PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

2020 BANTREE STREET, OTTAWA, ONTARIO

Prepared For:

7137796 Canada Inc.
700 Education Boulevard
Cornwall, ON K6H 6B8
Attention: Martin Benson

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Client: 7137796 Canada Inc
Date: March 31, 2022
Project #: 11556-03

I. EXECUTIVE SUMMARY

I.I LOCATION

Located at 2020 Bantree Street, Ottawa, Ontario, the site is situated on the south-southeast side of Bantree Street, northeast of Edinburgh Place, and west-southwest of Blackwell Street, in the City of Ottawa, Ontario.

I.II OBJECTIVE

AEL Environment (AEL) was retained by 7137796 Canada Inc. (the client) to conduct a phase two environmental site assessment (ESA) as a follow up to recommendations made as part of the phase one ESA previously conducted by AEL.

Testing was to determine whether the soil and ground water samples collected from the site met the Ministry of the Environment, Conservation and Parks (MECP) Soil and Groundwater Standards under Part XV.1 of the Environmental Protection Act (MECP Standard) generic site condition standards (SCSs) for contaminants of concern (COCs) identified in the phase one ESA, as required by Ontario Regulation (O. Reg.) 153/04.

I.III INVESTIGATION

Under the investigation and field work plan, AEL implemented a drilling and sampling program for soil and groundwater.

In January 2022, two (2) boreholes were advanced at the site. Based on field observations, AEL selected soil samples from two (2) boreholes for analysis by a laboratory certified by the Canadian Association of Laboratory Accreditation (CALA). Soil samples were collected at different depths, ranging from ground surface to about 3.23 meters (m) below the ground surface (bgs).

In March 2022, after an inspection of the oil/water interceptors had been completed, five (5) boreholes were advanced at the site, of which all five (5) were completed as monitoring wells. Based on field observations, AEL selected soil samples from all five (5) boreholes and groundwater samples from all five (5) newly installed monitoring wells for analysis by a laboratory certified by CALA. Soil samples were collected at different depths, ranging from ground surface to about 5.18 m bgs and wells were purged prior to sampling.

I.IV RESULTS

Analytical results for soil and groundwater were compared to Table 3 of the MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011 for industrial/commercial/community land use and medium/fine textured soil (herein referred to as Table 3 SCSs).

I.IV.I SOIL

Laboratory results showed that one (1) location exhibited soil exceedances for electrical conductivity. Exceedances in soil were present at the northwest side of the site, just south of Bantree Street, in the upper surface soil only. It was noted that underground utilities are present in this area of the site, running from Bantree Street to the site building. No other impacts in soil were identified. The distribution of impacts suggests they are associated with the application of municipal de-icing salt, and this source is reflected in the vertical distribution of soil impacts which decrease in depth with increasing distance away from the roadway. AEL concludes that electrical conductivity is not a contaminant of concern for the site.

I.IV.II GROUNDWATER

Laboratory results showed that two (2) locations (MW1/22 and MW6/22) exceeded Table 3 SCSs for chloride and a duplicate sample from one of these locations, MW6/22, exceeded Table 3 SCSs for sodium.

Exceedances in groundwater were limited to shallow groundwater, in the northwest portion of the site, just south of Bantree Street. No other impacts in groundwater were identified. The distribution of impacts suggests they are associated with the application of municipal de-icing salt, and this source is reflected in the lateral distribution of groundwater impacts which decrease with increasing distance away from the roadway and underground utilities. AEL concludes that sodium and chloride are not contaminants of concern for the site.

I.V RECOMMENDATIONS

All soil and groundwater samples returned concentrations of the COCs below the applicable standards. No further assessment work is recommended for the site.

I.VI LIMITATIONS

The report was completed for the sole use of the client and AEL only in accordance with the terms of reference and the limitations, during the 2022 site evaluation stage. Others with an interest in the site must decide on the site conditions and conduct their own investigation to determine how or if the site affects them.

I.VII CONFLICT OF INTEREST

Neither AEL nor its officers know of any conflicts of interest AEL has respecting the site or the owner of the site.

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1. INTRODUCTION

1.1 SITE DESCRIPTION

1.1.1 SITE LOCATION

The phase two property is located at 2020 Bantree Street, Ottawa, Ontario (herein referred to as "the site"). The site is situated on the south-southeast side of Bantree Street, northeast of Edinburgh Place, and west-southwest of Blackwell Street, in the City of Ottawa, Ontario.

The site has an area of approximately 20,363 m^2 (2.04 Ha), according to estimates from the Geowarehouse on-line property database. The site is located in a commercial/industrial use area as determined from site reconnaissance and records review. Figure 1 shows the site and study area. Figure 2a outlines the site and surrounding property uses.

1.1.2 LEGAL DESCIPTION

The site consisted of two (2) parcels of land, both identified as 2020 Bantree Street (herein referred to as the "west parcel" and "east parcel"). The Assessment Roll Number for both parcels is 061410610202801.

1.1.2.1 WESTERN PARCEL

The legal description for the western parcel is: Part Lot 25, Concession 30F, Part 1 and 2, 5R4158; Ottawa/Gloucester; s/t NS49006 (partially released by N515654). The Property Identification Number (PIN) is 04262-0059(LT).

1.1.2.2 EASTERN PARCEL

The legal description for the eastern parcel is: Part Lot 25, Concession 30F, Part 1, 2, 3, 4 and 5, 5R11029 City of Ottawa. The Property Identification Number (PIN) is 04262-0060(LT).

1.1.3 GEOGRAPHIC CENTER

The site is centred on approximately 18T 452,088 m east, 5,028,107 m north and is at a surface elevation of about 69 metres above sea level (m asl) according to contour maps from Land Information Ontario (LIO).

1.2 PROPERTY OWNERSHIP

1.2.1 OWNER

The owner of record for the phase one property was:

7137796 Canada Inc.
700 Education Boulevard
Cornwall, ON K6H 6B8
Attention: Martin Benson

1.2.2 CLIENT

The client of record was:

7137796 Canada Inc.
700 Education Boulevard
Cornwall, ON K6H 6B8
Attention: Martin Benson

1.3 CURRENT AND PROPOSED FUTURE USES

At the time of the field work the site was occupied with two tenants, consisting of a 3,992 m^2 trucking repair facility, a showroom and an office within the building. A small storage shed was present at the exterior northwest side of the building. The site currently operates as a trucking repair facility, with a showroom selling truck tires and parts, located on the northwest corner of the site. The northeast portion of the building was occupied by Benson Truck and Trailer Specialists.

The property was first developed between 1977 and 1979 for industrial land use (auto repair garage) with additions built in 1982 and 1990. Prior to first development the site was likely vacant or used for agricultural purposes, until initial development of the area.

The site building was located centrally on the site and surrounded by asphalt. The eastern and south-eastern perimeter of the site was covered in gravel. Access to the site was present from the north and west.

At the time of this report, the future use of the property was to remain commercial.

1.4 APPLICABLE SITE CONDITION STANDARD

AEL used the information as follows in determining the applicable criteria for use at the site.

1.4.1 LAND USE

The current classification of the site is commercial. The future intended use of the site is commercial. The surrounding area was a mix of commercial and industrial land use in nature.

1.4.2 NON-POTABLE WATER CRITERIA AND WELL HEAD PROTECTION

Well records searched on the Ministry of Environment, Conservation and Parks (MECP) online database found four (4) wells located on the site. During phase one site reconnaissance two of the wells were observed at the north side of the property. These wells were noted to have been installed in 2010 and 2017 during historical environmental investigations by other consultants. The depths of these wells were noted to be 2.1 m bgs (2010) and 4.3 m bgs (2017), with water observed in the 2017 well at 3.19 m bgs. Three (3) additional monitoring wells were noted to have been installed at the site along the northern property boundary during the 2010 and 2017 environmental investigations; however, these monitoring wells were not observed during phase one site reconnaissance.

Well records searched on the MECP online database found no well records for water supply wells located on the site. No wells located on surrounding lands within 250 m of the site were listed as water supply wells as their final use. There is no evidence of the presence of any wells on or within the phase one study area that supply water for human consumption or agricultural use.

There were one (1) well record for a well located on surrounding lands within 250 m of the site. The final use of this well was listed as monitoring and test hole.

AEL made inquiries on behalf of the client with the municipality that has authority under the Municipal Act, 2001 to pass by-laws respecting water production, treatment and storage (City of Ottawa) regarding the application of non-potable water criteria at the site. No response was received as of the report date. As per O. Reg. 153/04, 35(2)4, as a response to the written request to the municipality was not received within 30 days, and based on the absence of potable water wells on or around the site and the absence of source water protection or wellhead protection zones on or around the site, AEL determined that non-potable site condition standards apply to the site.

1.4.3 APPLICABILITY OF SECTION 41 OR 43.1

AEL considered the applicability of either Section 41 or 43.1 of O. Reg. 153/04 as follows:

1.4.3.1 ENVIRONMENTALLY SENSITIVE AREA

AEL reviewed Natural and Environmental Features maps to investigate the proximity of environmentally sensitive areas. Sensitive areas considered included wetlands, parks and reserves, the Oak Ridges Moraine, lakes and other major water courses. The site is not in proximity to mapped provincial or regional environmentally protected areas and as such is not considered environmentally sensitive based on this criterion.

1.4.3.2 SOIL PH CONDITION

AEL considered soil pH for the site based on chemical results. A total of five (5) soil samples were submitted for laboratory analysis of pH, three (3) surface soil samples and two (2) sub-surface soil samples.

