

# Phase Two Environmental Site Assessment (ESA)

1495 Heron Road, Ottawa, ON

Canada Lands Company CLC Limited  
Draft Report  
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**eNGLOBE**

Prepared For:

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By signing the above, the Qualified Person (QP) confirms that they have conducted and/or supervised the Phase Two ESA and that all findings and conclusions of the Phase Two ESA are included in this report.

# Executive Summary

Englobe Corporation (Englobe) was retained by Canada Lands Company CLC Limited (herein referred to as the “Client”) to complete a Phase Two Environmental Site Assessment (ESA) for the property located at 1495 Heron Road in Ottawa, Ontario (herein referred to as the “Site” or the “Phase Two Property”).

The Site is irregular in shape and has a total property area of approximately 72,970 m<sup>2</sup> (7.30 ha). The Site is developed with 13 buildings (Buildings A through F and H through N), including offices, residences, classrooms, a gymnasium, a theatre, a cafeteria and storage spaces. The buildings are primarily brick and range from one to six storeys high. Buildings A through C, K and L were constructed in 1963; Buildings D through F and I through J were constructed in 1965; Building M was constructed in 1975; and Building N was constructed between 1976 and 1999. The buildings are connected by walkways and tunnels. A large paved outdoor parking is located in the eastern portion of the property.

The total footprint area of the Site buildings at 1495 Heron Road is approximately 9,070 m<sup>2</sup> (97,630 ft<sup>2</sup>). The Site buildings are currently unoccupied, but have been historically used for institutional purposes.

DST Consulting Engineers Inc. (now Englobe Corp.) previously completed a Phase One ESA for the Site in 2014, and a Phase Two ESA for the Site in 2015. Englobe is now updating/supplementing the information previously collected to produce a Phase Two ESA report written in accordance with O. Reg. 153/04, as amended.

The purpose of this Phase Two ESA was to evaluate the presence/absence of contamination on Site, in the one new APEC that was identified in the Phase One ESA report (Englobe, 2022).

The field component of the Phase Two ESA was conducted in July 2022. The field program consisted of the advancement of two boreholes, both of which were instrumented with groundwater monitoring wells at strategic locations on Site.

A total of four soil samples (including one duplicate) and four groundwater samples (including one duplicate and one blank sample) were collected during the investigations and submitted for laboratory analysis of various Contaminants of Potential Concern (COPCs), specifically as follows:

- One soil sample and one groundwater sample from both MW22-01 and MW22-02 as well as one duplicate soil sample and one duplicate groundwater sample from MW22-01 were submitted for laboratory analysis of Petroleum Hydrocarbons (PHCs) and Volatile Organic Compounds (VOCs);
- One surface level soil sample was submitted for analysis of pH; and
- One groundwater field blank was submitted for quality assurance purposes.

Sample results were compared to the Ontario Ministry of the Environment, Conservation and Parks (MECP) Table 3 for Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition, as per “Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act”, April 15, 2011.

Based on a review of the laboratory analytical results, all samples for both soil and groundwater were in compliance with the applicable Site Condition Standards for all COPCs noted above. Thus, no further environmental work is recommended at this time

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# 1 Introduction

Englobe Corporation (Englobe) was retained by the Canada Lands Company CLC Limited (herein referred to as the “Client”) to complete a Phase Two Environmental Site Assessment (ESA) for the Phase Two Property located at 1495 Heron Road in Ottawa, Ontario (herein referred to as the “Site” or the “Phase Two Property”). Please refer to Figure 1 in Appendix A for the Site Map.

The purpose of this Phase Two ESA was to evaluate the presence/absence of contamination on Site, in the Areas of Potential Environmental Concern (APECs) that were identified in the Phase One ESA report (Englobe, 2022).

DST Consulting Engineers Inc (DST) previously completed a Phase Two ESA for the Site in 2015. Englobe is now updating/supplementing the information previously collected to produce a Phase Two ESA report written in accordance with O. Reg. 153/04, as amended, which will be used as supporting documentation for the filing of an RSC for the Site.

This report was prepared for the exclusive use of the Client. Any use of this report by any third party, or any reliance on or decisions to be made based on it, are the responsibility of such parties. Englobe accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. Full Report Limitations are provided in Section 10 of this report.

