PHASE II ENVIRONMENTAL SITE ASSESSMENT

No Name Gas

2911 Barton St. S, Hamilton, Ontario

Prepared for:

ACME Oil & Gas

Prepared by:

Plan B Environmental
301 James St S
Hamilton, Ontario
Canada

Report Date: 2023-02-21
Project No.: PN12345

2023-02-21
Ref. No. PN12345

ACME Oil & Gas
350, 55th Street
Houston, Texas
United States 78654

Attention: ACME Oil & Gas

Re: **Phase II Environmental Site Assessment Report**
No Name Gas
2911 Barton St. S, Hamilton, Ontario

Plan B Environmental is pleased to submit our report describing the findings of the Phase II Environmental Site Assessment of No Name Gas. This assessment was prepared by a Qualified Person, as defined by the Environmental Protection Act, using Ontario Regulation 153/04, Schedule E for Phase Two Environmental Assessments under Part XV.1 of the Act.

The purpose of the Phase II ESA was to confirm the presence of and characterize the substances of concern at the property for the purpose of providing sufficient information regarding the nature and extent of contamination to assist in making informed business decisions about the property.

If you have any questions or require further clarification of the report findings, please contact the undersigned at your convenience. Thank you for the opportunity to be of service to ACME Oil & Gas.

Yours very truly,

Plan B Environmental

John Smith, P.Eng.
Se. Environmental Engineer

David Doe, P.Eng.
Engineering Manager

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1.0 EXECUTIVE SUMMARY

ACME Oil & Gas engaged Plan B Environmental to conduct a Phase II Environmental Site Assessment (ESA) of the property No Name Gas located at 2911 Barton St. S, Hamilton, Ontario subsequently referred to in this report as "the subject property or Phase Two Property". The subject property is located at 2911 Barton St. S, Hamilton, Ontario and consists of gasoline dispensing station and convenience store. It is approximately 1.1 acres in size and rectangular in shape. The legal description of the subject property is Section 17, Lot 643, Parcel 23. The area is zoned as C1.

The Phase II ESA was prepared by a Qualified Person, as defined by the Environmental Protection Act, and conducted in general accordance with Ontario Regulation 153/04, Schedule E for Phase Two Environmental Site Assessments under Part XV.1 of the Act.

The purpose of the Phase Two ESA was to characterize the subsurface soil and groundwater conditions at the Phase Two Property and assess areas of the Phase Two Property where contaminants may be present in soil and groundwater.

The analytical results of the soil and groundwater samples were evaluated using the standards contained in the Ministry of Environment, Conservation and Parks (“MECP”) document “Soil, Groundwater and Sediments for Use Under Part XV.1 of the Environment Protection Act” (the “Standards”) as amended by Ontario Regulation 511/09 effective on July 1, 2011. Based on the above information the applicable site condition standard selected was Ontario MECP "Soil, ground water and sediment standards for use under PART XV.1 of the Environmental Protection Act, Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition" for coarse soils in industrial/commercial areas.

Based on the analytical results, the following contaminant concentrations on the property were greater than the applicable site condition standards.

Areas of Contamination

Area	Area around the two USTs
Contaminant	Petroleum Hydrocarbons
Media	Soil and groundwater
Description	Petroleum hydrocarbon impacted soil and groundwater was found in boreholes MW3 and MW5.
Reason for Discharge	Possibly related to leak during piping upgrade
Migration Pathways	Coase fill material around USTs
Influences on Migration	Groundwater flow to north

Based on the results of this Phase Two ESA, there was evidence of the contaminants of concern in excess of applicable guidelines and criteria as discussed below.

- Soil and groundwater on the east and west sides of the USTs had concentrations of petroleum hydrocarbons in excess of the applicable site standards.

Based on the results of this assessment the following further work is recommended:

- The impacted soil and groundwater in the area of the USTs should be further delineated and a remediation plan developed.

2.0 INTRODUCTION

ACME Oil & Gas engaged Plan B Environmental to conduct a Phase II Environmental Site Assessment (ESA) of the property No Name Gas located at 2911 Barton St. S, Hamilton, Ontario subsequently referred to in this report as "the subject property or Phase Two Property". The location of the subject property is shown in Appendix I.

The Phase II ESA was prepared by a Qualified Person, as defined by the Environmental Protection Act, and conducted in general accordance with Ontario Regulation 153/04, Schedule E for Phase Two Environmental Site Assessments under Part XV.1 of the Act.

The purpose of the Phase Two ESA was to characterize the subsurface soil and groundwater conditions at the Phase Two Property and assess areas of the Phase Two Property where contaminants may be present in soil and groundwater.

The Phase II ESA was authorized by the Client on 2023-01-24.

2.1 Site Description

The subject property is located at 2911 Barton St. S, Hamilton, Ontario and consists of gasoline dispensing station and convenience store. It is approximately 1.1 acres in size and rectangular in shape. The legal description of the subject property is Section 17, Lot 643, Parcel 23. The area is zoned as C1. A site plan for the subject property is provided in Appendix I.

2.2 Property Ownership

The contact information for the property owner is provided in the table below.

	Property Owner
Name:	No Name Gas Inc.
Address:	2911 Barton St. S, Hamilton, Ontario
Contact:	D. Duck
Telephone:	
Email:	

2.3 Current and Proposed Future Uses

The subject property is currently used for a gasoline dispensing station and convenience store.

The proposed future use of the subject property is for a gasoline dispensing station and convenience store.

Under section 168.3.1 of the Act the proposed use requires a record of site condition to be filed.

2.4 Applicable Site Condition Standards

The analytical results of the soil and groundwater samples were evaluated using the standards contained in the Ministry of Environment, Conservation and Parks ("MECP") document "Soil, Groundwater and Sediments for Use Under Part XV.1 of the Environment Protection Act" (the "Standards") as amended by Ontario Regulation 511/09 effective on July 1, 2011.

The applicable site condition standard applied in this Phase II ESA was selected based on the following information:

• The Site is located within 30 m of a water body.
• The Site is intended for commercial use.
• The pH values tested in the subsurface soil samples during this Phase Two ESA are within the acceptable range of 5 to 11.
• The pH values tested in the surface soil samples during this Phase II ESA are within the acceptable range of 5 to 9.
• The Site is not considered to be a shallow soil property.
• Based on well records, there are no potable water wells located at the Site or within 250 m radius of the Site.

Based on the above information the applicable site condition standard selected was Ontario MECP "Soil, ground water and sediment standards for use under PART XV.1 of the Environmental Protection Act, Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition" for coarse soils in industrial/commercial areas.

3.0 BACKGROUND

3.1 Physical Setting

All of the properties, including the subject property, within the study area are served by a municipal drinking water system as defined in the Safe Drinking Water Act 2002.

The topography of the property is relatively flat with a moderate slope to the north. The topography of the surrounding area is slightly rolling with a gentle slope to the north.

Soil in the Hamilton area is predominately derived from glacial drift (glaciolacustrine sediments in the lower city; glacial tills in the upper city) and from limestone and shale erosion.

3.2 Past Investigations

Below is a summary of the past investigations reviewed for the property:

- Phase I ESA by Plan B Environmental dates 2022-12-20.

The following potential contaminating activities (PCAs) were identified in the past investigations:

Previously Identified PCAs

PCA	Location of PCA	Description
Gasoline and Associated Products Storage in Fixed Tanks	South side of property	Two underground storage tanks for diesel and gasoline

The following areas of potential environmental concern (APECs) identified in the past investigations:

Previously Identified APECs

APEC	Location of APEC	PCA	Location of PCA	COPCs	Media Impacted
Two USTs	South side of property	Gasoline and Associated Products Storage in Fixed Tanks	On-site	Hydrocarbons	Soil and Groundwater
USTs	South adjoining property	Gasoline and Associated Products Storage in Fixed Tanks	Off-site	Hydrocarbons	Soil and Groundwater

The Phase I ESA was conducted by Plan B Environmental and reviewed by a senior manager. The results of the Phase I are considered reliable.

4.0 SCOPE OF THE INVESTIGATION

4.1 Overview of the Site Investigation

The scope of this investigation was in general accordance with Ontario Regulation (O. Reg.) 153/04, Schedule D for Phase Two Environmental Site Assessments under Part XV.1 of the Environmental Protection Act.

Specifically, the scope of work may include the following tasks:

- Review of readily available previous reports.
- Preparation of a sampling and analysis plan (SAP).
- Clearance of public and private underground utility services prior to the commencement of the subsurface investigation.
- Drilling of boreholes and/or excavation of test pits.
- Installation of monitoring wells.
- Conduct elevation survey of test pits and boreholes.
- Conduct soil sampling and field screening to optimize sample selection for chemical analyses at an accredited laboratory.
- Carry out groundwater level measurements in the monitoring wells to determine the groundwater elevation and establish the local groundwater flow direction.

- Collection of groundwater samples from monitoring wells for chemical analysis at an accredited laboratory.
- Where applicable collection of sediment samples for chemical analysis at an accredited laboratory.
- Interpretation and evaluation of results of the Investigation.
- Preparation of a report detailing the findings and recommendations of the Phase II ESA.

4.2 Media Investigated

Soil, groundwater, and where applicable surface water and sediments within the previously identified areas of potential environmental concern (APECs) were investigated as part of this Phase II ESA.

The sampling and analysis plan (SAP) was designed to achieve reproducible chemical testing results for the substances of concern in samples of collected from locations likely to have the highest concentrations. The SAP included tests which provide quality assurance (QA) and techniques that provide quality control (QC) over the chemical analysis. A completed chain of custody record accompanied each sample shipment to the analytical laboratory. Chain of custody records provide written documentation regarding sample collection and handling, identify the persons involved in the chain of sample possession, and a written record of requested analytical parameters.

The SAP consisted of soil and/or groundwater samples collected from boreholes and monitoring wells as shown in Appendix I. Where applicable surface water and sediment samples were also collected, and their locations are shown in Appendix I.

4.3 Phase One Conceptual Site Model

The conceptual site model describes the substances of concern likely to be present and where the substances of concern are likely to be located now, considering the of the environmental behaviour, fate, and transport characteristics of the particular contaminant and all reasonably ascertainable information about their presence of likely presence.