Laboratory analysis indicated that the lowest pH of the surface soil tested was 7.05 and the highest pH value was 7.76. The soil is thus in the acceptable range of greater 5 and less than 9.

Laboratory analysis indicated that the lowest pH of the sub-surface soil tested was 7.38 and the highest pH was 7.57. The soil is thus in the acceptable range of greater than 5 and less than 11.

1.4.3.3 SHALLOW SOIL

According to O. Reg. 153/04 a site is considered a shallow soil site only if more than 1/3 of the area has less than 2 m of soil cover over the bedrock. The depth to bedrock on the site was more than 2 m and as such AEL does not consider the site to be a shallow soil site.

1.4.3.4 NEAR A WATER BODY

The nearest permanent surface water body is Green's Creek, located approximately 325 m east-northeast of the site. This is more than 30 m and as such AEL does not consider the site to be near a body of water.

1.4.3.5 DESIGNATION BY A QUALIFIED PERSON

It is the opinion of the Qualified Person that neither Sections 41 or 43.1 apply to this site.

1.4.4 CRITERIA USED TO EVALUATE THE RESULTS

In accordance with O. Reg. 153/04, MECP Table 3 (Generic Site Condition Standards in a Non-Potable Ground Water Condition) site condition standards for industrial/commercial/community land use was used for the site (herein referred to as Table 3 SCSs).

The report was prepared on the understanding and assumption that any work recommended or required and any materials found will be completed and dealt with in accordance with any applicable law.

1.5 USE OF THE REPORT

The report is for the use of the client and AEL only in accordance with the terms of reference, during a 2022 site evaluation. The study was part of the client's work to complete an environmental assessment of the site for evaluation purposes. Additional studies may be required as a result of this report to address issues not specifically identified in the terms of reference of the report.

1.6 APPLICABILITY

Further as to use, the report may omit or not consider issues which may be important to the reader or deal with issues to the extent sought by the reader. Others with an interest in the site must undertake their own investigations and studies when considering site conditions discussed in this report. Neither AEL nor its officers know of any conflicts of interest AEL has respecting the site or the owner of the site.

1.7 LIMITATIONS

The report was completed for the sole use of AEL and the client in a 2022 site evaluation stage. Others with an interest in the site must decide on the site conditions and conduct their own investigations to determine how or if the site affects them.

1.8 ASSESSOR

The geo-environmental engineering consulting firm of:

AEL environment

A division of Aeon Egmond Ltd.
1705 Argentia Road, Unit 3
Mississauga ON L5N 3A9
Telephone: 416-657-2367
Attention: Charna Kozole, P. Eng., Qualified Person

1.9 PHASE TWO ESA FORMAT

The ESA, as prepared herein, for those portions completed for the project shall be in accordance with O. Reg. 153/04.

2. BACKGROUND INFORMATION

2.1 PHYSICAL SETTING

2.1.1 SITE TOPOGRAPHY

According to LIO, the site is at an approximate elevation of 66.88 m asl, with a relatively flat local site topography.

2.1.2 SITE GEOLOGY

2.1.2.1 SURFICIAL SOILS

The regional physiography is dominated by Ottawa Valley clay plains. Lying in the Ottawa Valley between Pembroke and Hawkesbury, it consists of plains interrupted by ridges of rock or sand.

Upon review of the Ministry of Northern Development and Mine's "Surficial Geology" layer from OGSEarth, the site consists of offshore marine deposits, characterized by clay and silt underlying erosional terraces. These soils generally have a greater runoff potential and lower infiltration rates, due to the clay and silt components. These materials are generally more resistant to the infiltration of fluids.

2.1.2.2 BEDROCK

Upon review of the Ministry of Northern Development and Mine's "Bedrock Geology" layer from OGSEarth, the bedrock consists of the Georgian Bay Formation, Blue Mountain Formation, Billings Formation, Collingwood Member, and Eastview Member (shale, limestone, dolostone, and siltstone). The depth to bedrock is anticipated to be 1 – 5 m bgs.

2.1.2.3 SITE HYDROGEOLOGY

The closest visible body of water is Green's Creek, located approximately 325 m east-northeast of the site. Based on local topography, the inferred direction of groundwater flow is to the east-southeast.

2.2 PAST INVESTIGATIONS

2.2.1 REPORT REVIEW

AEL reviewed the following reports as part of the phase two investigation:

- "Property located at 2020 Bantree Street, Ottawa, ON, Phase 1 Environmental Assessment, Report No. 17C119", prepared by St. Lawrence Testing & Inspection Co. Ltd. (SLT), prepared for Benson Group Inc., dated 24 July 2017 (herein referred to as the SLT July 2017 Phase 1 Environmental Site Assessment Report).
- "Property located at 2020 Bantree St., Ottawa, ON, Phase 2 Environmental Assessment, Report No. 17C144, Summary Report", prepared by St. Lawrence Testing & Inspection Co. Ltd. (SLT), prepared for Benson Group Inc., dated 18 August 2017 (herein referred to as the SLT August 2017 Phase 2 Environmental Site Assessment Report).
- "2020 Bantree St., Ottawa, ON, Geotechnical Subsurface Investigation, Report No. 18C326", prepared by St. Lawrence Testing & Inspection Co. Ltd. (SLT), prepared for Mr. Christian Mercier of DeSaulniers Construction Ltd., dated 31 October 2018 (herein referred to as the SLT October 2018 Geotechnical Subsurface Investigation Report).
- "Phase One Environmental Site Assessment, 2020 Bantree Road, Ottawa, Ontario", prepared by AEL environment Ltd. (AEL), dated March 30, 2022 (herein referred to as the AEL Phase One ESA Report).

2.2.1.1 SLT JULY 2017 PHASE 1 ENVIRONMENTAL SITE ASSESSMENT REPORT

Based on AEL's review of the report, the following information was noted:

- The site was occupied by a commercial building constructed in 1979, with additions in 1982 and 1990. Three businesses were operational at the time – Benson Truck & Trailer Specialists (occupying the southwest portion of the building), Crossroads Trucking Training Academy (second floor) and Eastrock Inc (northeast portion of the building).
- Site operations include truck and trailer maintenance, sale and installation of truck tires, office space for a commercial truck driving school and distribution and maintenance of drilling and foundation equipment.

- Neighbouring properties include warehouses, a stone mason and Greyhound Bus Lines maintenance garage.
- Inferred direction of groundwater was east, towards Ramsay Creek, located approximately 700 m east of the property.
- A review of Ontario Well Records indicated the presence of several monitoring wells on the site, installed in 2010. One of these wells was observed at the north side of the property during site reconnaissance. It was speculated that these wells may have been installed to test groundwater condition after a spill of 200 litres of diesel fuel at the Greyhound maintenance garage (2015 Bantree Street, north of the site) in 2009. No testing results were provided. Historic records also indicate the presence of a 45,400-litre diesel fuel tank at this property.
- Review of historical records indicated records for TSSA expired facilities, including former gasoline and diesel fuel tanks located on the property, under the operations of Transport Jacques Auger Inc. No further details were given.
- Historical records also indicated a spill of 130 litres of diesel fuel in 2016 at 1850 Bantree St., located approximately 68 m west of the site.
- At the time of site reconnaissance, an exterior fenced compound was present at the east side of the site, used for the storage of equipment for Eastrock Inc. A 2,500-litre diesel fuel AST was present within the fenced compound.
- During site reconnaissance, several ASTs, drums and small quantities of solvents/cleaners were present within the garage bays, for the storage of new and waste motor fluids. No spills or staining were noted. A work pit was present within the truck bays at the west side of the building. A noticeable hydrocarbon odour was noted at the exterior southeast side of the site, although the source of the odour was not determined.
- It was noted that due to the age of the building, there is the potential for small quantities of PCBs to be present in any original light ballasts, if still present.
- It was recommended that a phase two ESA be conducted for a commercial property with coarse soil and non-potable groundwater.

2.2.1.2 SLT AUGUST 2017 PHASE 2 ENVIRONMENTAL SITE ASSESSMENT REPORT

Based on AEL's review of the report, the following information was noted:

- Two (2) boreholes were advanced to a depth of approximately 15 ft bgs (4.57 m bgs) along the northern property boundary, adjacent to former monitoring wells identified during the Phase 1 investigation. Both boreholes were completed as monitoring wells (MW1 and MW2).
- Soil stratigraphy information was not noted within the report nor were borehole logs available for review.
- Soil from each borehole location was evaluated on-site for visual and olfactory indications of petroleum hydrocarbon (PHC) contamination at 2 ft (0.61 m) intervals. No soil samples were submitted for laboratory analysis as no PHC odours were noted from soil collected from each borehole location.
- The depth of the former monitoring wells identified during the Phase 1 investigation was measured to be approximately 2.1 m bgs. Both monitoring wells were dry at the time of field investigation.
- The depths of MW1 and MW2 were measured to be 3.45 and 4.30 m bgs, respectively. Groundwater was observed in MW1 and MW2 at depths of 3.07 and 3.19 m bgs, respectively.
- Two (2) groundwater samples were collected from MW1 and MW2 and submitted for laboratory analysis of benzene, toluene, ethylbenzene, and xylene (BTEX) and PHCs.
- Samples were compared to Ontario Ministry of the Environment, Conservation and Parks (MECP) Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for all property types for coarse soil (Table 3 SCSs).
- All groundwater samples returned concentrations below Table 3 SCSs.
- No further environmental work was deemed necessary at the site.

