005 m/m (between BH105 and BH/MW4) and 0.006 m/m (between BH/MW2 and BH/MW1)
Vertical Hydraulic Gradient	0.048 m/m (between BH104 and MW201) and 0.129 m/m (between BH/MW4 and MW202)

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 5.

Table 5: 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

Sensitivity	Classification	Does Sensitivity Apply to Site?
Section 43.1 applies if	(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
	(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 (Rowntree Creek)	No

3.3.1 Soil Importation

Fill material is typically brought to a property as a base for buildings and pavement areas. Fill can also be used to re-grade a property, and to backfill excavations.

Based on the reviewed information, EXP does not suspect large amounts of fill at the Site. In addition, no fill material has been brought to the Site during the Phase Two ESA.

3.4 Land Use

It is understood that the Site is intended to be further developed for residential land use.

4. Contaminants of Concern

For assessment purposes, EXP selected the MECP (2011) Table 2: Full depth Background Site condition Standards in a Potable Ground Water Condition for Residential/Parkland/Institutional Property Use and coarse textured soil was considered applicable for determining contaminants of concern (COCs), based on the rationale presented in Table 6.

Table 6: Site specific Condition

Description	Site Specific Condition
Section 41 Site Sensitivity	Not applicable • The soil at the Site has pH values between 5 and 11 for subsurface soil. It is noted that the pH value from the soil sample at BH101 (0-0.6 m bgs) is 9.6 which exceeds the 5 to 9 range for surface soil samples. It is understood that additional soil samples will be collected in this area to confirm the pH value at this location as it is deemed to be anomalous. Therefore, the site is not identified as an environmentally sensitive area and the restrictions identified in Section 41 of O. Reg. 153/04 do not apply. • The Site is not located within a Significant Area, and/or located adjacent to an area of natural significance/an environmentally sensitive area.

Description	Site Specific Condition
Section 43.1 Site Sensitivity	Not applicable • 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. • The Site is not located within 30 m of a surface water body; the nearest surface water body, Don River, is located approximately 1.9 km east of the Site.
Ground Water	Potable • 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. • However, the Site is located within a highly vulnerable aquifer, as identified in the Region's Source Water protection Planning under the Clean Water Act, 2006.
Land Use	Residential/Parkland/Institutional • The proposed future use of the Site is for residential use.
Soil Texture	Coarse textured • 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.

A chemical constituent was selected as a COC if it was detected in soil or groundwater samples obtained from the Site at a concentration in excess of the applicable Table 2 SCS.

4.1 Soil and Groundwater Impacts

A chemical constituent was selected as a COC if it was detected in soil or groundwater samples obtained from the Site at a concentration in excess of the applicable Table 2 SCS.

Soil samples were submitted for the analysis of petroleum hydrocarbons (PHCs), benzene, toluene, ethylbenzene and xylenes (BTEX), and/or volatile organic compounds (VOCs). Some parameters were measured above the Table 2 SCS, and the following COCs were identified:

- Soil: Vinyl Chloride in soil sample BH201 – SS6 and duplicate BH201- SS66.

All remaining tested parameters for PHC, and VOC in the soil samples were either non-detected or detected below their applicable MECP (2011) Table 2 SCS.

Groundwater samples were submitted for the analysis of PHCs, BTEX, and/or VOCs. Some parameters were measured above the Table 2 SCS, and the following COCs were identified:

- Groundwater:
    - Chloroform in groundwater samples MW4 (DUP MW44), and MW103;
    - Cis-1,2-Dichloroethylene in groundwater samples BH/MW1, MW3, MW4 (DUP MW44), MW101, MW102, BH104, MW106, and MW102A (DUP MW1022A);
    - Tetrachloroethylene in groundwater samples BH/MW1, BH/MW2, MW3, MW4 (DUP MW44), MW101, MW102, MW103, BH104, BH105, MW106, and MW102A (DUP MW1022A);
    - Trichloroethylene in groundwater samples BH/MW1, BH/MW2, MW3, MW4 (DUP MW44), MW101, MW102, MW103, BH104, BH105, MW106, and MW102A (DUP MW1022A); and

- Vinyl Chloride in groundwater samples BH/MW1, MW3, MW102, MW102A (DUP MW1022A), and MW201.

The remaining samples were either non-detected or detected below their applicable Table 2 SCS.

Analytical results for COCs in identified soil and groundwater samples collected on the Site are presented for soil in plan view on Figures 7 to 14 and distribution of all impacts in groundwater are on Figures 15 to 20.

4.2 Contaminant Fate and Transport

4.2.1 Soil Media

The soil COCs noted at the Site from current and previous investigations include: tetrachloroethylene, trichloroethylene, vinyl chloride, electrical conductivity (EC) and sodium adsorption ratio (SAR).