The phase one conceptual site model is provided in the Figure 2 at the end of this report.

Two potentially contaminating activities (PCA) were observed within the study area. One PCA was the gasoline dispensing station on the property and the other PCA was a gasoline dispensing station on the south adjoining property.

The presence of underground storage tanks for diesel and gasoline indicate that the contaminants of potential concern are hydrocarbons.

Lack of records from the cleanup of the leak during the piping system upgrade and from the last underground storage tank replacement provides a significant degree of uncertainty in regards to potential soil and groundwater contamination.

4.4 Deviations from the Sampling and Analysis Plan

The sampling and analyses were completed generally according to the Sampling and Analysis Plan prepared for the Phase Two ESA. No significant deviations from the Sampling and Analysis Plan that affected the sampling and data quality objectives were reported.

4.5 Impediments

There were no impediments or denial of access that prevented the completion of the scope of the investigation.

5.0 INVESTIGATION METHOD

5.1 General

The Phase II ESA followed the methodology outlined in the following documents:

- Ontario Ministry of the Environment "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario" (December 1996).
- Ontario Ministry of the Environment "Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04" (June 2011).
- Ontario Ministry of the Environment "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" (July 2011) (Analytical Protocol).

The methods used in this Phase II ESA investigation did not differ from the associated standard operating procedures.

5.2 Drilling and Excavating

Prior to the drilling of boreholes or the excavation of test pits, the underground utilities were located and marked out in the field by the representatives of the major utility companies and/or a private locator.

A total of 8 boreholes were drilled at the approximate locations shown on the site plan in Figure 1. The locations, depths, and dates of the boreholes are provided in the table below. The borehole and monitoring well logs are presented in Appendix II.

Borings and Monitoring Wells

Number	Date	Depth	Location
MW1	2023-02-16	10.2 m	Northwest side of property
MW2	2023-02-16	10.4 m	Northeast side of property
MW3	2023-02-16	10.4 m	East side of property
MW4	2023-02-16	10.6 m	Southwest side of property
MW5	2023-02-16	10.5 m	West side of property
MW6	2023-02-16	10.8 m	Southeast side of property
MW7	2023-02-17	10.5 m	West side of property
MW8	2023-02-17	10.5 m	East side of property

The boreholes were drilled by ACME Drilling Ltd . The boreholes were drilled using a track mounted Diedrich D-120.

Samples were collected at a frequency of 0.6 per 0.8 m from the ground surface to 3.1 mBGS, followed by 0.6 m per 1.5 m to borehole termination.

Soil sampling was conducted using a 50 mm stainless steel split spoon sampler. The split spoon sampler was brushed clean of soil, washed in municipal water containing phosphate free detergent, rinsed in municipal water, and then rinsed with distilled water for each sampling interval in order to reduce the potential for cross contamination. Soil samples were collected with dedicated nitrile gloves to prevent cross contamination between sampling locations. A new set of gloves was used for each sample.

No test pits were excavated as part of this Phase II ESA.

5.3 Soil Sampling

A total of 8 soil samples were collected. The locations, depths, and dates of the samples are provided in the Table 4 at the end of this report. The geological descriptions of the samples are presented in the logs in Appendix III.

A 50 mm diameter polyethylene liner used inside the outer rod limits the potential for cross contamination of recovered samples. The rod and liner are pushed into the soil column to recover the soil sample.

5.4 Field Screening Measurements

Field screening of the soil samples was performed using a RKI Eagle II.

The RKI Eagle 2 portable gas detector, which operates as both a photoionization detector (PID) and combustible gas indicator (CGI), to assess the presence of VOCs and combustible petroleum contaminants. The PID detects VOCs that emit below an ionization potential of 10.6 eV, which includes a wide range of chemicals such as solvents and fuels. The PID provides an indication of organic contamination in soil but does not measure concentrations of individual contaminants. The CGI detects combustible vapours such as those associated with fuels. The CGI was operated in the methane elimination mode. As with the PID, it provides an indication of contamination but not chemical specific concentrations. The detection limit of the PID ranges from 0 to 15,000 ppm and accuracy is +/- 10% for VOCs in the range of 0 and 2,000 ppm and +/- 20% of the reading above 2,000 ppm. The resolution of this instrument is 0.1 ppm for VOCs in the range of 0 and 1,000 ppm and 1 ppm for readings above 1,000 ppm. The detection limit of the CGI ranges from 0 to 11,000 ppm (i.e., 100 % LEL of hexane).

The accuracy of the PID is +/- 10% for VOCs in the range of 0 and 2,000 ppm and +/- 20% of the reading above 2,000 ppm. The CGI has an accuracy of 25 ppm below 1,000 ppm and 5% of the lower explosive limit (LEL) between 1,000 ppm and 100% LEL.

The PID was equipped with a 10.6 electron-volt (eV) lamp, which was calibrated with a known concentration of isobutylene. The CGI measures total combustible gases, calibrated to a known concentration of hexane. In-field re-calibration of the CGI was conducted (using the gas standard in accordance with the manual instructions) if the calibration check indicated that the calibration had drifted by more than +/- 10%.

The soil samples were inspected and examined to assess soil type, ground water conditions, and possible chemical contamination by visual and olfactory observations or by organic vapour screening. Samples submitted for chemical analysis were collected from locations judged by the assessor to be most likely to exhibit the highest concentrations of contaminants based on several factors including (i) visual or olfactory observations, (ii) sample location, depth, and soil type (iii) ground water conditions and headspace reading.

5.5 Ground Water Monitoring Well Installation

8 ground water monitoring wells were installed. The elevation and construction details are provided in Table 1 at the end of this report.

The monitoring well contractor was ACME Drilling Inc . A track-mounted drill rig, equipped with 115 mm diameter hollow stem augers was used for the installation of monitoring wells through the direct-push soil bores upon completion of soil sampling activities. Each monitoring well was constructed using 51 mm diameter well screens and Schedule 40 PVC riser pipe. Sand pack, consisting of No. 2 silica sand, was placed around the well screen and the sand pack was extended to 0.6 m above the top of the screen. The monitoring wells were capped with a flush-mount/stick-up protective casing.

After monitoring well installation, well development was carried out to remove particulates and fluids that may have collected in the sand pack around the well screen during drilling activities to collect a sediment free groundwater.

5.6 Ground Water Field Measurements

No field measurements were made for ground water quality.

5.7 Ground Water Sampling

After well development, on Feb. 24, 2023, groundwater samples were collected from each of the monitoring wells.
The wells were purged using a peristaltic pump equipped with dedicated polyethylene tubing. A YSI Water Quality Meter equipped with a flow-through cell was used to monitor the geochemical conditions during purging to assess whether steady-state conditions were achieved prior to sampling.
Groundwater samples were collected using a dedicated bailer for each of the monitoring wells. The groundwater samples were collected directly into the laboratory-supplied containers. All groundwater samples were place on ice in coolers and delivered to the accredited laboratory under a formal chain of custody.

5.8 Sediment Sampling

No sediment samples were collected as part of this investigation.

5.9 Analytical Testing

The collected samples were submitted to:

- ACME Labs

5.10 Residue Management Procedures

All residues produced during the investigation (soil cuttings from borehole drilling, groundwater from well development purging, wash water from equipment decontamination) were placed in sealed drums and left at the Site pending receipt of laboratory analytical results.

5.11 Elevation Surveying

An elevation survey was conducted on Feb. 17, 2023. The ground surface elevations are provided in Table 1 at the end of this report and in the field logs in Appendix II.

The elevations were recorded using GPS survey equipment.

5.12 Quality Assurance and Quality Control Measures

Samples were given unique identifications as they were collected, typically identifying the project number, date, sample location and depth. Soil and groundwater samples were collected in laboratory prepared containers. Soil sample containers for PHC F1, BTEX and/or VOC analysis contained methanol preservative in a 40 mL glass vial with septum lid. Soil sample containers for PHCs F2-F4 and/or PAH analysis were a 120 mL or 250 mL unpreserved jar with Teflon lined lid. Groundwater sample containers for PHCs F1, PHCs F2-F4, and/or VOC analysis contained sodium bisulphate to pH < 2 in a 40 mL glass vial with septum lid.
A formal chain of custody was maintained for all samples submitted to the laboratory.

Dedicated equipment was used for well development and sampling for further minimize the risk of cross contamination. Non-dedicated equipment (i.e., interface probe) was cleaned before initial use and between all measurement points with a solution of Alconox and distilled water. The split spoon sampler was brushed clean of soil, washed in municipal water containing phosphate free detergent, rinsed in municipal water, and then rinsed with distilled water for each sampling interval in order to reduce the potential for cross contamination.

A laboratory prepared trip blank accompanied the groundwater samples during each sampling event and was submitted for laboratory analysis of VOCs. All field screening devices were calibrated prior to use by the supplier. Calibration checks were completed, and re-calibrations were conducted as required. Field duplicate samples were collected at the time of sampling.

There were no deviations from the QA/QC program described in the SAP.

6.0 REVIEW AND EVALUATION

6.1 Geology

The local stratigraphy encountered in the boreholes consists of approximately 5 m of poorly graded gravels underlain by inorganic clay.

6.2 Ground Water Elevations and Flow Direction

The monitoring wells were screened to intersect the first water bearing formation encountered, in order to allow for the assessment of LNAPL, and to provide information regarding the quality of the groundwater at the water table.

Ground water elevations were measured in the monitoring wells is shown in the Table 2 at the end of this report. Measurements were made using Solinst interface probe. A contour map of ground water elevations is provided in Figure 3 at the end of this report.

Based on the groundwater elevations measured the local groundwater flow direction is to the North. It is possible that temporal variations in groundwater elevations may occur on the subject property in response to seasonal weather patterns. The degree of variation in groundwater levels can only be confirmed with long-term monitoring.

Groundwater was encountered in the monitoring wells between 5.8 and 6.1 mBGS. Buried utility services are present on the subject property and are inferred to be situated at depths ranging between 2 and 3 mBGS. Therefore, the potential for preferential migration through utility services of contaminants is not of concern at this time.