2.2.1.3 SLT OCTOBER 2018 GEOTECHNICAL SUBSURFACE INVESTIGATION REPORT

Based on AEL's review of the report, the following information was noted:

- Five (5) boreholes were advanced within the area of a proposed building addition in July 2018.

- Stratigraphy generally encountered consisted of asphalt or gravel fill, up to a depth of 0.61 m bgs, overlying sandy silt and silty sand till, underlain by bedrock. Bedrock is present at depths of between 1.95 and 3.41 m bgs.

2.2.1.4 AEL PHASE ONE ESA REPORT

Based on AEL's review of the report, the following information was noted:

- The report was completed for the purpose of property development and was to be O. Reg. 153/04 compliant.
- Historical evidence indicates that the property was first developed between 1977 and 1979 for industrial land use (auto repair garage) with additions built in 1982 and 1990. Aerial photos obtained from the National Air Photo Library (NAPL) show evidence of development by 1981 with further expansion of the northeast portion of the site building by 1991. Prior to first development the site was likely vacant or used for agricultural purposes, until initial development of the area. Surrounding lands were developed for industrial and commercial land uses in the late 1970s to early 1990s based on a review of aerial photos of the area.
- Site soils likely include clay and silt components, which generally have a higher runoff potential and lower infiltration rates. These materials are generally more resistant to the infiltration of fluids.
- Based on local soil and surface conditions, the flow of groundwater in soils in the vicinity of the site is likely to the east-southeast.
- AEL made inquiries on behalf of the client with the municipality that has authority under the Municipal Act, 2001 to pass by-laws respecting water production, treatment and storage (City of Ottawa) regarding the application of non-potable water criteria at the site. No response was received as of the report date. As per O. Reg. 153/04, 35(2)4, as a response to the written request to the municipality was not received within 30 days, and based on the absence of potable water wells on or around the site and the absence of source water protection or wellhead protection zones on or around the site, AEL determined that non-potable site condition standards apply to the site.
- Four (4) APECs were identified for the site and are summarized in Table 2-1.
- Based on the phase one ESA work AEL were of the opinion that there was a need to investigate the site further.

Table 2-1 Table of Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Soil, groundwater and/or sediment)
APEC 1	Central portion of site, downgradient of historical automotive repair activities on western portion of site building and adjacent of former transformer.	#10 Commercial Autobody Shops	On-site	PHCs, VOCs, PAHs, PCBs and metals	Soil Groundwater
APEC 2	Eastern end of site, area of historical 2,500 liter diesel fuel AST	#28 Gasoline and Associated Products Storage in Fixed Tanks	On-site	PHCs	Soil
APEC 3	Western property boundary, downgradient from off-site USTs	#28 Gasoline and Associated Products Storage in Fixed Tanks	Off-site	PHCs, VOCs, PAHs and metals	Soil Groundwater

Table 2-1 Table of Areas of Potential Environmental Concern					
Area of Potential Environmental Concern	**Location of Area of Potential Environmental Concern on Phase One Property**	**Potentially Contaminating Activity**	**Location of PCA (on-site or off-site)**	**Contaminants of Potential Concern**	**Media Potentially Impacted (Soil, groundwater and/or sediment)**
APEC 4	Northern property boundary, transgradient from off-site ASTs and USTs and historical 200 liter diesel spill	#28 Gasoline and Associated Products Storage in Fixed Tanks	Off-site	PHCs, VOCs, PAHs and metals	Soil Groundwater

3. SCOPE OF INVESTIGATION

3.1 OVERVIEW OF SITE INVESTIGATION

According to the January 2022 sampling and analysis plan (see Appendix 1) provided for this project the objectives of the phase two ESA were:

- Carry out a phase two ESA to assess the current environmental condition of the property, with regard to selected environmental concerns.
- Advance boreholes to a maximum depth of up to 4.88 m (16 feet) to characterize soil lithology and to collect soil samples.
- Complete seven (7) of the boreholes as monitoring wells to characterize groundwater flow direction and quality and to collect groundwater samples.
- Collect groundwater samples from two (2) previously installed monitoring wells.
- Submit selected samples to a certified CALA laboratory for testing.
- Compare the analytical testing results of the samples tested to Table 3 of the MECP SCSs, for commercial land use.
- Prepare a report to outline the findings and provide engineering opinions based on the information available to the date received in AEL offices.

According to the March 2022 scope of work, updated after inspection of the oil/water interceptors had occurred (see Appendix 1) the objectives of the phase two ESA were:

- Advance boreholes to a maximum depth of up to 4.88 m (16 feet) to characterize soil lithology and to collect soil samples.
- Complete five (5) of the boreholes as monitoring wells to characterize groundwater flow direction and quality and to collect groundwater samples.
- Submit selected samples to a certified CALA laboratory for testing.
- Compare the analytical testing results of the samples tested to Table 3 of the MECP SCSs, for commercial land use.
- Prepare a report to outline the findings and provide engineering opinions based on the information available to the date received in AEL offices.

3.2 MEDIA INVESTIGATED

3.2.1 SOIL

Soil testing was conducted on the site soils for the presence of petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), metals and inorganics, polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) and due to the historic use and activities on and off the site.

3.2.2 SEDIMENTS

During the phase two investigation, there were no surface streams or lake beds found within the property boundaries of the site, and as such no sediment sampling was required.

3.2.3 GROUNDWATER

A total of five (5) monitoring wells were installed on site by AEL. Groundwater was sampled and analyzed for PHCs, VOCs, metals and inorganics, PAHs and PCBs, due to the historic use and activities on and off the site. Groundwater level measurements were recorded to aid in the determination of groundwater flow direction.

3.3 PHASE ONE CONCEPTUAL SITE MODEL (CSM)

3.3.1 AREAS OF POTENTIAL ENVIORNMENTAL CONCERN (APECS)

APECs at the site include the central portion of the site, downgradient of historical automotive repair activities on the western portion of the site building and adjacent of former transformer; the eastern end of the site, where there was a historical 2,500 litre diesel fuel AST; along the western property boundary, downgradient from off-site USTs; and along the northern property boundary, transgradient from off-site ASTs and USTs and historical 200 litre diesel spill. A summary of the APECs can be seen in Table 2-1. Figure 2b shows the potentially contaminating activities identified on-site and within 250 m of the site. Figure 2c outlines the phase one site APECs.

3.3.2 EFFECTS OF UNDERGROUND UTILITIES

The presence of utilities was investigated during the phase one. The exact location of underground utilities is unknown, although based on available records and site reconnaissance, communication lines, gas lines, hydro and water and sewer services were present on-site. All services likely enter the property from the northwest. Based on the likely size of the communication and natural gas lines, they are not expected to have an effect on the transport of potential contaminants in the subsurface. Hydro, water and sewer lines are anticipated to be larger, and likely present within the same area on-site, and thus a preferential pathway may exist for the transport of groundwater and potential contaminants of concern where these utility lines are present.

Phase one site reconnaissance revealed drains were present within the automotive service area at the northeastern portion and western portion of the building. The drains present in the northeast portion of the building connected to an oil/water separator present at the northeast corner of the building. Drains were also present along the western portion of the building. Drains present in the northwestern portion of the site building reportedly connected to an oil/water separator, present centrally to the west. Drains present in the southwestern portion of the site reportedly connected to an oil/water separator, present at the southeast corner of the site. It is assumed that underground piping would run from each drain and tie into the oil/water separator. There is the potential for a preferential pathway to exist around the underground piping which would potentially permit the transport of contaminants from the underground piping if coarse fill materials were used.

3.3.3 GEOLOGICAL AND HYDROGEOLOGICAL CONDITIONS

Site soils likely include clay and silt components, which generally have a higher runoff potential and lower infiltration rates. These materials are generally more resistant to the infiltration of fluids. The depth to bedrock is anticipated to be approximately 1 to 5 meters.

The closest visible body of water is Green's Creek, located approximately 325 m east-northeast of the site. Based on local topography, the inferred direction of groundwater flow is to the east-southeast. Based on local topography, the inferred direction of groundwater flow is to the east-southeast. There are no parks, reserves or other areas of natural significance within vicinity, in whole or part, of the site (within 250 m).

3.3.4 UNCERTAINTIES

Uncertainty or absence of information available regarding past potential spills on-site and the potential presence of any above or underground tanks on neighbouring sites in each of the components of the phase one environmental site assessment could affect the validity of the CSM. As the majority of historical tanks have been identified on, and adjacent to, the site, the presence of additional tanks that could affect the site on surrounding lands is minimal.

3.4 DEVIATIONS FROM SAMPLING AND ANALYSIS PLAN

The original generic Sampling and Analysis Plan called for the drilling of up to nine (9) boreholes. Seven (7) of these were to be developed into monitoring wells for groundwater sampling.

In January 2022, drilling refusal was encountered at 3.23 m bgs (10.58 feet) at BH2-22 and 2.34 m bgs (7.67 feet) at BH4-22, due to the presence of bedrock. Soil sampling was completed at these locations, but no monitoring wells were installed. The existing monitoring wells to be sampled (MW2-SLT and MW2-SLT Original) were found to be in unusable condition, and thus groundwater samples could not be obtained.