## 1.1 Phase Two Property Description

The Site is located at the municipal address of 1495 Heron Road, in a mainly residential area of Ottawa, Ontario, in the community of Heron Gate - zoned as I1A - Minor Institutional Zone (Zoning Bylaw 2008-250 Consolidation, Part 7 - Institutional Zones, Sections 169 and 172, Current to May 22, 2019). The legal description of the Site is:

PCL 6967, SEC CARL ; PT LT 20, CON JG , PT 8, 4R699 ; S/T LT969947 OTTAWA/GLOUCESTER; TOGETHER WITH AN EASEMENT OVER PART 2, 4R28609 AS IN OC1788113; TOGETHER WITH AN EASEMENT OVER PART 3, 4R28609 AS IN OC1788113; SUBJECT TO AN EASEMENT OVER PARTS 4, 5 AND 6, 4R28609 IN FAVOUR OF PART 4, 4R699 AS IN OC1788114; SUBJECT TO AN EASEMENT OVER PARTS 4, 5 AND 6, 4R28609 IN FAVOUR OF PART 7, 4R699 SAVE & EXCEPT PTS 1 TO 7, 4R1729 AS IN OC1788114

The Site is irregular in shape, with a total property area of approximately 72,969 m<sup>2</sup> (7.30 ha). The Site is developed with 13 buildings (Buildings A through F, and H through N), including former offices, residences, classrooms, a gymnasium, a theatre, a cafeteria and storage spaces. The buildings are primarily brick and range from one to six storeys high. Buildings A through C, and K and L were constructed in 1963; Buildings D through F and I through J were constructed in 1965; Building M was constructed in 1975; and Building N was constructed between 1976 and 1999. The buildings are connected by walkways and tunnels and are currently unoccupied. A large paved outdoor parking is located in the eastern portion of the property. Please see Figure 2 in Appendix A for a Site Map.

The Site is surrounded by the following properties:



**Table 1 Description of Surrounding Properties.**

Direction	Surrounding Properties
North	Vacant land, followed by residential properties.
East	Residential properties.
South	St. Patrick's Intermediate School, followed by Hilda Jayewardenaramaya Buddhist Monastery, Heron Road, and a mixed community & residential development
West	Conseil scolaire catholique d'Ottawa Carleton, followed by residential properties.

## 1.2 Property Ownership

The Site is currently owned by Canada Lands Company CLC Limited, The contact information for the property owner's/Client's representative is as follows:

- Ms. Sharon Lithwick, Development Manager of CLC
- Telephone: 343-573-8821
- Email: [slithwick@clc.ca](mailto:slithwick@clc.ca)
- Business Address: 100 Queen Street, Suite 1050, Ottawa, Ontario, K1P 1A5

## 1.3 Current and Proposed Future Uses

The Site is currently not being used. No information was available regarding proposed future uses of the Site.

## 1.4 Applicable Site Condition Standards

Based on Site conditions, the following Site Conditions Standards were considered applicable to the Site:

### SOIL:

- Ontario Ministry of the Environment, Conservation and Parks (MECP) "Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act", April 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use, Coarse Textured Soils).

### GROUNDWATER:

- MECP "Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act", April 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (All Types of Property Use, Coarse Textured Soils).

The rationale for the selection of the above-referenced Site Condition Standards was as follows:

- The Site and surrounding properties are supplied with potable water through the City of Ottawa's municipal drinking water system;
- The Site was previously used for institutional purposes;

- A coarse-grained soil texture was selected for comparison of analytical data to applicable provincial standards as this represents the ‘worst-case’ scenario;
- No shallow bedrock conditions were encountered during the investigation;
- The sub-surface soil (collected in 2015) and the surface soil (collected in 2022) from the Site does not have a pH value less than 5 or greater than 11; and,
- The Site is located further than 30 metres from the nearest surface water body, which is the Rideau River, located approximately 2 km northwest of the Site.

## 2 Background Information

### 2.1 Physical Setting

Based on a review of the Ontario Base Map Series, the Site and surrounding area generally slope towards the south, at approximately 98 m above sea level. The nearest surface water body to the Site is Sawmill Creek, approximately 1.8 km northwest of the Site.

Based on a review of the Ontario Geological Survey Bedrock Geology of Ontario, the bedrock geology of the Site consists of shale, limestone, dolostone, and siltstone of the Georgian Bay formation, Blue Mountain formation, and Billings formation. Based on a review of the Ontario Geological Survey Quaternary Geology Map, the Site consists of undifferentiated till, predominantly sandy silt to silt matrix, commonly rich in clasts, often high in total matrix carbonate content. Based on the Ontario Geological Survey Surficial Geology Map, the Site consists of fine-textured glaciomarine deposits of well-laminated silt and clay from the Pleistocene era.