6.3 Ground Water Hydraulic Gradients

Based on the measured groundwater levels the horizontal hydraulic gradient was calculated to be approximately 0.014 m/m.

The vertical hydraulic gradient could not be determined since only one aquifer was encountered during this investigation.

6.4 Fine-Medium Soil Texture

Fine to medium soil texture is not being used to determine the applicable site condition standards.

One representative sample of the medium to coarse textured soil was selected for grain size analysis. Soil samples were collected from MW5 for grain size analysis of soil texture. The grain size analytical results are provided in Appendix III. The results of the grain size analysis indicate the soil texture is medium to coarse texture.

6.5 Soil Field Screening

Soil vapour headspace measurements were conducted on all soil samples for combustible gas concentrations (FID readings) and for volatile organic compounds (PID readings). The results are presented in the borehole logs in Appendix II.

6.6 Soil Quality

Soil samples were collected and submitted for analysis. The analyses, locations, depths, and dates of the samples are provided in the Table 4 at the end of this report. The laboratory certificates of analysis are provided in Appendix IV.

Petroleum Hydrocarbons

The soil analytical results for petroleum hydrocarbons along with the applicable guidelines and criteria are summarized in the Table 4 at the end of this report.

Due to the presence of the two underground storage tanks for diesel and gasoline, the contaminants of concern were petroleum hydrocarbon compounds.

Based on the results of this assessment, the following impacted soil in exceedance of applicable guidelines or criteria was identified:

- Ethylbenzenes, F2, and F3 in MW3 on the east side of the USTs.
- Benzene, ethylbenzene, F1, and F4 in MW5 on the west side of the USTs.

Figure(s) 4 show the areas where contaminants are present at concentrations greater than the applicable site condition standards for the contaminant.

No contaminants related to chemical or biological transformations were observed in the soil.

The contaminated soil detected in MW3 and MW5 is at the approximate level of the groundwater table and could therefor present a source for groundwater contamination. The results do not indicate the presence of light or dense non-aqueous phase liquids.

6.7 Ground Water Quality

A total of 8 ground water samples were collected and submitted for analysis. The analyses, locations, depths, and dates of the samples are provided in Table 5 at the end of this report. The laboratory certificates of analysis are provided in Appendix IV.

Petroleum Hydrocarbons

The groundwater analytical results for petroleum hydrocarbons compounds along with the applicable guidelines and criteria are summarized in Table 5 at the end of this report. Due to the presence of the two underground storage tanks for diesel and gasoline, the contaminants of concern were petroleum hydrocarbon compounds.

Based on the results of this assessment, the following impacted groundwater in exceedance of applicable guidelines or criteria was identified:

- Benzene, Xylenes, F1, F2, and F4 in MW3 on the east side of the USTs.
- Xylenes, F1, and F2 in MW5 on the west side of the USTs.

Figure(s) 5 show the areas where contaminants are present at concentrations greater than the applicable site condition standards for the contaminant.

No contaminants related to chemical or biological transformations were observed in the ground water.

The contaminated soil detected in MW3 and MW5 is at the approximate level of the groundwater table and could therefor present a source for groundwater contamination.

The results do not indicate the presence of light or dense non-aqueous phase liquids.

6.8 Sediment Quality

No sediment samples were submitted for chemical analysis as part of this investigation.

6.9 Quality Assurance and Quality Control Results

6.9.1 Field QA/QC Duplicate Samples

The field QA/QC program included the collection and analysis of 2 field duplicate samples. A summary of the field duplicates samples analysed and an interpretation of the efficacy of the QA/QC program is provided in the table below.

Summary of QA/QC Results

Sample ID	QA/QC Duplicate	Media	Parameter Analyzed	QA/QC Result
MW1:SS8	MW1:SS8-D	Soil	Petroleum Hydrocarbons	Results are within RPD criteria.
GW5	GW5-D	Groundwater	Petroleum Hydrocarbons	Results are within RPD criteria.

The Relative Percentage Difference ("RPD") is a method of measuring the variation in a set of data that looks at the variation as a proportion of the average or target value. The RPD for the parameters detected with the concentrations five (5) times the detection limits were calculated, and the results are within the acceptable ranges.

The results of the laboratory analysis of the field duplicate QA/QC samples are acceptable.

The analytical results of the field QA/QC duplicates samples are provided in Appendix IV.

6.9.2 Trip Spike and Trip Blank Samples

The field QA/QC program included the collection and analysis of trip spike and trip blank samples. One trip spike and one trip blank were submitted for analysis of petroleum hydrocarbons.

A trip blank is a sample of analyte free media (supplied by the laboratory) taken to the site and returned to the laboratory unopened. The laboratory prepares the trip blank. A duplicate of the trip blank prepared at the same time is retained at the laboratory in a contaminant free location. The purpose is to identify potential cross-contamination that may occur from other samples, ambient conditions, or other sources that samples may be exposed.

A trip spike is a sample prepared by the laboratory that is fortified with a known concentration of target analytes. This sample is shipped along with containers and is to be taken into the field but returned unopened to the laboratory. Analysis is conducted and recoveries are reported expressed as a percentage. The purpose is to monitors the breakdown or loss of analytes during the sampling process. Holding time, and temperature effects on concentration can be accessed.

The results of the laboratory analysis of the trip spike and trip blank samples are acceptable.

The analytical results of the trip spike and trip blank samples are provided in Appendix IV.

6.9.3 Sample Handling Protocol

The samples analyzed as part of this Phase II ESA were handled in accordance with the analytical protocol with respect to holding time, preservation method, storage requirement and sample container type. All samples collected as part of the Phase II ESA were submitted with chains of custody to the laboratory. The laboratory used for the analytical testing is accredited by the Canadian Association for Laboratory Accreditation.

6.9.4 Laboratory QA/QC Results

The laboratory used for the analytical testing has an internal QA/QC analytical protocol, consisting of analysing duplicate, blank, control, certified reference material and matrix spike samples. Based on a review of the data in the laboratory Certificates of Analysis, it is indicated that all samples/sample extracts were analysed within the applicable holding times using approved analytical method. The reported detection limits were acceptable for all tested parameters.

6.9.5 Certification of QA/QC Results

Based on a review of the QA/QC sample results, chain of custody, and the laboratory Certificates of Analysis, Plan B Environmental confirms that:

- A Certificate of Analysis or Analytical Report has been received for each sample submitted for analysis.
- All Certificates of Analysis and analytical reports are included in Appendix IV.

Based on the interpretation of the laboratory results and the QA/QC program it is our opinion that the laboratory analytical data can be relied upon.

6.10 Phase Two Conceptual Site Model

The Phase One Conceptual Site Model (CSM) presented in Section 4.3 provides a description and assessment of areas where PCAs have occurred, APECs and subsurface structures or utilities that may affect contaminant distribution and transport. Through analysis and interpretation of the Phase One ESA, Phase One CSM, and field data gathered during this Phase Two ESA, a Phase Two Conceptual Site Model was developed.

6.10.1 Site Description

The MOECC provides a list of PCAs in Schedule D of O. Reg. 153 (as amended by O. Reg. 511/09, O. Reg. 245/10 and O. Reg. 179/11).

The table below lists the potential contaminating activities identified in the Phase One ESA.

Potential Contaminating Activities on Property

PCA	Location of PCA	Description
Gasoline and Associated Products Storage in Fixed Tanks	South side of property	Two underground storage tanks for diesel and gasoline

The table below lists the potential contaminating activities in the study area, not including the phase one property.

Potential Contaminating Activities in Study Area

PCA	Location of PCA	Description
Gasoline and Associated Products Storage in Fixed Tanks	South adjoining property	Underground storage tanks for gasoline dispensing station

The following areas of potential environmental concern were identified in the Phase ONE ESA.

Areas of Potential Environmental Concern

APEC	Location of APEC	PCA	Location of PCA	COPCs	Media Impacted
Two USTs	South side of property	Gasoline and Associated Products Storage in Fixed Tanks	On-site	Petroleum Hydrocarbons	Soil and Groundwater
USTs	South adjoining property	Gasoline and Associated Products Storage in Fixed Tanks	Off-site	Petroleum Hydrocarbons	Soil and Groundwater

No underground utilities were noted on the property and are unlikely to affect contaminant transport.

6.10.2 Physical Setting

The local stratigraphy encountered in the boreholes consists of approximately 5 m of poorly graded gravels underlain by inorganic clay.

Ground water flow is to the north towards Lake Ontario. Based on the measured groundwater levels the horizontal hydraulic gradient was calculated to be approximately 0.014 m/m. The vertical hydraulic gradient could not be determined since only one aquifer was encountered during this investigation.

Bedrock was not encountered during this investigation.

The water table was between 5.8 and 6.1 meters below ground surface (mBGS).

Section 41 of the Regulation does not apply to the Phase II ESA Property, in that the subject property is not within 30m of an environmentally sensitive area.

Section 43.1 of the Regulation does apply to the Phase II ESA Property as bedrock is located less than 2 m below ground surface.

No areas where fill material has been brought from another property and placed on, in, or under the Phase Two Property were identified.

There are no new proposed buildings or structures at this time.

6.10.3 Environmental Condition

Based on the analytical results, the following contaminant concentrations on the property were greater than the applicable site condition standards.

Areas of Contamination

Area	Area around the two USTs
Contaminant	Petroleum Hydrocarbons
Media	Soil and groundwater
Description	Petroleum hydrocarbon impacted soil and groundwater was found in boreholes MW3 and MW5.
Reason for Discharge	Possibly related to leak during piping upgrade
Migration Pathways	Coase fill material around USTs
Influences on Migration	Groundwater flow to north

Diagrams for each area of contamination are provided in Figure(s) 6.

Cross-sections showing the contaminant distribution, stratigraphy, and water table are provided in Figures 7 and 8.

The following buildings are located on the Phase Two Property.

Buildings on Property

Age (years)	Stories	Usage	Construction
21	1	Convenience Store	

Due to the construction of the building (slab-on-grade) soil vapour intrusion is unlikely to impact the building.

7.0 CONCLUSIONS

This assessment has been prepared in accordance with generally accepted environmental methodologies referred to in CSA Z769-00 (reaffirmed 2018) and contains all the limitations inherent in these methodologies. No other warranties, expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report.