The exceedance of the VOC parameters are likely associated with off-Site activities (ie. former dry cleaner). The EC/SAR exceedances are likely associated with de-icing activities on the asphalt paved areas.

4.2.2 Groundwater Media

The groundwater COCs noted at the Site from current and previous investigations include: chloroform, various chlorinated solvents (1,1-dichloroethylene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, tetrachloroethylene, trichloroethylene, vinyl chloride), sodium and chloride.

The exceedance of the VOC parameters are likely associated with off-Site activities (i.e. former dry cleaner), and the exceedance of the chloroform in groundwater may be associated with the municipal watermain. The sodium and chloride exceedances are likely associated with de-icing activities on the asphalt paved areas.

4.2.2 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 at the Site. 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 13.

Table 13: Preferential Pathways

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.

4.2.3 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.

4.2.4 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 (MECP 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 (MECP 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

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 two (2) commercial buildings (one-storey commercial building with a basement and a two-storey residential structure with a basement). The proposed future development plans consist of multi-storey residential building 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 occupied by a one-storey commercial building with a basement and a two-storey residential structure with a basement ("Site buildings"). The Site building at 422 Guelph Line has a footprint of approximately 930 m^2 (10,000 ft^2) and

was constructed circa 1958. The basement of this structure covers the entire footprint of the building. The Site building at 418 Guelph Line was reportedly constructed in 1949. At the time of this Phase One ESA, the Site buildings were vacant

The Site is proposed to be redeveloped for residential purposes. Based on future residential land use of the Site, the receptors that are anticipated to be present include property residents and visitors/trespassers (all ages), indoor long-term workers (adult (i.e., maintenance worker, concierge) and outdoor long-term workers (adult (i.e., landscaper). Subsurface (construction) workers are also considered potential receptors where future utilities or site renovations are planned. These pathways will be discussed further in the Risk Assessment report.

Groundwater at the Site is considered potable. Drinking water for the City of Burlington is sourced from Lake Ontario and is municipally serviced. The minimum depth to groundwater at the Site is 1.56 m bgs.

5.2 Ecological Receptors and Exposure Pathways

The Site is located in an urban environment capable of supporting some terrestrial ecological receptors. There are no on-Site waterbodies. The nearest waterbody is Lake Ontario, located approximately 810 m southeast. Consistent with the MECP (2011b), the potential on-Site ecological receptors 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. Please refer to the risk assessment for a detailed discussion regarding the ecological receptors and exposure pathways.

Appendix G – Non-Potable Groundwater Letter

Halton REGION

Legislative & Planning Services
Planning Services
1151 Bronte Road
Oakville ON L6M 3L1

June 13, 2019

Patricia McMullan
Exp
1595 Clark Blvd
Brampton, ON L6T 4V1

Dear Patricia McMullan:

RE: **Notification of Intent to Use Non-Potable Groundwater Site Condition Standards**
Subject Property: **418-422 Guelph Line, Burlington**

Further to your correspondence received by Halton Region Planning Services on **May 23, 2019**, Regional Municipality of Halton staff has prepared this letter in response to your O. Reg. 153/04 Records of Site Condition – Part XV.1 of the Environmental Protection Act request to assume that the groundwater beneath the subject property "does not or will not serve as a raw water supply for a drinking water system, as defined in the Safe Drinking Water Act (2002)".

The key features for this request are presented in Table 1 below:

Table 1: Key Features Assessment

Key Feature	Is the property located within or nearby these Key Features (yes/no)
Wellhead Protection Area	**No**
Highly Vulnerable Aquifer	**Yes**
Environmentally Sensitive Area (within 30m)	**No**
Rural Area	**No**
Water Well Records Within 250 metres	**No**

Region of Halton records indicate that the property is located within the **City of Burlington** and **is not** within a wellhead protection area, **but is** located within a highly vulnerable aquifer, as identified in the Region's Source Water Protection Planning under the Clean Water Act, 2006. The property **is not** located within 30m of environmentally sensitive areas (see definition in O. Reg. 153/04). There are **no** potable well records that are located within 250m of the property.

Based on this information, Halton Region **objects** to the intention to apply non-potable water use criteria for the assessment of the subject property. **Potable standards** must be used for this property.

If you have any questions regarding this information, please contact the undersigned at ext. 3241.

Sincerely,

Behnam Doulatyari
Planner – Groundwater and Hydrology, Sustainable Planning

c. Tim Edwards, District Engineer, Ministry of the Environment, Halton-Peel District Office
Nicole Mathews, Manager, Environmental Health, Halton Region (email)
Ang Capone, City of Burlington (email)