### 2.2 Past Investigations

Englobe completed a review of available previous environmental reports for the Site. The findings are summarized below:

#### 2.2.1 Phase I ESA of Federal Study Centre (Terra Solutions Inc., March 1996)

Terra Solutions Inc. conducted a Phase I ESA at the Phase One property in 1996. The following potential environmental concerns were identified by the Phase One ESA:

- The former suspected presence of an underground storage tank (UST) for fuel oil between Buildings B and M. The tank was reportedly removed in 1989; however, no environmental assessments were conducted at the time of the removal of the tank.
- Evidence of contamination was noticed in the sump adjacent to the hydraulic elevator in Building A. Hydraulic oil was observed in the sump at the time of inspection.

Based on the results of the Phase I ESA, a Phase II ESA was recommended in order to address the above-noted potential environmental concerns.

## **2.2.2 CCME Phase II/III ESA (INTERA Engineering Ltd., March 2002)**

In March of 2002, INTERA Engineering Ltd. completed a Phase II ESA at the Phase One property in order to address the area of potential environmental concern (APEC) associated with the former fuel oil UST, as identified by the Phase I ESA completed by Terra Solutions Inc. The Phase II ESA consisted of the advancement of four boreholes in the suspected area of the former UST, and the laboratory submission of select soil samples, collected during borehole drilling, for laboratory analysis of PHCs F1 - F4 and BTEX. None of the boreholes were instrumented with groundwater monitoring wells and, thus, no groundwater samples were collected as part of the Phase II ESA.

Analytical results of the laboratory-submitted soil samples were in compliance with the applicable Canadian Council of Ministers of the Environment (CCME) and Ontario Ministry of the Environment (MOE) guidelines/standards at the time. Therefore, no impacts to the soil quality were identified in the area of the former UST.

## **2.2.3 Groundwater Monitoring Program (AMEC Earth & Environmental, April 2009)**

AMEC Earth and Environmental (AMEC) conducted a groundwater monitoring program at the Phase One property in February and March of 2009. The monitoring program consisted of collecting three groundwater samples, including a field duplicate, from a previously installed monitoring well in the suspected area of the former UST on Site (no report is available documenting the installation of the well or any previous findings). The collected samples were submitted for laboratory analysis of PHCs F1 - F4 and BTEX.

The first groundwater sample and a field duplicate were collected on February 26, 2009. Visual and olfactory evidence of petroleum impact, including an iridescent sheen and a petroleum-like odour, was observed during the groundwater purging and sampling activities. On March 9, 2009, an additional groundwater sample was collected from the well using a no-purge protocol. No evidence of petroleum impact was observed during the March sampling event.

Laboratory analytical results of all three groundwater samples were in compliance with the applicable federal and provincial guidelines/standards at the time. Note, however, that the reported concentrations of PHC F3 (600 µg/L) in the February 2009 sample and its duplicate exceeded the currently applicable O. Reg. 153/04 (as amended) Table 3 standard for PHC F3 (500 µg/L) in groundwater.

## **2.2.4 Groundwater Monitoring Well Decommissioning (AMEC Earth & Environmental, July 2009)**

AMEC supervised the decommissioning of the aforementioned monitoring well on July 14, 2009.

## **2.2.5 Phase One ESA (DST Consulting Engineers Inc., December 2014)**

DST Consulting Engineers Inc. (now Englobe Corp.) completed a Phase One ESA in December 2014. The primary objective of the Phase One ESA was to assess the Site and surrounding lands within a 250 m radius for PCAs, and to identify APECs at the Site for environmental due diligence purposes.

Based on the findings of the Phase One ESA, two APECs as outlined below, requiring further investigation, were identified at the Site.

**Table 2 Summary of APECs (DST, 2014).**

APEC No.	Location of APEC on Phase One Property	PCA	Location of PCA (on-site or off-site)	Contaminants of Potential Concern (COPCs)
<b>APEC 1</b> Underground fuel oil storage tank	Between Buildings B and M	No. 28 - Gasoline and Associated Products Storage in Fixed Tanks	On Site	PHCs and BTEX
<b>APEC 2</b> Hydraulic oil leak	Elevator room in Building A	No. 28 - Gasoline and Associated Products Storage in Fixed Tanks	On Site	PHCs and BTEX

**Notes:**

BTEX- Benzene, Toluene, Ethylbenzene, Xylenes  
 PHCs- Petroleum Hydrocarbons (F1-F4)

### 2.2.6 Phase Two ESA (DST Consulting Engineers Inc., March 2015)

DST Consulting Engineers Inc. (now Englobe Corp.) completed a Phase Two ESA in March 2015. The primary objective of the Phase Two ESA was to investigate the presence/absence of contamination within the two APECs as identified from the Phase One ESA for environmental due diligence purposes, and was not intended to be used as supporting documentation in the filing of a Record of Site Condition (RSC) for the Site.