In March 2022, AEL inspected the three-stage oil/water separators present at the interior northeast corner, northwest corner and southwest corner of the site. The contents of all three separators were pumped out and the interiors were viewed, and all appeared to be in good condition, with no cracks noted. Based on this, it was confirmed that the planned

locations of MW5/22 and MW7/22 were not required. AEL oversaw the advancement of five (5) boreholes - MW1/22, MW3/22, MW6/22, MW8/22 and MW9/22 - and the installation of five (5) monitoring wells at these locations.

Please see Appendix 1 for the sampling and analysis plan.

3.5 IMPEDIMENTS

No impediments to the phase two ESA were encountered.

4. INVESTIGATION METHOD

4.1 GENERAL

The field investigation followed general procedures outlined in O. Reg. 153/04 and AEL standard operating procedures (SOPs). These methods included drilling using a direct push truck/track mounted drill for soil sampling, monitoring well installation, field screening methods, and monitoring well development and sampling.

4.2 DRILLING

AEL used a truck mounted drill, supplied by Downey Drilling, for soil sampling of BH2-22 and BH4-22. AEL used a truck mounted drill, supplied by Strata Drilling Group, for soil sampling and monitoring well installation of MW1/22, MW3/22, MW6/22, MW8/22 and MW9/22.

The following sampling protocol was applied to reduce the risk of cross contamination:

- Non-disposable sampling equipment is cleaned with residue free cleaners and rinsed with distilled water after each sample is taken;
- Only new clean jars for were used for each sample sent to laboratory;
- Only new clean latex sample gloves are used when handling all samples or sample containers. In cases where the liners are used, the gloves may be redundant, so that gloves may not be needed. The AEL protocol is to always require new gloves for each sample;
- Each sample is marked and labelled with a unique identification label.

Soil samples were collected using a direct push drill. The direct push machine provides a 1.2 m long, 2.54 cm diameter soil core in a single use plastic (PVC) liner. The samples were then field tested and transferred into lab prepared sample jars. Soil sampling was continuous and samples were collected across the entire interval and examined using visual, olfactory and field screening methods.

4.3 SOIL: SAMPLING

AEL conducted sampling in areas of potential concern based on the phase one ESA. Sample locations were recorded in relation to a common benchmark. Locations were input into AEL's data management software. The sample locations are shown in the sampling location plan (Figure 3).

Soil sampling for all boreholes was performed using a direct push drill. Based on field observations, AEL selected portions of the samples for testing. Samples were transferred into lab prepared sample jars and placed in coolers packed with ice for transport to the lab. Soil sampling was continuous and samples were collected across the entire interval and examined using visual and olfactory methods.

Stratigraphy across the phase two property encountered generally consisted of a layer of fill underlain by sandy or clayey silt and bedrock (weathered shale bedrock). Fill materials extended to depths of between 0.15 m bgs and 0.61 m bgs. Native soils generally consisted of sandy silt at the west portion of the site, and silty clay towards the east portion of the site, extending to depths of between 0.15 m bgs to 2.90 m bgs, at which point weathered shale bedrock was observed in all but one location (BH4-22), which was clayey silt to the base of the borehole at 2.34 m bgs.

Bedrock, consisting of weathered shale was present at depths of between 1.68 m bgs and 2.90 m bgs, and formed an aquitard. Stratigraphic information is shown on the attached field logs in Appendix 2.

4.4 FIELD SCREENING MEASUREMENTS

On-site field screening involved screening soil cores with an RKI Eagle II Gas Meter equipped with a photoionization detector (PID) and a catalytic sensor to determine if VOCs or hydrocarbons (HCs) were present. The PID was used to detect the presence of any VOCs in the range of 0.1 – 999.9 ppm with a precision of 0.1 ppm and an accuracy of 10 to 2000 ppm: ± 3%. It was calibrated prior to use by Pine Environmental, using 100 ppm isobutylene. The catalytic sensor was used to detect the presence of HCs in the range of 0 – 100% Lower Explosive Limit (LEL) with an accuracy of 0 to 100% LEL: ± 3%. It was calibrated prior to use by Pine Environmental, using hexane.

After the soil sample was removed from the ground, a sample of soil was placed in a Ziploc bag and sealed. After a period of five minutes, the gas detector was inserted into the bag, and a headspace reading was taken to determine if any VOCs and/or HCs were present. Samples with the highest headspace readings, if present, were selected for laboratory analysis. The summarized results from the field screening can be found in Table 1.

4.5 GROUND WATER: MONITORING WELL INSTALLATION

AEL used a truck mounted drill, supplied by Strata Drilling Group of Ottawa, Ontario, for installation of monitoring wells.

Monitoring wells were constructed of 50 mm inside diameter PVC riser pipe fitted with 50 mm inside diameter threaded PVC well screen (No. 10 slot). The annular space of the borehole around the screen was backfilled with clean silica sand to approximately 60.96 cm above the top of the screen. The annular space above the sand pack was grouted with a bentonite seal to 15.24 cm below ground surface, followed by concrete to surface. The entire top was outfitted with a flushmount or monument metal protective casing. Monitoring well construction details can be seen in Table 2.

All wells were equipped with sealed caps to prevent surface water infiltration.

AEL developed the wells over 24 hours after installation by purging no less than three well volumes or until the measurements of groundwater temperature, pH, turbidity and conductivity were stable as measured on a Horiba Water Quality Instrument.

4.6 GROUND WATER: FIELD MEASUREMENT OF WATER QUALITY PARAMETERS

A Horiba Water Quality Instrument was used to provide direct measurement of conductivity, temperature, pH, turbidity and dissolved oxygen. It was calibrated prior to use by Pine Environmental.

4.7 GROUND WATER: SAMPLING

Sampling procedures for all groundwater sampling events were identical. Headspace readings for HCs and VOCs were taken upon opening the well, prior to development. Each well was screened for the presence of free product prior to development using an interface probe. AEL developed the monitoring wells using low-flow techniques by purging until the measurements of groundwater temperature, turbidity, dissolved oxygen and conductivity were stable as measured on the Horiba Water Quality Instrument. Purge water was collected on-site and removed for disposal at a later date in accordance with appropriate regulations. Groundwater samples were collected after purging. Water levels were measured prior to purging and the collection of samples. The wells were sampled using a peristaltic or bladder pump directly into the bottles provided by the CALA laboratory, with filtering where necessary. Each sample was labelled with a unique identifying label and placed immediately into a cooler packed with ice.

Samples were submitted for laboratory analysis of PHCs, VOCs (including BTEX), metals and inorganics, PAHs and PCBs.

4.8 ANALYTICAL TESTING

A total of five (5) groundwater samples, one (1) trip blank and one (1) duplicate sample, as well as ten (10) soil samples with one (1) duplicate sample, were sent to Paracel Labs (Unit 300, 2319 St. Laurent Blvd., Ottawa, ON) for analysis of PHCs, VOCs, metals and inorganics, PAHs, PCBs and/or grain size analysis. A homogenized TCLP sample from soil cutting drums was also submitted for leachate analysis.

A summary of soil sample locations and analysis completed can be seen in Table 4-1, below. A summary of groundwater sample locations and analysis can be seen in Table 4-2, below.

Table 4-1 Soil Sample Locations and Analysis Completed				
Sample Location	**Sample ID**	**Sample Depth (m bgs)**	**Sampling Date**	**Parameters Analyzed**
MW1/22	B1976	0.61 - 1.52	16 March 2022	PHCs, metals and inorganics, VOCs, PAHs, PCBs, grain size
BH2-22	B1896	1.22 - 1.83	27 January 2022	PHCs, VOCs
	B1897	2.44 - 3.05	27 January 2022	PHCs, VOCs
MW3/22	B1977	0.61 - 1.52	16 March 2022	PHCs, VOCs, PAHs, grain size
BH4-22	B1898	1.22 - 1.83	27 January 2022	PHCs, VOCs, PAHs
MW6/22	B1974	0.61 - 1.52	16 March 2022	PHCs, metals and inorganics, VOCs, PAHs
	B1975	0.61 - 1.52	16 March 2022	Grain size
MW8/22	B1978	1.52 - 2.44	15 March 2022	PHCs, metals and inorganics, VOCs, PAHs, grain size
MW9/22	B1971	0.91 - 1.52	15 March 2022	PHCs, metals and inorganics, VOCs, PAHs
	B1972	2.13 - 2.90	15 March 2022	PHCs, metals and inorganics, VOCs, PAHs

Table 4-2 Groundwater Sample Locations and Analysis Completed			
Sample Location	**Sample ID**	**Sampling Date**	**Parameters Analyzed**
MW1/22	B1982	17 March 2022	PHCs, metals and inorganics, VOCs, PAHs, PCBs
MW3/22	B1983	17 March 2022	PHCs, VOCs, PAHs
MW6/22	B1980	17 March 2022	PHCs, metals and inorganics, VOCs, PAHs
MW8/22	B1985	18 March 2022	PHCs, metals and inorganics, VOCs, PAHs
MW9/22	B1984	17 March 2022	PHCs, metals and inorganics, VOCs, PAHs

4.9 RESIDUE MANAGEMENT PROCEDURES

All drill cuttings, direct push samples not used for analysis, purge well water and fluids from equipment cleaning were placed in drums on site. These residues were removed and disposed of in accordance with appropriate regulations.

4.10 ELEVATION SURVEYING

AEL completed a topographic survey of the new wells and boreholes. Elevations were acquired using a Trimble® R10 RTK GPS at an average accuracy of approximately 10 mm horizontal and 15 mm vertical. This sampling generated a sufficiently dense point cloud to create a Digital Elevation Model using topographic modelling in ArcGIS.