Based on the results of this Phase Two ESA, there was evidence of the contaminants of concern in excess of applicable guidelines and criteria as discussed below.

- Soil and groundwater on the east and west sides of the USTs had concentrations of petroleum hydrocarbons in excess of the applicable site standards.

8.0 RECOMMENDATIONS

Based on the results of this assessment the following further work is recommended:

- The impacted soil and groundwater in the area of the USTs should be further delineated and a remediation plan developed.

9.0 QUALIFICATIONS AND SIGNATURES

This report has been prepared for the sole benefit of ACME Oil & Gas. The report may not be relied upon by any other person or entity without the express written consent of Plan B Environmental and ACME Oil & Gas.

Respectfully submitted,

Plan B Environmental

Prepared by: **Reviewed by:**

John Smith, P.Eng.
Se. Environmental Engineer

David Doe, P.Eng.
Engineering Manager

10.0 LIMITATIONS

This Phase II - Environmental Site Assessment report has been prepared under the supervision of a Qualified Person, in general accordance with O. Reg. 153/04, as amended, and meets the requirements of CSA Z769-00. The findings and conclusions regarding the substances of concern at the property are based solely on the extent of the information gathered and reviewed during the Phase II ESA, consistent with the scope of work.

This report has been prepared for the exclusive use of the client and may not be relied upon by any third party without express written authorization from Plan B Environmental. Unless otherwise agreed in writing by Plan B Environmental, it shall not be used to express or imply warranty as to any other purposes. No portion of this report shall be used as a separate entity, it is written to be read in its entirety.

No ESA can eliminate all uncertainty. Furthermore, any sample, either surface or subsurface, taken for chemical analysis may or may not be representative of a larger population. Professional judgment and interpretation are inherent in the process and uncertainty is inevitable. Additional assessment may be able to reduce the uncertainty.

Even when Phase II ESA work is executed with an appropriate site-specific standard of care, certain conditions present especially difficult detection problems. Such conditions may include, but are not limited to, complex geological settings, the fate and transport characteristics of certain substances, the distribution of existing target analytics, physical limitations imposed by the location of utilities and other man-made objects, and the inherent limitations of assessment technologies.

It should be noted that the analytical results refer only to the sample analyzed which was obtained from specific sampling location and sampling depth, and the analytical results and soil/groundwater chemistry may vary between and beyond the location and depth of the sample taken. The findings in this report are limited to the environmental conditions on the subject property at the time of investigation only. Further, there can be no assurance that sampling techniques employed have necessarily disclosed all potential contaminants at the subject property due, among other things and without limitation, to such factors as a practical and economic limitation on the number and location of samples, sample depth, drilling rig accessibility, lack of current definition of a particular material as hazardous, and the like.

Measurements and sampling data only represent the site conditions at the time of data collection. Therefore, the usability of data collected as part of this Phase II ESA may have a finite lifetime depending on the application and use being made of the data.

The benchmark and elevations used in this report are primarily to establish relative elevation differences between the borehole and test pit locations and should not be used for other purposes, such as grading, excavating, planning, development, etc. The information provided in this report may not be sufficient to obtain approval for disposal of excess soil or materials generated during construction.

REFERENCES AND SOURCES OF INFORMATION

The following references may have been used in the preparation of this report.

CSA Z769-00 (reaffirmed 2018) Standard for Phase II Environmental Site Assessment.

Generally Accepted Standards for Environmental Investigations, Consulting Engineers of Ontario, April 1993.

Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites — Volume 1: Main Report; Volume 2: Analytical Method Summaries, Canadian Council of Ministers of the Environment, December 1993.

Guidance to Environmental Site Assessments, National Groundwater Association, September 1992.

Guideline for Professional Engineers Providing Services in Environmental Site Assessment, Remediation and Management, Association of Professional Engineers of Ontario, 1996.

Interim Canadian Environmental Quality Criteria for Contaminated Sites, Canadian Council of Ministers of the Environment, September 1991.

National Classification System for Contaminated Sites, Canadian Council of Ministers of the Environment, March 1992.

Standard Guide for Environmental Site Assessment: Phase II Environmental Site Assessment Process, American Society for Testing and Materials (ASTM E 1903-19), 2019.

ASTM Standard D 5730 Guide to Site Characteristics for Environmental Purposes with Emphasis on Soil, Rock, The Vadose Zone, and Ground Water.

Ontario MECP "Soil, ground water and sediment standards for use under PART XV.1 of the Environmental Protection Act, Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition" for coarse soils in industrial/commercial areas.

TABLES

Table 1 Monitoring Well Installation

Well ID	Ground Elevation (mASL)	Borehole Depth (mBGS)	Well Diameter (mm)	Screened Interval (mBGS)
MW1	104.62	10.2	51	5.1 to 8.1
MW2	104.65	10.4	51	5.1 to 8.1
MW3	104.85	10.4	51	5.0 to 8.0
MW4	105.30	10.6	51	4.5 to 7.5
MW5	104.91	10.5	51	4.5 to 7.5
MW6	105.23	10.8	51	4.5 to 7.5
MW7	104.94	10.5	51	5.0 to 8.0
MW8	104.95	10.5	51	5.1 to 8.1

Table 2 Water Levels

Well ID	Ground Elevation (mASL)	Date Measured	Water Level (mBGS)	Groundwater Elevation (mASL)
MW1	104.62	2023-02-24	6.05	98.57
MW2	104.65	2023-02-24	5.91	98.74
MW3	104.85	2023-02-24	5.82	99.03
MW4	105.30	2023-02-24	5.63	99.67
MW5	104.91	2023-02-24	5.72	99.19
MW6	105.23	2023-02-24	5.61	99.62
MW7	104.94	2023-02-24	5.74	99.20
MW8	104.95	2023-02-24	5.82	99.13

Table 3 LNAPLs and DNAPLs

No light or dense non-aqueous phase liquid was present in the monitoring wells.

Table(s) 4 Soil Data

Sample Information

Number	Date	Depth (mBGS)	Analyses	Rationale
MW1:SS8	2023-02-16	5.9 m	Petroleum Hydrocarbons	Assess potential soil impact from USTs
MW2:SS8	2023-02-16	5.9 m	Petroleum Hydrocarbons	Assess potential soil impact from USTs
MW3:SS8	2023-02-16	5.8 m	Petroleum Hydrocarbons	Assess potential soil impact from USTs
MW4:SS8	2023-02-16	6.0 m	Petroleum Hydrocarbons	Assess potential soil impact from USTs
MW5:SS8	2023-02-16	5.9 m	Petroleum Hydrocarbons	Assess potential soil impact from USTs
MW6:SS8	2023-02-16	6.1 m	Petroleum Hydrocarbons	Assess potential soil impact from USTs
MW7:SS8	2023-02-17	5.8 m	Petroleum Hydrocarbons	Assess potential soil impact from USTs
MW8:SS8	2023-02-17	5.9 m	Petroleum Hydrocarbons	Assess potential soil impact from USTs

Summary of Soil Analytical Results - Petroleum Hydrocarbons

	Units	Criteria								
Sample Number			MW1:SS8	MW2:SS8	MW3:SS8	MW4:SS8	MW5:SS8	MW6:SS8	MW7:SS8	MW8:SS8
Sample Date			2023-2-16	2023-2-16	2023-2-16	2023-2-16	2023-2-16	2023-w-16	2023-2-17	2023-2-17
Lab. Ref. ID			L1123	L1124	L1125	L1126	L1127	L1128	L1130	L1129
Benzene	µg/g	.32	.12	.11	.18	.19	**.81**	.11	.18	.12
Ethylbenzene	µg/g	9.5	1.2	1.5	**12.6**	1.2	**32**	1.8	1.9	1.6
Toluene	µg/g	68	2.3	1.8	2.4	1.6	13.2	2.3	1.8	1.1
Xylenes (Total)	µg/g	26	2.5	2.1	6.2	1.9	9.6	1.7	1.5	.08
F1 (C6-C10)	µg/g	55	44	35	51	32	**62**	13	23	51
F2 (C10-C16)	µg/g	230	51	21	**242**	84	28	12	85	81
F3 (C16-C34)	µg/g	1700	125	255	**1826**	124	162	95	255	251
F4 (C34-C50)	µg/g	3300	2151	1525	2299	155	**3925**	2154	2115	2514

The soil analytical results were compared with the following applicable guidelines and criteria:

Ontario MECP "Soil, ground water and sediment standards for use under PART XV.1 of the Environmental Protection Act, Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition".

Table(s) 5 Ground Water Data

Groundwater Samples Collected

Number	Date	Analyses	Rationale
GW1	2023-02-24	Petroleum Hydrocarbons	Assess potential groundwater impact from USTs
GW2	2023-02-24	Petroleum Hydrocarbons	Assess potential groundwater impact from USTs
GW3	2023-02-24	Petroleum Hydrocarbons	Assess potential groundwater impact from USTs
GW4	2023-02-24	Petroleum Hydrocarbons	Assess potential groundwater impact from USTs
GW5	2023-02-24	Petroleum Hydrocarbons	Assess potential groundwater impact from USTs
GW6	2023-02-24	Petroleum Hydrocarbons	Assess potential groundwater impact from USTs
GW7	2023-02-24	Petroleum Hydrocarbons	Assess potential groundwater impact from USTs
GW8	2023-02-24	Petroleum Hydrocarbons	Assess potential groundwater impact from USTs

Summary of Groundwater Analytical Results - Petroleum Hydrocarbons

	Units	Criteria								
Sample Number			GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8
Sample Date			2023-02-24	2023-02-24	2023-02-24	2023-02-24	2023-02-24	2023-02-24	2023-02-24	2023-02-24
Lab. Ref. ID			L1218	L1219	L1220	L1221	L1222	L1223	L1224	L1225
Benzene	µg/L	44	25	32	**52**	12	38	23	28	33
Ethylbenzene	µg/L	2300	12.6	15.8	56.5	32.2	85.6	23.2	1251	128
Toluene	µg/L	18000	1852	953	4625	256	2684	1851	3221	2412
Xylenes (Total)	µg/L	4200	1252	2568	**15652**	3212	**23851**	1255	3255	215
F1 (C6-C10)	µg/L	750	351	415	**4855**	255	**5822**	255	215	114
F2 (C10-C16)	µg/L	150	66	61	**825**	52	**712**	26	51	55
F3 (C16-C34)	µg/L	500	85	53	145	121	235	125	185	125
F4 (C34-C50)	µg/L	500	125	322	**512**	235	455	111	352	324