Based on the findings of the Phase Two ESA, all samples for both soil and groundwater at the Site were in compliance with the applicable Site Condition Standards (MECP, Table 3) for all COPCs noted above. No further environmental work was recommended at the time.

### 2.2.7 Phase One ESA (Englobe Corp., August 2022)

Englobe Corp. completed a Phase One ESA in August 2022. The primary objective of the Phase One ESA was to assess the Site and surrounding lands within a 250 m radius for PCAs, and to identify additional or new APECs at the Site since the last Phase One ESA.

Based on the findings of the Phase One ESA, there was one additional APEC identified at the Site, as outlined below, requiring further investigation:

**Table 3 Summary of APECs (Englobe, 2022).**

APEC No.	Location of APEC on Phase One Property	PCA	Location of PCA (on-site or off-site)	COPCs
<b>APEC 1</b> Former USTs were identified at 1495 Heron Road, 1480 Heron Road, 1440 Heron Road, and 2810 Baycrest Drive	Southwest perimeter of the Site.	No. 28 - Gasoline and Associated Products Stored in Fixed Tanks	On and off Site	PHCs BTEX VOCs

**Notes:**

BTEX- Benzene, Toluene, Ethylbenzene, Xylenes  
 PHCs- Petroleum Hydrocarbons (F1-F4)  
 VOCs- Volatile Organic Compounds

Based on the identification of an uninvestigated APEC (as outlined in the above table), further environmental investigation in the form of a Phase Two ESA was recommended to investigate the environmental condition of the soil and groundwater at the Site.

# 3 Scope of the Investigation

The scope of work for the Phase Two ESA is summarized in the following subsections. Englobe has performed this Phase Two ESA in accordance with O. Reg. 153/04, as amended.

## 3.1 Overview of Site Investigation

The field component of this Phase Two ESA was conducted in July 2022. The field program consisted of the advancement of two boreholes, both of which were instrumented with groundwater monitoring wells at strategic locations throughout the Site.

## 3.2 Media Investigated

In March of 2015, DST Consulting Engineers Inc. completed a Phase Two ESA at the Phase Two property in order to address the APECs associated with the suspected former fuel oil UST between Buildings B and M as well as evidence of a hydraulic elevator leakage within Building A, as identified by the Phase One ESA (DST, 2014). The 2015 Phase Two ESA consisted of the advancement of three boreholes in the area of the former UST, and one borehole in the room behind the Building A hydraulic elevator. Select soil samples, collected during borehole drilling, and groundwater from installed monitoring wells, were submitted for laboratory analysis of PHC F1 - F4 and BTEX.

As indicated by the Phase One ESA (Englobe, 2022), records obtained from the City of Ottawa HLUI indicated the historical presence of five USTs within the Phase Two Study Area, including a UST with a capacity of 45,400 (no unit given) at the Notre Dame Junior High School, located at 1495 Heron Road. It is indicated that the UST was installed in 1965. To assess this APEC, further environmental investigation was done in July 2022, as outlined below.

A total of three soil samples (including one duplicate sample) and four groundwater samples (including a duplicate and blank) were collected during the investigation from BHMW22-01 and BHMW22-02 and submitted for laboratory analysis of PHCs and VOCs.

## 3.3 Phase One Conceptual Site Model

The illustrative requirements, according to O. Reg. 153/04, of the Phase One Conceptual Site Model (CSM) are shown on Figures 2 and 3 provided in Appendix A. These figures include: the location of the existing buildings at the Site and in the Phase One Study Area; the roads, including names, within the Phase One Study Area; and uses of properties adjacent to the Site.

The topography of the Site was analyzed using maps and information provided by Ontario Base Maps ordered through ERIS and geoOttawa. The ground surface elevation for the Site at between 92 and 98 metres above mean sea level (m asl), and the regional topography appears to slope in a southern direction. Based on visual observations during the Site visit, the Site and surrounding areas are generally flat with a gentle slope downwards towards the south.