4.11 QUALITY ASSURANCE AND QUALITY CONTROL MEASURES

AEL maintains a Quality Assurance/Quality Control (QA/QC) procedure in accordance with O. Reg. 153/04 requirements. The sampling and analysis plan prepared for the phase two investigation specifies the number and type of field duplicates and trip blanks anticipated for the investigation, based on the proposed scope of work. When using field equipment for field screening, equipment calibration checks are performed and completed according to the AEL SOP and equipment manufacturer's specifications. AEL's QA/QC sampling protocol is as outlined below and includes:

Adequate samples to provide for quality assurance and control of the sample results. In accordance with O. Reg. 153/04 requirements, a minimum of one (1) field duplicate sample is collected and submitted for laboratory analysis in each medium sampled for every ten (10) samples submitted for laboratory analysis.

Submission of a trip blank sample, prepared by the laboratory, for each submission of groundwater and soil vapour samples where analysis of VOCs is requested.

Laboratory QA/QC procedures as required by applicable MECP documents including O. Reg. 153/04. In some instances where elevated test results are found that do not match sampling trends observed at a site, AEL may require samples be re-tested, or additional samples tested nearby.

The AEL QA/QC protocol is directed towards eliminating the potential for cross-contamination of samples and maintaining control and knowledge of the sample and sample results from the field through to reporting of the result. Out of sequence or erroneous logging of samples can significantly affect the cost of site clean-ups or the understanding of a site. Sample identification information is thus supplied in multiples to be applied to borehole logs, sample containers, and chain of custody information. This minimizes the potential for sample mislabelling and facilitates tracking as each sample is provided with a unique identifier, regardless of related location or project information.

4.11.1 SAMPLING QA/QC

4.11.1.1 BACKGROUND

To reduce the risk of cross-contamination of soil the following steps are implemented on AEL projects. AEL ensures and uses:

- Non-disposable sampling equipment is cleaned with residue free cleaners and rinsed with distilled water after each sample is taken;
- Only new, clean laboratory jars for samples;
- Only new clean latex sample gloves when handling all samples or sample containers. The AEL protocol is to always require new gloves for each sample.

4.11.1.2 AEL SAMPLES AND CONTAINERS

The AEL approach produces samples in new laboratory-prepared sample containers specific to the parameter of interest, so that sample filtration and preservation are as dictated by analytical needs.

5. REVIEW AND EVALUATION

5.1 GEOLOGY

Stratigraphy across the phase two property encountered generally consisted of a layer of fill underlain by sandy or clayey silt and bedrock (weathered shale bedrock). Fill materials extended to depths of between 0.15 m bgs and 0.61 m bgs. Native soils generally consisted of sandy silt at the west portion of the site, and silty clay towards the east portion of the site, extending to depths of between 0.15 m bgs to 2.90 m bgs, at which point weathered shale bedrock was observed in all but one location (BH4-22), which was clayey silt to the base of the borehole at 2.34 m bgs.

Bedrock, consisting of weathered shale was present at depths of between 1.68 m bgs and 2.90 m bgs, and formed an aquitard. Stratigraphic information is shown on the attached field logs in Appendix 2.

5.2 GROUND WATER: ELEVATIONS AND FLOW DIRECTION

Monitoring well locations were chosen to cover the site in a non-linear configuration. Screened intervals of monitoring wells used for interpretations of groundwater flow direction were chosen to intercept the anticipated groundwater flow levels on site.

Field measurements, taken using a water level indicator during water level measurements, have been kept for review as necessary.

No free product was present in monitoring wells. An interface probe was used to screen for the presence of free product in all monitoring wells sampled, prior to the initiation of well development. All measurements taken using the interface probe were non-resultant (i.e. no free product was detected with the probe).

Telephone, water, sanitary, sewer, hydro and gas services are currently provided to the site. AEL requested underground utility locates from Ontario One Call and a private locator. Responses indicate that a hydro line enters the property at the northwest corner and runs southeast to the site building. A gas main runs along the northwest side of the property, parallel to Bantree Street, with the properties gas service line running southeast from the central portion of the gas main. An electrical line, communication line and water line also run from Bantree Street southeast to the site building, in approximately the same general area as the gas service line. As all of these utilities are present within the upper soil unit on-site, and groundwater is located below the soil unit, within bedrock, there would be no interaction between groundwater and the underground lines, therefore these utilities are not expected to have an effect on the transport of groundwater contaminants in the subsurface.

On March 17th, 2022, shallow groundwater was encountered between 64.82 m above sea level (asl) and 65.06 m asl at the site. The elevations of each monitoring well can be found in Table 2. Based on water level measurements, shallow groundwater flow in the weathered bedrock unit is generally to the northwest.

Please refer to Figure 4 for groundwater flow in the investigated aquifer.

5.3 GROUND WATER: HYDRAULIC GRADIENTS

AEL measured water levels from five (5) monitoring wells on-site. The measured monitoring wells range in depth from 3.72 m to 5.32 m bgs. At the time when the water levels were measured, shallow groundwater was encountered between 64.82 m asl and 65.06 m asl. The highest shallow groundwater depth encountered on-site was 3.72 m bgs, at MW9/22 in March 2022. Based on water level measurements, shallow groundwater flow in the upper weathered bedrock unit is generally to the northwest (see Figure 4).

The closest visible body of water is Green's Creek, located approximately 325 m east-northeast of the site.

The shallow horizontal hydraulic gradient for the site at the depth investigated (i.e., between the water table and 5.32 m bgs) was calculated by averaging the gradients between the five (5) monitoring wells which had groundwater measurements taken by AEL. The average horizontal hydraulic gradient was determined to be 1.32×10^{-3} m/m.

The shallow horizontal hydraulic gradient for the site calculated to the nearest downgradient water body is 0.0040 m/m. This was determined using average groundwater levels at the site and the estimated average downgradient creek water level.

The horizontal hydraulic conductivity or vertical hydraulic gradient was not calculated as the site did not have groundwater contaminants.

5.4 FINE-MEDIUM SOIL TEXTURE

To determine soil texture, AEL submitted four (4) soil samples from four (4) locations across the site, from the shallow soils (defined as less than 1.5 m bgs) including fill materials, and from subsurface soils (defined as more than 1.5 m bgs), for laboratory gradation. The number of samples collected for analysis was determined to be adequate to confirm that, as per section 42(1)(1) of O. Reg. 153/04, less than "1/3 of the soil at the property, measured by volume, consists of coarse textured soil".

The results indicated fine grained soil was the soil classification for all samples collected and analysed, and as such this texture will be used in determining the applicable site condition standards. See Table 3 for soil grain size gradation results. Certificates of Analysis can be seen in Appendix 3

5.5 SOIL: FIELD SCREENING

Soil samples were screened for VOCs and HCs in the field using an RKI Eagle 2 Gas Detector. All field screened samples returned non-detect levels of VOCs and HCs. Results from the field screening can be seen in Table 1.

5.6 SOIL QUALITY

The results did not indicate the presence of light or dense non-aqueous phase liquids (LNAPLs or DNAPLs).

A total of seven (7) boreholes were advanced on the site. Borehole and monitoring well locations are shown on Figure 3. Soil samples were taken from 0 to 2.90 m bgs. Based on visual, olfactory and other on-site examinations, soil samples were collected from all seven (7) boreholes for further laboratory investigation. Nine (9) samples, plus one (1) duplicate sample, were investigated for PHCs F1/BTEX – F4 and VOCs; five (5) samples, plus one (1) duplicate sample, for metals and inorganics; seven (7) samples, plus one (1) duplicate sample, for PAHs; and one (1) sample for PCBs. Certificates of Analysis can be seen in Appendix 3.

5.6.1 PHCS/BTEX ANALYSIS

A total of nine (9) samples, along with one (1) duplicate sample, were selected for laboratory analysis. All samples returned results below the applicable criteria.

A tabular representation of this analysis can be found in Table 4.

5.6.2 VOCS ANALYSIS

A total of nine (9) samples, plus one (1) duplicate sample, were selected for laboratory analysis. All samples returned results below the applicable criteria.

A tabular representation of this analysis can be found in Table 5.

5.6.3 METALS AND INORGANICS ANALYSIS

A total of nine (9) samples, along with one (1) duplicate sample, were selected for laboratory analysis of VOCs. One (1) sample, from MW6/22, exhibited an exceedance for electrical conductivity.

Exceedances in soil were present at the northwest side of the site, just south of Bantree Street, in the upper surface soil only. It was noted that underground utilities are present in this area of the site, running from Bantree Street to the site building. No other impacts in soil were identified. The distribution of impacts suggests they are associated with the application of municipal de-icing salt, and this source is reflected in the vertical distribution of soil impacts which decrease in depth with increasing distance away from the roadway. AEL concludes that electrical conductivity is not a contaminant of concern for the site.

A tabular representation of this analysis can be found in Table 6. See Figure 5 for the location of the exceedance.

5.6.4 PAHS

A total of seven (7) samples, plus one (1) duplicate sample, were selected for laboratory analysis. All samples returned results below the applicable criteria.

A tabular representation of this analysis can be found in Table 7.

5.6.5 PCBS

A total of one (1) sample was selected for laboratory analysis. This sample returned results below the applicable criteria.

A tabular representation of this analysis can be found in Table 8.