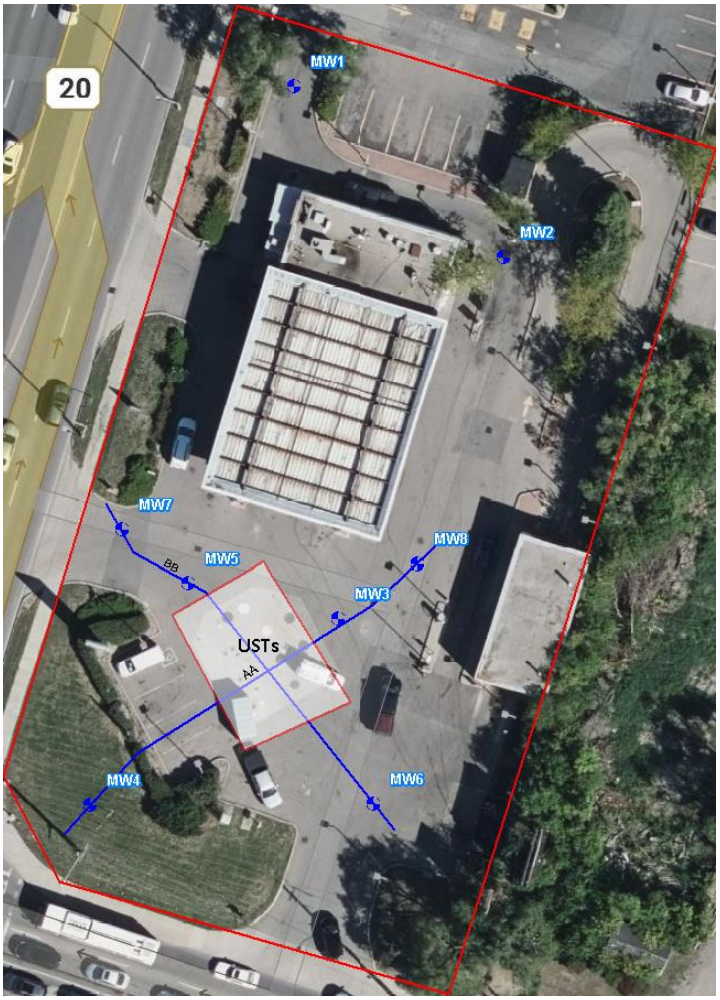
The groundwater analytical results were compared with the following applicable guidelines and criteria:

Ontario MECP "Soil, ground water and sediment standards for use under PART XV.1 of the Environmental Protection Act, Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition".

Table(s) 6 Sediment Data

No sediment samples were collected as part of this investigation.

FIGURES



15 m

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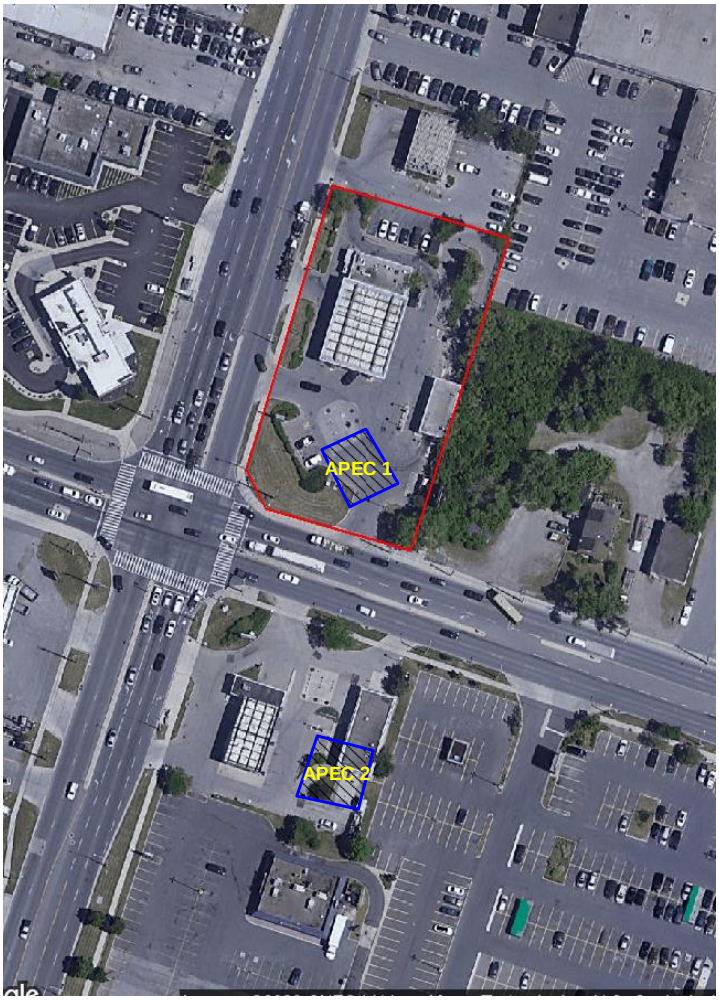
Figure 1: Phase II ESA Site Plan

Project Number:	CAD EX
Project Name:	Canadian Examples
Client Name:	ACME Oil & Gas

Site Location

Address:	2911 Bartion St. S
City:	Hamilton
StateProvince:	ON

Project Manager:	John Smith
Date:	2023-2-24



40 m

Areas of Potential Environmental Concern
APEC 1: USTs On-site
APEC 2: USTs Off-site

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Figure 2: Phase I Conceptual Site Model

Project Number:	CAD EX
Project Name:	Canadian Examples
Client Name:	ACME Oil & Gas