There are no surface water bodies in the Phase One Study Area. The closest major surface water body to the Site is Sawmill creek, located approximately 1.8 km northwest of the Site. Based on the regional topography and location of the nearest surface water body, the inferred direction of the regional shallow horizontal groundwater flow is to the northwest. Depending on climate conditions and the amount of surface water available, ditching, underground services, and ground surface may affect the shallow groundwater flow on a local level.

Underground utilities at the Site consist of storm and sanitary sewers with catch basins and manholes throughout of the Site. Other utilities, including natural gas, hydro, telecommunications, and water traverse the Site. It is not anticipated that underground utilities are present near the groundwater table, and therefore it is unlikely that underground utilities will affect contaminant distribution and transport.

The geological maps reviewed indicate that the Phase One Study Area is underlain by shale, limestone, dolostone, and siltstone of the Georgian Bay, Blue Mountain, and Billings Formations (OGS, 2011). The surficial geology mapped according to the Ontario Geological Survey (OGS) Earth Surficial Geology of Southern Ontario (OGS, 2010) indicates that Site consists of fine-textured glaciomarine deposits from the Pleistocene era. Data obtained from boreholes indicates that the Site generally consists of silty sand, silty till, and shale bedrock in the northern portion of the Site, and sand overlying clay in the southern portion.

No shallow aquifer groundwater level details were specified within the well records reviewed. Groundwater at the Site ranged from approximately 0.532 to 4.797 mbgs.

Issues relating to uncertainty of absence of information were not significantly encountered during the completion of the Phase One ESA, and therefore it is not anticipated that uncertainty or absence of information will affect the validity of the Phase One CSM.

### **3.4 Derivations From Sampling and Analysis**

There were no deviations from the sampling and analysis plan, as detailed in Appendix B.

### **3.5 Impediments**

There were no physical impediments during the course of this Phase Two ESA.

## **4 Investigation Method**

### **4.1 General**

Please see below for a description of the investigation methods employed throughout this Phase Two ESA Investigation.



## 4.2 Drilling and Excavating

The drilling program took place on July 22<sup>nd</sup>, 2022, and consisted of the advancement of two boreholes (MW22-01 and MW22-02) near the South perimeter of the site.

Both boreholes were instrumented with groundwater monitoring wells. Boreholes BHMW22-01 and BHMW22-02 were advanced by Ohlmann Geotechnical Services under the supervision of Englobe field personnel. Boreholes MW22-01 and MW22-02 were advanced using a track-mounted CME 75 drill rig to an approximate depth of 6.7 m bgs (MW22-01) and 4.10 m bgs (MW22-02).

The drill rig was equipped with a split spoon sampling device, which allowed for continuous sampling of overburden soils. Representative soil samples were collected, when possible, in intervals of approximately 0.6 m during the advancement of the boreholes.

Refer to Figure 3 in Appendix A for the borehole / monitoring well locations, and to Appendix C for the borehole logs.

## 4.3 Soil Sampling

Soil samples were placed directly into laboratory-supplied sample jars and vials. The sample jars were filled completely with soil to reduce the amount of headspace vapour within the jars. Samples to be submitted for laboratory analysis of PHCs F2 - F4 were placed in unpreserved 120 mL clear glass jars with Teflon lids, while samples to be submitted to the laboratory for analysis of volatile compounds (PHC F1 and VOCs, including BTEX) were collected using disposable soil plug sample collectors supplied by the laboratory. The soil plugs were placed in laboratory-supplied vials charged with measured volumes of methanol for sample preservation. Collected soil samples were placed in a cooler and maintained at a temperature below 10°C. Samples were shipped under a Chain of Custody protocol to a certified laboratory for chemical analyses.

The potential for cross-contamination between samples was minimized by, where applicable, washing sampling tools with Alconox™ and water, followed by rinsing with distilled water, and by wearing new disposable nitrile gloves prior to the handling of each sample. Soil samples were logged in the field for texture, odour, moisture and visual appearance (staining). The borehole logs are provided in Appendix C.

## 4.4 Field Screening Measurements

Where sample recovery was sufficient, a portion of each collected soil sample from the advanced boreholes was placed in a polyethylene bag and was allowed to equilibrate in a warm environment for approximately 15 minutes prior to being screened for combustible vapour concentrations (CVCs). CVCs of soil samples were measured using an RKI Eagle™ portable vapour meter equipped with a catalytic combustible gas detector (CCGD), with a detection limit of 5 parts per million (ppm). The vapour meter was operated in methane elimination mode and was calibrated by Englobe field personnel prior to use.