5.7 GROUND WATER QUALITY

AEL tested five (5) groundwater monitoring wells installed across the property. Five (5) samples, along with one (1) duplicate sample, were collected for the analyses of PHCs F1/BTEX – F4, VOCs and PAHs; four (4) samples, along with one (1) duplicate sample, were collected for the analyses of metals and inorganics; and one (1) sample was collected for the analyses of PCBs. Certificates of Analysis can be seen in Appendix 3.

Laboratory results showed that two (2) locations (MW1/22 and MW6/22) exceeded Table 3 SCSs for chloride and a duplicate sample from one of these locations, MW6/22, exceeded Table 3 SCSs for sodium.

Exceedances in groundwater were limited to shallow groundwater, in the northwest portion of the site, just south of Bantree Street. No other impacts in groundwater were identified. The distribution of impacts suggests they are associated with the application of municipal de-icing salt, and this source is reflected in the lateral distribution of groundwater impacts which decrease with increasing distance away from the roadway and underground utilities. AEL concludes that chloride and sodium are not contaminants of concern for the site.

See Tables 9 to 13 for ground water quality results. See Figure 6 for the location of the exceedances.

5.8 QUALITY ASSURANCE AND QUALITY CONTROL RESULTS

All certificates of analysis or analytical reports received comply with subsection 47(3) of O. Reg. 153/04. Certificates of analysis have been received for each sample submitted for analysis and all certificates of analysis received are included in full, in Appendix 3.

5.8.1 SOIL SAMPLE QA/QC

5.8.1.1 SOIL RELATIVE PERCENT DIFFERENCE (RPD)

As part of the field investigation 10% QA/QC field duplicate soil samples were collected and analyzed. One (1) soil duplicate (B1973, duplicate of B1972) was submitted.

Analytical results for the QA/QC field duplicate samples in soil are presented in Appendix 3. Relative percent differences (RPDs) were calculated only where detected concentrations in both samples were greater than the five (5) times the laboratory reportable detection limit (RDL). All RPDs were within industry acceptance limits confirming that sample handling and analytical protocols were acceptable and the results were reproducible.

5.8.1.2 ANALYTICAL LABORATORY QA/QC

The analytical laboratory performed matrix spikes, spiked blanks, method blanks as well as performing their own RPD calculations and percent recovery calculations, where indicated (see Appendix 3).

It was reported that the RPD for benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene exceeded acceptance criteria. This was attributed to sample heterogeneity, and thus the variability in the results for the analytes may be more pronounced. However, as all results were below the detection limit this is not of concern.

It was reported that the matrix spike recovery for total boron was outside control limits. However, the overall quality control for this analysis met acceptability criteria and therefore is not of concern.

5.8.2 GROUNDWATER SAMPLE QA/QC

5.8.2.1 GROUNDWATER RELATIVE PERCENT DIFFERENCE

As part of the field investigation 10% QA/QC field duplicate groundwater samples were collected and analyzed. One (1) groundwater duplicate (B1981, duplicate of B1980) was submitted.

Analytical results for the QA/QC field duplicate samples in groundwater are presented in Appendix 3. Relative percent differences (RPDs) were calculated only where detected concentrations in both samples were greater than the five (5) times the laboratory reportable detection limit (RDL).

The RPD for MW6/22 (duplicate B1981 of sample B1980) for sodium was calculated to be outside the acceptability limits. This confidence was then evaluated in relation to the Table 3 industrial/commercial/community SCSs that are being used for the site. An increase in the value of sodium was calculated by adding the difference between the duplicate sample and the parent sample. As this increase would result in the parent sample being over the Table 3 SCSs, this is a concern. However, as the analyte of concern, sodium, was attributed to the application of municipal de-icing salt and, as such sodium is not considered a contaminant of concern for the site, the apparent confidence in the value is not a concern to the site.

All other RPDs were within industry acceptance limits confirming that sample handling and analytical protocols were acceptable and the results were reproducible.

5.8.2.2 ANALYTICAL LABORATORY QA/QC

The analytical laboratory performed matrix spikes, spiked blanks, method blanks as well as performing their own RPD calculations and percent recovery calculations, where indicated (see Appendix 3).

No discrepancies in the laboratory QA/QC were noted on the Certificate of Analysis.

6. PHASE TWO CONCEPTUAL SITE MODEL

6.1 AREAS WHERE A POTENTIALLY CONTAMINATING ACTIVITY (PCA) HAS OCCURRED

Table 6-1 summarizes the PCAs for the property and the study area where noted during the phase one ESA investigation. Figure 2b shows the locations of the phase one PCAs, as outlined below.

Table 6-1 Potentially Contaminating Activities (PCAs)

PCA	Location (On-site or Off-site; up, down or trans gradient)	Information Source	Potentially Contaminating Activity*	Potential of PCA Contributing to an APEC
PCA 1	On-site	ERIS historical records search Fire insurance products Site reconnaissance	#10. Commercial Autobody Shops – The western half of the site building was historically used as an automotive repair facility since initial development in approximately 1979. The site is also on record as a generator of various wastes between 1992 and 2020 including petroleum distillates, waste oils and lubricants, chemicals, and solvents. Additionally, a transformer was noted as present on site in 1979 and it is unclear if it contained PCBs	The PCA is located on the phase one property and must be identified as an APEC.
PCA 2	On-site	Reports by others Site reconnaissance	#28. Gasoline and Associated Products Storage in Fixed Tanks – A 2,500 litre diesel fuel AST was historically observed within a fenced compound on the east side of the site during a 2017 environmental investigation conducted by others. The surface below the tank area was identified as gravel covered, with the potential for spills to migrate to subsurface soils. A historical noticeable hydrocarbon odour was detected upon walking within the exterior area at the southeast side of the site during a 2017 environmental investigation by others	The PCA is located on the phase one property and must be identified as an APEC.
PCA 3	Off-site; upgradient	ERIS historical records Search	#28. Gasoline and Associated Products Storage in Fixed Tanks – 1890 Bantree Street, located west-southwest of the site (upgradient), is on record for two	If leaks occurred from the USTs since their installation dates, there is a potential for environmental impacts to be present on-site based on the upgradient nature of

Table 6-1 Potentially Contaminating Activities (PCAs)				
PCA	**Location (On-site or Off-site; up, down or trans gradient)**	**Information Source**	**Potentially Contaminating Activity***	**Potential of PCA Contributing to an APEC**
			(2) single-walled steel diesel USTs with capacities of 22,700 liters and 22,730 liters, installed in 1986 and 1987.	these USTs with respect to the site and the proximity to the site; therefore, an on-site APEC is generated along the western property boundary.
PCA 4	Off-site; transgradient	ERIS historical records search	#28. Gasoline and Associated Products Storage in Fixed Tanks – 2105 Bantree Street, located north-northeast of the site (transgradient), is on record for one (1) double-walled steel diesel AST with a capacity of 45,400 liters installed in 1999; one (1) double-walled steel gasoline AST with a capacity of 50,000 liters installed in 1999; two (2) single-walled steel diesel USTs with capacities of 5,000 liters installed in 1975; two (2) single-walled steel diesel USTs with capacities of 22,730 liters installed in 1975; and two (2) single-walled steel diesel USTs with capacities of 22,700 liters installed in 1976. The property is also on record for a 200 litre diesel fuel spill to gravel in September 2009 from a tank leak with confirmed contamination to soil.	The status, structural integrity, and exact locations of the ASTs and USTs cannot be confirmed at the time of reporting. The 200 L diesel spill was reported to have been discharged to gravel ground cover, meaning a pathway of potential contaminants to the subsurface and the groundwater system has been identified. For the abovementioned reasons, an APEC is generated along the northern property boundary to investigate potential off-site impacts from the northerly neighbouring property.
PCA 5	On-site	Site reconnaissance	#28. Gasoline and Associated Products Storage in Fixed Tanks – seven (7) ASTs were present on the site. Three (3) 2,200 litre active ASTs containing engine oils were present at the northeast corner of the site building on the second floor; three (3) active ASTs containing engine oils were present at the southwest corner of the site building, two (3) of the ASTs had a capacity of 2,200 liters and the third had a capacity of 2,900 liters. An active 2,900 litre AST containing engine oil was present outside on a concrete pad south of the northeast	The PCA is located on the phase one property and must be identified as an APEC for RSC submission; however, as an RSC is not required for the site, and all of the tanks were either above grade interior on an upper level of the site building or were located on concrete pads free of staining, with no visible pathway for migration to the subsurface, the QP does not consider this an APEC for the current phase two ESA.

Table 6-1 Potentially Contaminating Activities (PCAs)				
PCA	**Location (On-site or Off-site; up, down or trans gradient)**	**Information Source**	**Potentially Contaminating Activity***	**Potential of PCA Contributing to an APEC**
			portion of the building.	
PCA 6	On-site	Site reconnaissance Owner's Survey	#30 Importation of Fill of an Unknown Quality – A small pile of gravel fill was observed in the southeast corner of the site. The owner's survey indicates that fill had been imported for backfill during construction for the site. The quality of the fill material is not documented to the knowledge of AEL.	The PCA is located on the phase one property and must be identified as an APEC for RSC submission; however, as an RSC is not required for the site, and all of the fill was granular gravel (not containing soil), the QP does not consider this an APEC for the current phase two ESA.

* A 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

6.2 AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APECS)

Table 6-2 summarizes the areas of potential concern where noted for the property. Figure 2c shows the property APECs, as outlined below.