Site Location

Address:	2911 Barton St. S
City:	Hamilton
State:	ON

Project Manager:	John Smith
Date:	2023-1-24

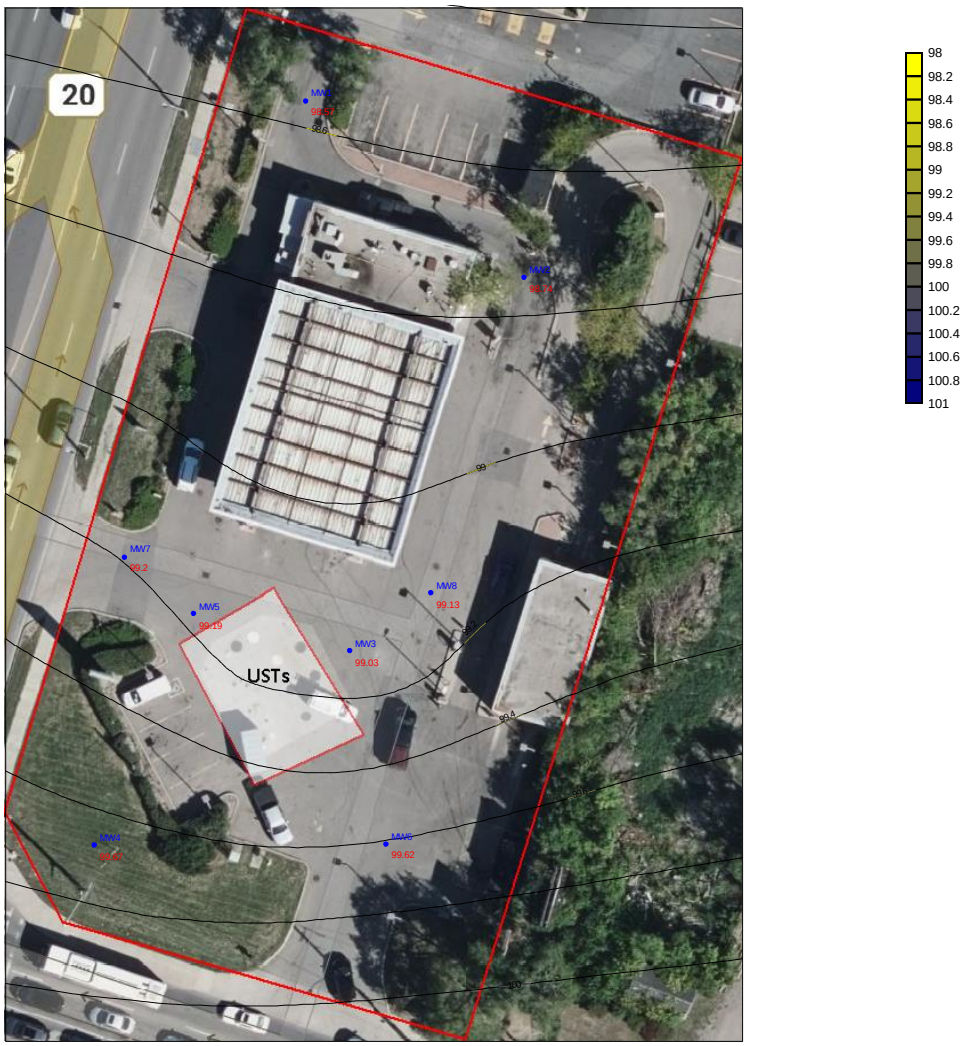

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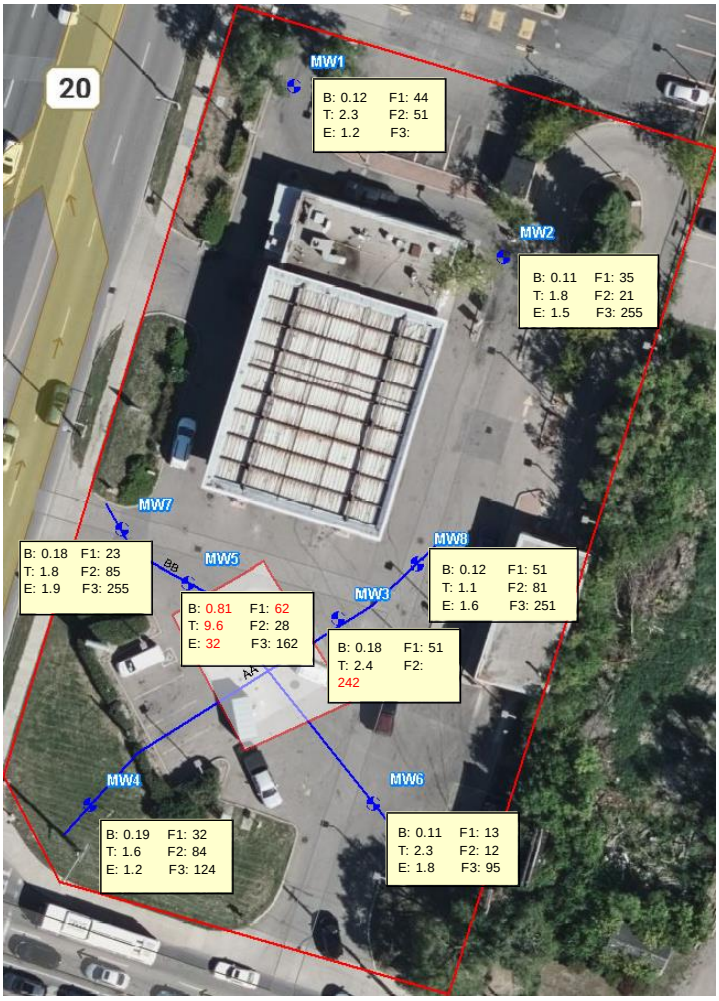
Figure 3: Ground Water Elevation (mASL)

Project Number:	CAD EX
Project Name:	Canadian Examples
Client Name:	ACME Oil & Gas

Site Location

Address:	2911 Barton St. S
City:	Hamilton
StateProvince:	ON

Project Manager:	John Smith
Date:	2023-2-24



15 m

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1. Analytical results are in µg/g
2. Analytical results in red exceed the applicable site standard

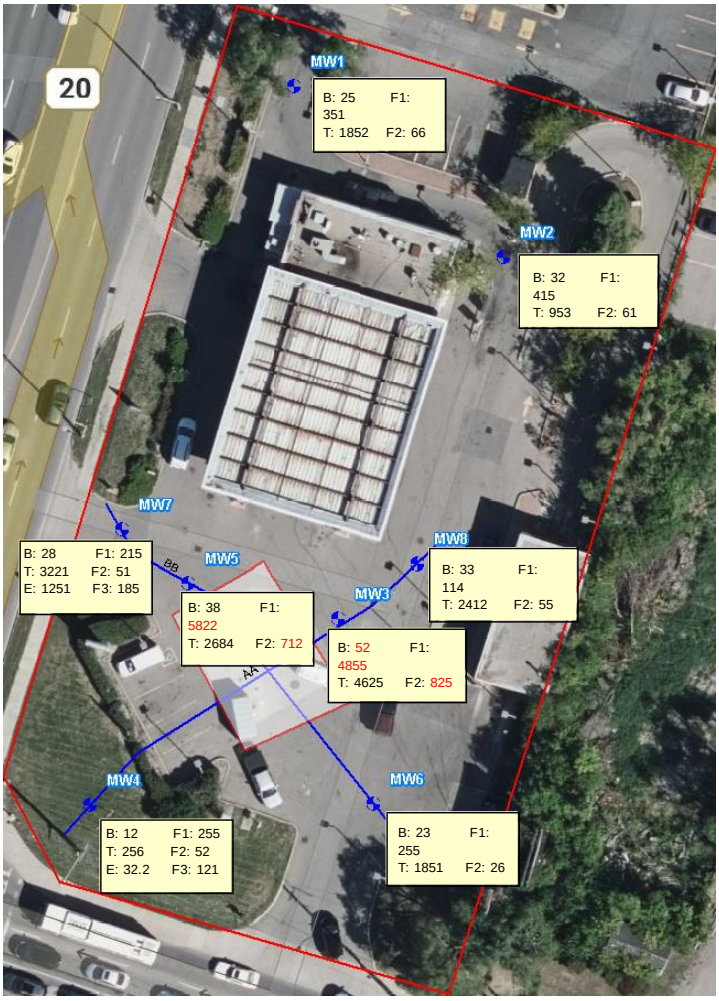
Figure 4: Soil Contamination

Project Number:	CAD EX
Project Name:	Canadian Examples
Client Name:	ACME Oil & Gas

Site Location

Address:	2911 Barton St. S
City:	Hamilton
StateProvince:	ON

Project Manager:	John Smith
Date:	2023-2-24



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Hamilton, ON

Figure 5: Ground Water Contamination

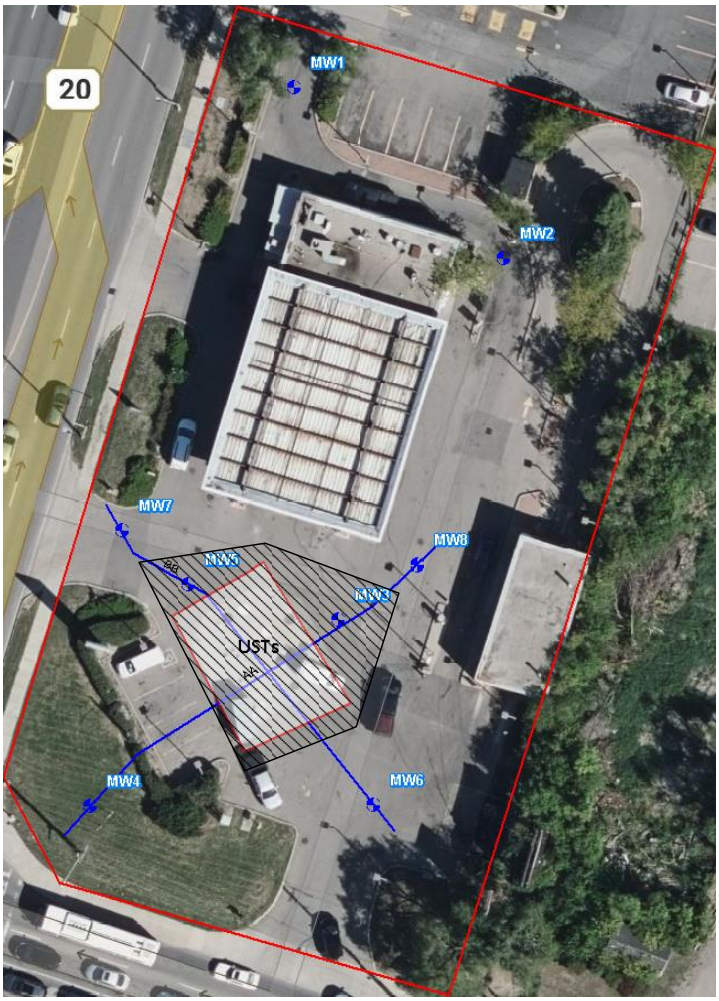
Project Number:	CAD EX
Project Name:	Canadian Examples
Client Name:	ACME Oil & Gas

Site Location

Address:	2911 Barton St. S
City:	Hamilton
StateProvince:	ON

Project Manager:	John Smith
Date:	2023-2-24

1. Analytical results are in µg/L
2. Analytical results in red exceed the applicable site standard



15 m

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Estimated area of soil and groundwater contamination

Figure 6: Delineation of Contamination

Project Number:	CAD EX
Project Name:	Canadian Examples
Client Name:	ACME Oil & Gas

Site Location

Address:	2911 Barton St. S
City:	Hamilton
StateProvince:	ON

Project Manager:	John Smith
Date:	2023-2-24

Figure 7: Cross-section AA

Project Number:	CAD EX
Project Name:	Canadian Examples
Client Name:	ACME Oil & Gas
Site Location	
Address:	2911 Barton St. S
City:	Hamilton
StateProvince:	ON
Project Manager:	John Smith
Date:	2023-2-24

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Figure 8: Cross-section BB

Project Number:	CAD EX
Project Name:	Canadian Examples
Client Name:	ACME Oil & Gas
Site Location	
Address:	2911 Barton St. S
City:	Hamilton
StateProvince:	ON
Project Manager:	John Smith
Date:	2023-2-24

APPENDICES

Appendix I: Sampling and Analysis Plan

2023-01-09
Ref. No. PN12331
ACME Oil & Gas
350, 55th Street
Houston, Texas
78654

Attention: ACME Oil & Gas

Re: Sampling and Analysis Plan
Phase II Environmental Site Assessment Report

No Name Gas, 2911 Barton St. South, Hamilton, Ontario

Plan B Environmental is pleased to submit our Sampling and Analysis Plan (SAP) for the proposed Phase II Environmental Site Assessment (ESA) of No Name Gas. The purpose of the Phase II ESA is to assess the current subsurface environmental conditions and to address the previously identified Areas of Potential Environmental Concern (APECs).

The subsurface investigation was developed to identify and delineate the areas of potential environmental concerns. This sampling and analysis plan is subject to change as required by site observations and findings.

Background

The Phase I Environmental Site Assessment prepared by Plan B Environmental dated December 12, 2022, was reviewed in preparation of this sampling and analysis plan.

The table below lists the potential contaminating activities on, in or under the subject property.

Potential Contaminating Activities

PCA	Location of PCA	Description
Gasoline and Associated Products Storage in Fixed Tanks	South side of property	Two underground storage tanks for diesel and gasoline

The following areas of potential environmental concern were previously identified on the property.