Table 6-2 Table of Areas of Potential Environmental Concern					
Area of Potential Environmental Concern	**Location of Area of Potential Environmental Concern on Phase One Property**	**Potentially Contaminating Activity**	**Location of PCA (on-site or off-site)**	**Contaminants of Potential Concern**	**Media Potentially Impacted (Soil, groundwater and/or sediment)**
APEC 1	Central portion of site, downgradient of historical automotive repair activities on western portion of site building and adjacent of former transformer.	#10 Commercial Autobody Shops	On-site	PHCs, VOCs, PAHs, PCBs and metals	Soil Groundwater
APEC 2	Eastern end of site, area of historical 2,500 litre diesel fuel AST	#28 Gasoline and Associated Products Storage in Fixed Tanks	On-site	PHCs	Soil
APEC 3	Western property boundary, downgradient from off-site USTs	#28 Gasoline and Associated Products Storage in Fixed Tanks	Off-site	PHCs, VOCs, PAHs and metals	Soil Groundwater

Table 6-2 Table of Areas of Potential Environmental Concern					
Area of Potential Environmental Concern	**Location of Area of Potential Environmental Concern on Phase One Property**	**Potentially Contaminating Activity**	**Location of PCA (on-site or off-site)**	**Contaminants of Potential Concern**	**Media Potentially Impacted (Soil, groundwater and/or sediment)**
APEC 4	Northern property boundary, transgradient from off-site ASTs and USTs and historical 200 litre diesel spill	#28 Gasoline and Associated Products Storage in Fixed Tanks	Off-site	PHCs, VOCs, PAHs and metals	Soil Groundwater

6.2.1.1 APEC-1

According to fire insurance products reviewed the western portion of the building present on the phase one property (original building footprint from 1979-1984) was historically used as an automotive repair facility, from approximately 1979 to present. Based on ERIS historical records reviewed, the site is a generator of various wastes between 1992 and 2020 including petroleum distillates, waste oils and lubricants, chemicals, and solvents. The PCA is located on the phase one property and must be identified as an APEC. Additionally, a transformer was located near the building exterior northwest corner which may have contained PCBs, that may have left impacts during operation or removal.

6.2.1.2 APEC-2

According to a previous phase one report completed by another consultant in 2017, a 2,500-litre diesel fuel AST was present at the exterior east side of the site, enclosed in fencing. No known samples were collected from this area to date. Additionally, a historical noticeable hydrocarbon odour was detected upon walking within the exterior area at the southeast side of the site during a 2017 environmental investigation by others. The PCA is located on the phase one property and must be identified as an APEC.

6.2.1.3 APEC-3

According to ERIS historical records reviewed, 1890 Bantree Street, located west-southwest of the site (upgradient), is on record for two (2) single-walled steel diesel USTs with capacities of 22,700 liters and 22,730 liters, installed in 1986 and 1987. If leaks occurred from the USTs since their installation dates, there is a potential for environmental impacts to be present on-site based on the upgradient nature of these USTs relative to the site. To investigate the potential for on-site impacts from the westerly neighbouring property, an APEC is generated along the western property boundary.

6.2.1.4 APEC-4

According to ERIS historical records reviewed, 2105 Bantree Street, located north-northeast of the site (transgradient), is on record for one (1) double-walled steel diesel AST with a capacity of 45,400 liters installed in 1999; one (1) double-walled steel gasoline AST with a capacity of 50,000 liters installed in 1999; two (2) single-walled steel diesel USTs with capacities of 5,000 liters installed in 1975; two (2) single-walled steel diesel USTs with capacities of 22,730 liters installed in 1975; and two (2) single-walled steel diesel USTs with capacities of 22,700 liters installed in 1976.

The property is also on record for a 200-litre diesel fuel spill to gravel in September 2009 from a tank leak with confirmed contamination to soil.

As the status, structural integrity, and exact locations of the ASTs and USTs cannot be confirmed at the time of reporting, and the diesel fuel was spilled directly onto gravel ground providing a potential pathway for contaminants to migrate towards the site, an APEC is generated along the northern property boundary to investigate the potential for on-site impacts from the northerly neighbouring property.

6.3 POTENTIAL CONTAMINANTS OF CONCERN (COC)

Five (5) potential contaminants of concern were identified at the site:

- PHCs in the central portion of site, downgradient of historical automotive repair activities on western portion of site building and adjacent of former transformer; at the eastern end of site, in the area of a historical 2,500 litre diesel fuel AST; along the western property boundary, downgradient from off-site USTs; and along the northern property boundary, transgradient from off-site ASTs and USTs and historical 200 litre diesel spill.
- VOCs in the central portion of site, downgradient of historical automotive repair activities on western portion of site building and adjacent of former transformer; along the western property boundary, downgradient from off-site USTs; and along the northern property boundary, transgradient from off-site ASTs and USTs and historical 200 litre diesel spill.
- PAHs in the central portion of site, downgradient of historical automotive repair activities on western portion of site building and adjacent of former transformer; along the western property boundary, downgradient from off-site USTs; and along the northern property boundary, transgradient from off-site ASTs and USTs and historical 200 litre diesel spill.
- Metals and inorganics in the central portion of site, downgradient of historical automotive repair activities on western portion of site building and adjacent of former transformer; along the western property boundary, downgradient from off-site USTs; and along the northern property boundary, transgradient from off-site ASTs and USTs and historical 200 litre diesel spill.
- PCBs in the central portion of site, downgradient of historical automotive repair activities on western portion of site building and adjacent of former transformer.

6.4 EFFECT OF SUBSURFACE STRUCTURES AND UTILITIES

AEL requested underground utility locates from Ontario One Call and a private locator. Responses indicate that there is underground gas, hydro, telecom and water and sewer utilities at the site. The presumed effects of the presence of the utilities are discussed below.

Telephone, water, sanitary, sewer, hydro and gas services are currently provided to the site. AEL requested underground utility locates from Ontario One Call and a private locator. Responses indicate that a hydro line enters the property at the northwest corner and runs southeast to the site building. An electrical line, communication line and water line also run from Bantree Street southeast to the site building, in approximately the same general area as the gas service line.

As no work was completed in the building interior, the exact location of underground utilities is unknown. However, during phase one site reconnaissance drains were present within the repair bay area, reportedly all connected to an oil/water separator, present at the interior southeast corner of Benson TDL Truck Repair and northeast corner of Benson Truck and Trailer Specialists. It is assumed that underground piping would run from each drain and tie into the oil/water separator. There is the potential for a preferential pathway to exist around the underground piping which would potentially permit the transport of contaminants from the underground piping if coarse fill materials were used.

As all of these utilities are present within the upper soil unit on-site, and groundwater is located below the soil unit, within bedrock, there would be no interaction between groundwater and the underground lines, therefore these utilities are not expected to have an effect on the transport of groundwater contaminants in the subsurface.

The location of utilities within located areas at the site can be seen in Figures 5 and 6.

6.5 STRATIGRAPHY OF PHASE TWO PROPERTY

Stratigraphy across the phase two property encountered generally consisted of a layer of fill underlain by sandy or clayey silt and bedrock (weathered shale bedrock). Fill materials extended to depths of between 0.15 m bgs and 0.61 m bgs. Native soils generally consisted of sandy silt at the west portion of the site, and silty clay towards the east portion of the site, extending to depths of between 0.15 m bgs to 2.90 m bgs, at which point weathered shale bedrock was observed in all but one location (BH4-22), which was clayey silt to the base of the borehole at 2.34 m bgs.

Bedrock, consisting of weathered shale was present at depths of between 1.68 m bgs and 2.90 m bgs, and formed an aquitard. Stratigraphic information is shown on the attached field logs in Appendix 2.

6.6 HYDROGEOLOGICAL CHARACTERISTICS OF THE SITE

AEL measured water levels from five (5) monitoring wells on-site. The measured monitoring wells range in depth from 3.72 m to 5.32 m bgs. At the time when the water levels were measured, shallow groundwater was encountered between 64.82 m asl and 65.06 m asl. The highest shallow groundwater depth encountered on-site was 3.72 m bgs, at MW9/22 in March 2022. Based on water level measurements, shallow groundwater flow in the upper weathered bedrock unit is generally to the northwest (see Figure 4).

The closest visible body of water is Green's Creek, located approximately 325 m east-northeast of the site.

The shallow horizontal hydraulic gradient for the site at the depth investigated (i.e., between the water table and 5.32 m bgs) was calculated by averaging the gradients between the five (5) monitoring wells which had groundwater measurements taken by AEL. The average horizontal hydraulic gradient was determined to be 1.32×10^{-3} m/m.

The shallow horizontal hydraulic gradient for the site calculated to the nearest downgradient water body is 0.0040 m/m. This was determined using average groundwater levels at the site and the estimated average downgradient creek water level.

The horizontal hydraulic conductivity or vertical hydraulic gradient was not calculated as the site did not have groundwater contaminants.

6.6.1 DEPTH TO BEDROCK

Based on regional mapping (Ontario Geological Survey maps), the bedrock consists of shale, limestone, dolostone, and siltstone from the Georgian Bay formation, Blue Mountain Formation, Billings Formation, Collingwood Member, and Eastview Member. Prior to AEL's field investigation, the depth to bedrock was anticipated to be approximately 1 to 5 m bgs.

During the field investigation, AEL encountered weathered shale at six (6) test holes which were sampled. Bedrock occurred at depths of 1.68 m bgs – 2.90 m bgs across the site.

6.6.2 DEPTH TO WATER TABLE

Groundwater levels were recorded in each of the monitoring wells installed. The measured monitoring wells range in depth from 3.72 m to 5.32 m bgs. The highest shallow groundwater depth encountered on-site was 3.72 m bgs, at MW9/22 in March 2022. AEL completed a topographic survey of the new wells and boreholes. At the time when the water levels were measured, shallow groundwater was encountered between 64.82 m asl and 65.06 m asl.

See Figure 4 for groundwater elevations.

6.7 APPLICABILITY OF SECTION 41 OR 43.1

AEL considered the applicability of either Section 41 or 43.1 of O. Reg. 153/04 as follows:

6.7.1 ENVIRONMENTALLY SENSITIVE AREA

AEL reviewed Natural and Environmental Features maps to investigate the proximity of environmentally sensitive areas. Sensitive areas considered included wetlands, parks and reserves, lakes and other major water courses. The site is not in proximity to mapped provincial or regional environmentally protected areas and as such is not considered environmentally sensitive based on this criterion.

6.7.2 SOIL PH CONDITION

AEL considered soil pH for the site based on chemical results. A total of five (5) soil samples were submitted for laboratory analysis of pH, three (3) surface soil samples and two (2) sub-surface soil samples.

Laboratory analysis indicated that the lowest pH of the surface soil tested was 7.05 and the highest pH value was 7.76. The soil is thus in the acceptable range of greater 5 and less than 9.

Laboratory analysis indicated that the lowest pH of the sub-surface soil tested was 7.38 and the highest pH was 7.57. The soil is thus in the acceptable range of greater than 5 and less than 11.

6.7.3 SHALLOW SOIL SITE

According to O. Reg. 153/04, a site is considered to have shallow soil only if more than 1/3 of the area has less than 2 m of soil cover over the bedrock. The depth to bedrock on the site was more than 2 m and as such AEL does not consider the site to be a shallow soil site.

6.7.4 NEAR A BODY OF WATER SITE

The nearest permanent surface water body (Green's Creek) is estimated to be approximately 325 m east-northeast of the site. This is more than 30 m and as such AEL does not consider the site to be near a body of water.

6.7.5 DESIGNATION BY A QUALIFIED PERSON

It is the opinion of the Qualified Person that neither Sections 41 or 43.1 apply to this site.

Therefore, under Ontario Regulation 153/04, the standards applicable to the site are MECP Table 3 criteria (Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition) for industrial/commercial/community land use and medium/fine textured soil.

6.8 SOILS BROUGHT TO PHASE TWO PROPERTY

To the knowledge of AEL, no soil has been deposited at the phase two property. The property owner has indicated that no soil is to be brought to the phase two property in future use of the property.

6.9 EXISTING PROPERTY BUILDINGS

The site was occupied by a two-storey building, with a first-floor show room and a trucking repair facility present on the north and west side of the building. A newly renovated and relatively empty second floor was located on the northwest portion of the building. A small storage shed was present at the exterior northwest side of the site building. Three-stage oil/water separators were present at the interior northeast corner, northwest corner and southwest corner of the site. The contents of all three separators were pumped out and the interiors were viewed during site reconnaissance in March 2022, and all appeared to be in good condition, with no cracks noted. Two belowground service pits were located on the southwest corner of the site for repairing heavy trucks.

Historical records reviewed indicate the current site building was erected in 1979 with additions in 1982 and 1990.

6.10 PROPOSED BUILDINGS OR OTHER STRUCTURES

AEL has not been made aware of any proposed additional buildings or structures.

6.11 CONTAMINANTS PRESENT ON THE SITE

A sampling program was employed to determine if the potential COCs were present in soil and groundwater at the site.

No visible staining was seen on-site.

Regarding soil, no potential COCs were identified at the site at concentrations above Table 3 SCSs. All soil samples were submitted to and analysed by a CALA certified laboratory.

Regarding groundwater, no potential COCs were identified at the site at concentrations above Table 3 SCSs. All groundwater samples were submitted to and analysed by a CALA certified laboratory.

Figure 3 illustrates the soil and groundwater sampling locations. Maximum concentration data is included in Tables 14 and 15.

7. CONCLUSIONS

Based upon the results of the phase two ESA, when compared to industrial/commercial/community land use, AEL were of the opinion and judgment that the following conclusions may be reached for the site.

7.1 SOIL

- Stratigraphy across the phase two property encountered generally consisted of a layer of fill underlain by sandy or clayey silt and bedrock (weathered shale bedrock). Bedrock was encountered at a depth of between 1.68 and 2.90 m bgs and formed an aquitard.
- Soils at the site are such that they do not fall under an environmentally sensitive site, shallow bedrock or near a water body, as defined by the MECP.
- Laboratory results showed that one (1) location exhibited soil exceedances for electrical conductivity. Exceedances in soil were present at the northwest side of the site, just south of Bantree Street, in the upper surface soil only. It was noted that underground utilities are present in this area of the site, running from Bantree Street to the site building. No other impacts in soil were identified. The distribution of impacts suggests they are associated with the application of municipal de-icing salt, and this source is reflected in the vertical distribution of soil impacts which decrease in depth with increasing distance away from the roadway. AEL concludes that electrical conductivity is not a contaminant of concern for the site.

7.2 GROUNDWATER

- Based on the measurements taken, shallow groundwater flows in a northwest direction from the site.
- Laboratory results showed that two (2) locations (MW1/22 and MW6/22) exceeded Table 3 SCSs for chloride and a duplicate sample from one of these locations, MW6/22, exceeded Table 3 SCSs for sodium.
- Exceedances in groundwater were limited to shallow groundwater, in the northwest portion of the site, just south of Bantree Street. No other impacts in groundwater were identified. The distribution of impacts suggests they are associated with the application of municipal de-icing salt, and this source is reflected in the lateral distribution of groundwater impacts which decrease with increasing distance away from the roadway and underground utilities. AEL concludes that sodium and chloride are not contaminants of concern for the site.

7.3 PHASE TWO RECOMMENDATIONS

All soil and groundwater samples returned concentrations of the COCs below the applicable standards. No further assessment work is recommended for the site.

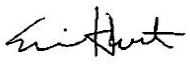
8. SIGNATURES

8.1 CLOSURE

AEL are of the opinion the work and report above, as implemented by AEL with the assistance of the client, meets the requirements for a phase two ESA, to the extent deemed reasonable and applicable in our sole engineering judgment and met the sampling plan requirements. AEL notes that the work represents a fulfilment of the requirements. Areas of the site not sampled or explored between the test holes may vary significantly and may contain important issues not identified by the work to date. None of the work completed by AEL shall be taken to mean the site is or is not suitable for any purpose. AEL will not be responsible for loss or gain of value of the site due to the findings or opinions expressed in the report, those losses or gains belonging solely to the owner or to others.

8.2 LIMITATIONS

The present work is for the sole use of AEL and the client. Others with an interest in the site such as owners, contractors, purchasers, etc., must undertake their own investigations respecting the site, and are advised that the work is to the terms of reference only. Neither AEL nor the client warrant or represent the report has found, detected or reported on all site conditions or site environmental conditions. The limitations (Appendix 4) shall apply.



Erin Hunt, B.Sc., EP
Project Manager

Charna Kozole, P. Eng.
Qualified Person Under O. Reg. 153/04
Senior Engineer

9. QUALIFICATIONS

9.1 HISTORY

AEL is an engineering firm operating in Canada and the United States of America. Through its ownership since 1987 AEL have completed over 1200 projects in real estate and mortgage type environmental issues, contaminants, soils, rock, concrete, and groundwater.

9.2 ASSOCIATES

AEL Principal is Paul Wilson, P. Eng. He has over 30 years of engineering and contaminated sites experience. Mr. Wilson, and Senior Engineer Charna Kozole, P. Eng., are qualified persons as defined in Ontario Regulation 153/04.

9.3 CLIENTS

AEL clients include major corporations (e.g., CIBC, Hydro One, NAV CANADA); governmental organizations such as Ontario Hydro, school boards; governments; and environmental groups.

10. REFERENCES

AEL used or considered the following materials respecting the work reported herein:

1. AEL. 2022. Phase One Environmental Site Assessment, 2020 Bantree Street, Ottawa, Ontario.
2. Chapman & Putnam. 1966. The Physiography of Southern Ontario.
3. Ontario Ministry of the Environment (MOE). 2011. Ontario Regulation 153/04 – Records of Site Condition – Part XV.1 of the Environmental Protection Act.
4. Ontario Ministry of Northern Development and Mines. Ontario Geological Survey, OGSEarth Maps.
5. St. Lawrence Testing & Inspection Co. Ltd. (SLT). July 2017. Property located at 2020 Bantree Street, Ottawa, ON, Phase 1 Environmental Assessment, Report No. 17C119.
6. St. Lawrence Testing & Inspection Co. Ltd. (SLT). August 2017. Property located at 2020 Bantree St., Ottawa, ON, Phase 2 Environmental Assessment, Report No. 17C144, Summary Report.
7. St. Lawrence Testing & Inspection Co. Ltd. (SLT). October 2018. 2020 Bantree St., Ottawa, ON, Geotechnical Subsurface Investigation, Report No. 18C326.
8. Topographical Maps, Ministry of Natural Resources and Forestry.