Areas of Potential Environmental Concern

APEC	Location of APEC	PCA	Location of PCA	COPCs	Media Impacted
Two USTs	South side of property	Gasoline and Associated Products Storage in Fixed Tanks	On-site	Petroleum Hydrocarbons	Soil and Groundwater
USTs	South adjoining property	Gasoline and Associated Products Storage in Fixed Tanks	Off-site	Petroleum Hydrocarbons	Soil and Groundwater

Sampling Plan

The site investigation program consists of the following:

- Public and private underground utilities and services will be cleared prior to commencement of intrusive activities.
- A Health and Safety Plan will be prepared, and all work will be executed accordingly.
- As part of this investigation 8 boreholes will be drilled on the subject property.
- The approximate depth of the boreholes will be 10 mBGS, or until sample refusal, or until groundwater is encountered. The soil profile from each borehole will be logged in the field and samples will be screened for total organic vapours (TOV) with a photoionization detector (PID) and combustible gas detector (CGD). The location of the boreholes will be selected to investigate any APECs previously identified, as well as to delineate the horizontal and vertical extents of relevant parameters of concern.
- Ground water monitoring wells will be installed in 8 of the boreholes in order to facilitate the collection of groundwater samples to assess the groundwater quality below the subject property and to establish the direction of groundwater flow.
- Based on field screening and visual/olfactory observations, worst-case/representative soil samples will be submitted for analytical testing,
- Ground water levels in the monitoring wells will be measured at least 24 hours after well development has been completed. The wells will be surveyed to a geodetic benchmark to determine the direction of ground water flow.
- The monitoring wells will be purged to remove stagnant water and sampled for analytical testing.
- Soil and ground water samples will be submitted for chemical analysis by a CALA laboratory.
- All field equipment will be calibrated at the start of each field day. Clean, disposable Nitrile™ gloves will be used at each sampling interval to reduce the risk of cross contamination. All non-dedicated equipment (e.g.
  split spoon sampler, interface probe, etc.) will be decontaminated between each borehole.

Analytical Testing Plan

The proposed analytical testing plan is described below.

- The worst-case soil sample using field screening will be selected from each of the 8 boreholes and submitted for analysis of petroleum hydrocarbons (F1 - F4) and BTEX.
- After well development a ground water sample will be collected from each of the 8 monitoring wells and submitted for analysis of petroleum hydrocarbons (F1 - F4) and BTEX.
- One quality control/quality assurance (QAQC) sample will be submitted for analysis per ten (10) samples analyzed in accordance with Ontario Regulation 153/04. One laboratory supplied trip blank will be submitted as part of each sample submission event.

Summary

Upon receipt of all the results, a Phase II Environmental Site Assessment report in accordance with Ontario Regulation 153/04 will be prepared. It is noted that if the Phase II ESA reveals parameter concentrations greater than the applicable standards set out in Ontario Regulation 153/04, then additional work (i.e., supplemental delineation, additional drilling, sampling, analysis, and/or site remediation activities) will be deemed necessary prior to Record of Site Condition (RSC) filing, should an RSC be required. The costs for any additional work, if necessary, are beyond the current scope of work.

We hope that this Sampling and Analysis Plan meets your objectives. If you have any questions or require further clarification, please contact the undersigned at your convenience. Thank you for the opportunity to be of service to ACME Oil & Gas.

Yours very truly,

Plan B Environmental

John Smith, P.Eng.
Sr. Environmental Engineer

Appendix II: Field Logs

Log of Borehole: MW1

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Project No.: CAD EX
Project: Canadian Examples
X Coordinate: -79.759884
Y Coordinate: 43.237612
Status: Unspecified

Elevation: 104.62
Total Depth: 10.2
Project Manager: John Smith

Depth (ft / m)	Elevation (masl)	% Recovery	Soil Sample ID	Type	VOC (ppm)	SUBSURFACE PROFILE: Graphic	SUBSURFACE PROFILE: Material Description	Lab Analysis	Well Diagram
0.0 / 0.0	104.6						Ground Surface		
	0.0						Poorly-graded gravels, gravel-sand mixtures, little or no fines.		
3.0 / 1.0		80	SS1	SS	1.9				
7.0 / 2.0		85	SS2	SS	2				
		85	SS3	SS	2.3				
10.0 / 3.0		80	SS4	SS	2.7				
13.0 / 4.0		85	SS5	SS	3.2				
		90	SS6	SS	3.1				
17.0 / 5.0		90	SS7	SS	3.8				
20.0 / 6.0		95	SS8	SS	4.5			PHC and BTEX	
			IW1:SS8		0				
21.0	98.1		IW1:SS9						
	6.5	95	SS9	SS	2.1		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.		
33.0 / 10.0	94.4								
	10.2								

Well Diagram: Concrete; Bentonite; #3 Silca Sand; 1" Steel Casing; 2" Slot 10 Screen

Drilled By: ACME Drilling
Drill Method: H/S Auger
Drill Date: 2023-02-16

Hole Size: 6.5"
Datum: MSL
Sheet: 1 of 1

Log of Borehole: MW2

Plan B Environmental
301 James St. S
Hamilton, ON

Project No.: CAD EX
Project: Canadian Examples
X Coordinate: -79.759625
Y Coordinate: 43.237459
Status: Unspecified

Elevation: 104.65
Total Depth: 10.4
Project Manager: John Smith

Depth (ft / m)	Elevation (masl)	% Recovery	Soil Sample ID	Type	VOC (ppm)	SUBSURFACE PROFILE: Graphic	SUBSURFACE PROFILE: Material Description	Lab Analysis	Well Diagram
0.0 / 0.0	104.7						Ground Surface		
	0.0						Poorly-graded gravels, gravel-sand mixtures, little or no fines.		
		85	SS1	SS	1.1				
		85	SS2	SS	1.5				
		90	SS3	SS	1.9				
		85	SS4	SS	2.2				
		80	SS5	SS	2.6				
		85	SS6	SS	3				
		90	SS7	SS	3.2				
		95	SS8	SS	4.5			PHC and BTEX	
	98.0	90	SS9	SS	3.1				
	6.7						Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.		
	94.3								
34.0 / 10.4	10.4								

Well Diagram: Concrete; Bentonite; #3 Silica Sand; 1" Steel Casing; 2" Slot 10 Screen

Drilled By: ACME Drilling
Drill Method: H/S Auger
Drill Date: 2023-02-16

Hole Size: 6.5"
Datum: MSL
Sheet: 1 of 1

Log of Borehole: MW3

Plan B Environmental
301 James St. S
Hamilton, ON

Project No.: CAD EX
Project: Canadian Examples
X Coordinate: -79.7598285241058
Y Coordinate: 43.2371334510784
Status: Unspecified

Elevation: 104.85
Total Depth: 10.4
Project Manager: John Smith

Depth (ft / m)	Elevation (masl)	% Recovery	Soil Sample ID	Type	VOC (ppm)	SUBSURFACE PROFILE: Graphic	SUBSURFACE PROFILE: Material Description	Lab Analysis	Well Diagram
0.0 / 0.0	104.9						Ground Surface		
	0.0						Poorly-graded gravels, gravel-sand mixtures, little or no fines.		
		80	SS1	SS	2.5				
		75	SS2	SS	2.1				
		80	SS3	SS	3.2				
		85	SS4	SS	3.6				
		75	SS5	SS	3.9				
		80	SS6	SS	4.1				
		90	SS7	SS	4.5				
		90	SS8	SS	8.5			PHC and BTEX	
	98.3	90	SS9	SS	4.8				
	6.6						Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.		
10.0 / 3.0	94.4								
	10.4								
12.0 / 4.0									

Well Diagram: Concrete; Bentonite; #3 Silica Sand; 1" Steel Casing; 2" Slot 10 Screen

Drilled By: ACME Drilling
Drill Method: H/S Auger
Drill Date: 2023-02-16

Hole Size: 6.5"
Datum: MSL
Sheet: 1 of 1

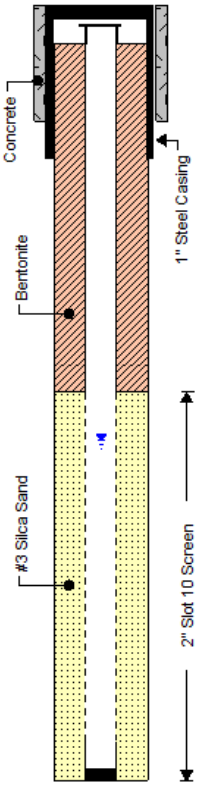
Log of Borehole: MW4

Plan B Environmental
301 James St. S
Hamilton, ON

Project No.: CAD EX
Project: Canadian Examples
X Coordinate: -79.7601354433962
Y Coordinate: 43.2369657268055
Status: Unspecified

Elevation: 105.3
Total Depth: 10.6
Project Manager: John Smith

Depth (ft / m)	Elevation (masl)	% Recovery	Soil Sample ID	Type	VOC (ppm)	SUBSURFACE PROFILE: Graphic	SUBSURFACE PROFILE: Material Description	Lab Analysis	Well Diagram
0.0 / 0.0	105.3						Ground Surface		
	0.0						Poorly-graded gravels, gravel-sand mixtures, little or no fines.		
		80	SS1	SS	2				
		85	SS2	SS	2.2				
		85	SS3	SS	2.5				
		80	SS4	SS	3.2				
		85	SS5	SS	3.7				
		90	SS6	SS	4.2				
		90	SS7	SS	4.3				
		95	SS8	SS	4.5			PHC and BTEX	
	98.7	95	SS9	SS	3.8				
	6.6						Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.		
	94.7								
	10.6								
12.0									



Drilled By: ACME Drilling
Drill Method: H/S Auger
Drill Date: 2023-02-16

Hole Size: 6.5"
Datum: MSL
Sheet: 1 of 1

Log of Borehole: MW5

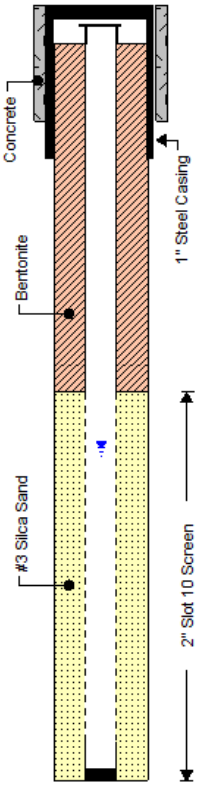
Plan B Environmental
301 James St. S
Hamilton, ON

Project No.: CAD EX
Project: Canadian Examples
X Coordinate: -79.7600144401244
Y Coordinate: 43.2371653203486
Status: Unspecified

Elevation: 104.91
Total Depth: 10.5
Project Manager: John Smith

Depth (ft / m)	Elevation (masl)	% Recovery	Soil Sample ID	Type	VOC (ppm)	Graphic	Material Description	Lab Analysis
0.0 / 0.0	104.9						Ground Surface	
	0.0						Poorly-graded gravels, gravel-sand mixtures, little or no fines.	
		80	SS1	SS	2.2			
		85	SS2	SS	2.5			
		85	SS3	SS	3.7			
		80	SS4	SS	3.8			
		85	SS5	SS	3.5			
		90	SS6	SS	4.8			
		90	SS7	SS	6.5			
		95	SS8	SS	7.8			PHC and BTEX
6.0 / 2.0	98.3				0			
	6.6	95	SS9	SS	4.5		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	
10.0 / 3.0	94.3							
	10.6							
12.0 / 4.0								

Well Diagram



Drilled By: ACME Drilling
Drill Method: H/S Auger
Drill Date: 2023-02-16

Hole Size: 6.5"
Datum: MSL
Sheet: 1 of 1

Log of Borehole: MW6

Plan B Environmental
301 James St. S
Hamilton, ON

Project No.: CAD EX
Project: Canadian Examples
X Coordinate: -79.759785
Y Coordinate: 43.236967
Status: Unspecified

Elevation: 105.23
Total Depth: 10.6
Project Manager: John Smith

Depth (ft / m)	Elevation (masl)	% Recovery	Soil Sample ID	Type	VOC (ppm)	SUBSURFACE PROFILE: Graphic	SUBSURFACE PROFILE: Material Description	Lab Analysis	Well Diagram
0.0 / 0.0	105.2						Ground Surface		
	0.0						Poorly-graded gravels, gravel-sand mixtures, little or no fines.		
		80	SS1	SS	2.1				
		85	SS2	SS	2				
		85	SS3	SS	2.5				
		80	SS4	SS	3.2				
		85	SS5	SS	3.7				
		90	SS6	SS	4.5				
		90	SS7	SS	4.6				
		95	SS8	SS	4.5			PHC and BTEX	
	98.6	95	SS9	SS	3.5				
	6.6						Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.		
	94.6								
12.0	10.6								

Well Diagram: Concrete; Bentonite; #3 Silica Sand; 1" Steel Casing; 2" Slot 10 Screen

Drilled By: ACME Drilling
Drill Method: H/S Auger
Drill Date: 2023-02-16

Hole Size: 6.5"
Datum: MSL
Sheet: 1 of 1

Log of Borehole: MW7

Plan B Environmental
301 James St. S
Hamilton, ON

Project No.: CAD EX
Project: Canadian Examples
X Coordinate: -79.760096
Y Coordinate: 43.237214
Status: Unspecified

Elevation: 104.94
Total Depth: 10.5
Project Manager: John Smith

Depth (ft / m)	Elevation (masl)	% Recovery	Soil Sample ID	Type	VOC (ppm)	SUBSURFACE PROFILE: Graphic	SUBSURFACE PROFILE: Material Description	Lab Analysis	Well Diagram
0.0 / 0.0	104.9						Ground Surface		
	0.0						Poorly-graded gravels, gravel-sand mixtures, little or no fines.		
		80	SS1	SS	2.1				
		85	SS2	SS	2.3				
		85	SS3	SS	3.1				
3.0		80	SS4	SS	3.5				
		85	SS5	SS	3.5				
		90	SS6	SS	3.9				
5.0		90	SS7	SS	4.2				
		95	SS8	SS	4.3			PHC and BTEX	
	98.3	95	SS9	SS	3.5				
6.0 / 7.0	6.6						Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.		
8.0 / 9.0 / 10.0									
	94.3								
11.0 / 12.0	10.6								

Concrete
Bentonite
#3 Silica Sand
1" Steel Casing
2" Slot 10 Screen

Drilled By: ACME Drilling
Drill Method: H/S Auger
Drill Date: 2023-02-16

Hole Size: 6.5"
Datum: MSL
Sheet: 1 of 1

Log of Borehole: MW8

Plan B Environmental
301 James St. S
Hamilton, ON

Project No.: CAD EX
Project: Canadian Examples
X Coordinate: -79.759731
Y Coordinate: 43.237183
Status: Unspecified

Elevation: 104.95
Total Depth: 10.4
Project Manager: John Smith

Depth (ft / m)	Elevation (masl)	% Recovery	Soil Sample ID	Type	VOC (ppm)	SUBSURFACE PROFILE: Graphic	SUBSURFACE PROFILE: Material Description	Lab Analysis	Well Diagram
0.0 / 0.0	105.0						Ground Surface		
0.0 / 0.0	0.0						Poorly-graded gravels, gravel-sand mixtures, little or no fines.		
		80	SS1	SS	2.5				
		75	SS2	SS	2.9				
		80	SS3	SS	3.2				
3.0 / 1.0		85	SS4	SS	3.5				
		75	SS5	SS	3.6				
4.0 / 1.2		80	SS6	SS	3.8				
		90	SS7	SS	4.3				
6.0 / 1.8		90	SS8	SS	4.6			PHC and BTEX	
6.6 / 2.0	98.4	90	SS9	SS	3.8		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.		
10.0 / 3.0									
10.4 / 3.2	94.6								

Well Diagram: Concrete; 1" Steel Casing; Bentonite; #3 Silica Sand; 2" Slot 10 Screen

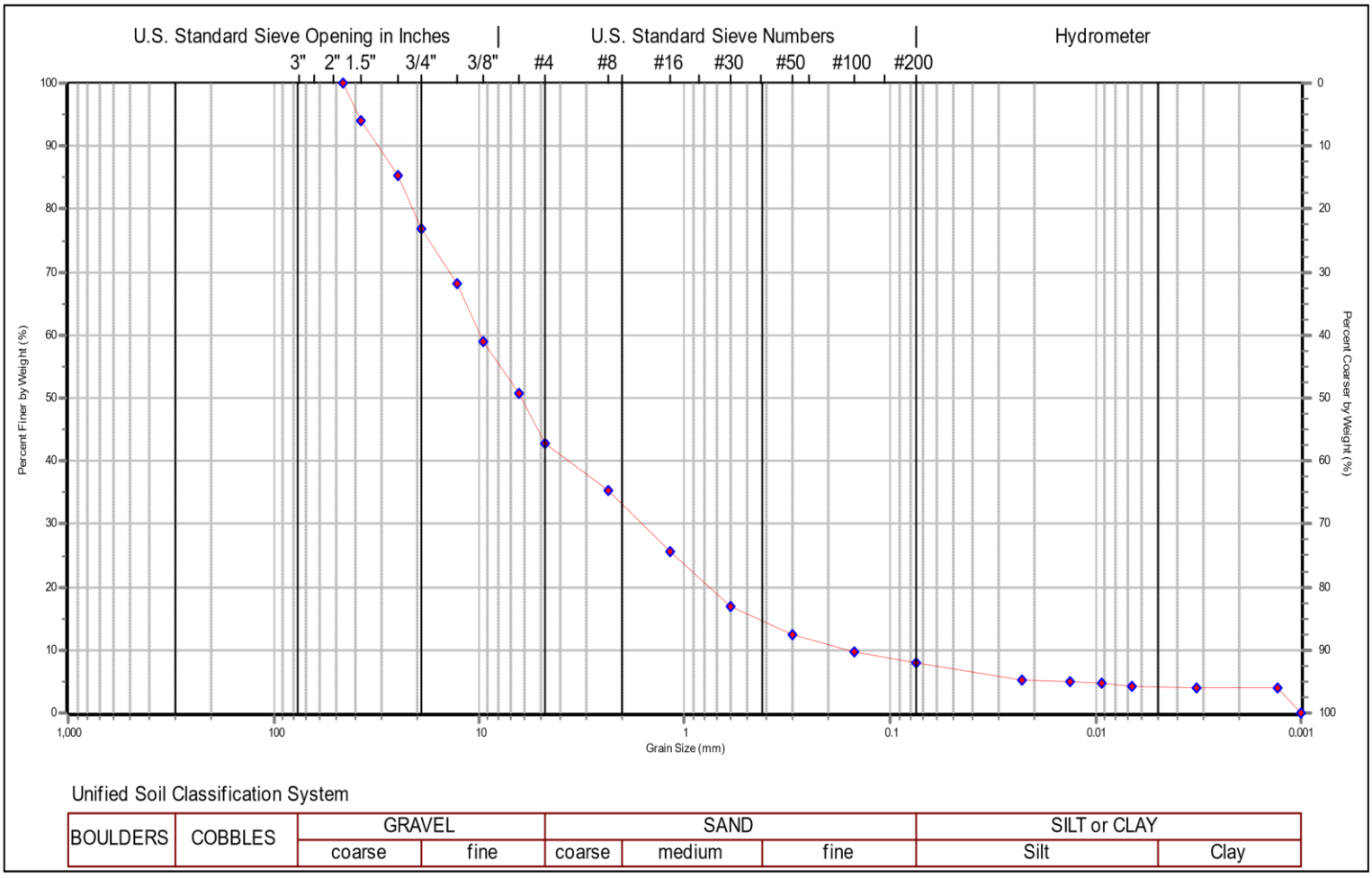
Drilled By: ACME Drilling
Drill Method: H/S Auger
Drill Date: 2023-02-16

Hole Size: 6.5"
Datum: MSL
Sheet: 1 of 1

Appendix III: Grain Size Analysis

	Project No.: CAD EX	GRAINSIZE DISTRIBUTION GRAPH
	Borehole No.: MW5	Tested By: John Smith
	Client: ACME Oil & Gas	Test Date: April 30, 2023

Symbol	Sample No.	% Clay	% Silt	% Fine Sand	% Medium Sand	% Coarse Sand	% Fine Gravel	% Coarse Gravel	% Cobbles
◆	MW5:SS8	4.21	3.75	6.2	18.26	10.57	33.97	23.04	0



Unified Soil Classification System

BOULDERS	COBBLES	GRAVEL		SAND			SILT or CLAY	
		coarse	fine	coarse	medium	fine	Silt	Clay

Appendix IV: Certificates of Analysis