Based on visual and olfactory observations, CVC measurements, and the position of the collected soil samples with respect to the inferred groundwater table, two soil samples from MW22-01 (including one duplicate) and one sample from MW22-02 were submitted for laboratory analysis of PHCs F1 - F4 and

VOCs. CVCs of the collected soil samples, as measured by the vapour meter, are provided in the borehole logs in Appendix C. Soil sample locations and analyses are presented in the table below.

**Table 4 Summary of Soil Samples Submitted for Laboratory Analysis.**

Sample ID	Sampling Date (dd/mm/yy)	Sample Depth (m bgs)	Laboratory Analysis
BHMW22-01	12/09/2022	0 - 0.6	pH
MW22-01 SS8	22/07/22	5.2 - 5.8	PHCs F1 - F4, VOCs,
MW22-02 SS4	22/07/22	2.1 - 2.8	PHCs F1 - F4, VOCs
MW22-01 (duplicate of MW22-01 SS8)	22/07/22	5.2 - 5.8	PHCs F1 - F4, VOCs

Please see Appendix D for a summary of all analytical data.

## 4.5 Ground Water: Monitoring Well Installation

The wells were constructed of a 50 mm diameter polyvinyl chloride (PVC) pipe and a #10 slotted PVC well screen (approximately 3.05 m in length) placed to intercept the inferred groundwater table. A sand-pack consisting of clean silica sand was placed within the annular space surrounding the screened section of the wells, and bentonite chips were added from the top of the sand layer to within 0.3 m of the surface to minimize the potential for cross-contamination between aquifers. The riser pipes of BHMW22-01 and BHMW22-02 were fitted with j-plugs and the wells were protected with monument-style protective casings. Refer to the borehole logs in Appendix C for the monitoring well installation details.

Following monitoring well installation activities, the wells were equipped with dedicated Waterra™ tubing (approximately 1.25 cm in diameter) and inertial lift foot valves for well development purposes. All monitoring wells were developed to remove any groundwater impacted by drilling activities and to reduce the amount of sediment within the wells.

## 4.6 Groundwater: Level Measurements

Englobe field personnel collected groundwater level measurements from the installed monitoring wells prior to groundwater sampling activities. The water levels were measured using a Solinst™ Canada Ltd. Model 122 oil/water interface meter which is also used to confirm the presence/absence of light and dense non-aqueous phase liquids (LNAPLs and DNAPLs) in the groundwater. The electronic interface probe was decontaminated (washed with phosphorous-free soap and rinsed with distilled water) prior to the collection of each groundwater level measurement.



## 4.7 Ground Water: Field Measurement of Water Quality Parameters

Englobe recorded water quality parameters using a Horiba™ U52 multi-parameter water quality meter, including pH, conductivity, dissolved oxygen (DO), temperature, turbidity and oxygen redox potential (ORP) prior to collecting groundwater samples.

## 4.8 Ground Water: Sampling

Using dedicated Waterra™ tubing and inertial lift foot valves, both monitoring wells were purged of three well volumes or until dry to remove any stagnant groundwater. Two groundwater samples (including one duplicate) were collected from MW22-01 and one groundwater sample was collected from MW22-02 on July 26, 2022, using low flow techniques and a submersible (bladder) pump, for laboratory analysis of PHCs F1 - F4 and VOCs.

Groundwater samples were collected directly into laboratory-supplied sample containers. All groundwater sample containers were labelled with the Englobe project number and site name, monitoring well identification, and sampling date. Groundwater samples were then placed in clean laboratory-supplied coolers, to store and maintain the samples at a temperature below 10°C.

Prior to well development/purging and the collection of each groundwater sample, the bladder pump and other sampling equipment were decontaminated with phosphorous-free soap and distilled water, followed by a distilled water rinse. New powder-free nitrile gloves were donned by the Englobe technician prior to the handling of each sample, to eliminate cross-contamination.

Groundwater sample locations and analyses are presented below.

**Table 5 Summary of Groundwater Samples Submitted for Laboratory Analysis.**

Sample Location	Sampling Date (dd/mm/yy)	Laboratory Analysis
MW22-01	26/07/22	PHCs/BTEX and VOCs
MW22-02	26/07/22	PHCs/BTEX and VOCs
MW-01 (duplicate of MW22-01)	26/07/22	PHCs/BTEX and VOCs
Field Blank	26/07/22	PHCs/BTEX and VOCs

Please see Appendix D for a summary of all analytical data.

## 4.9 Sediment: Sampling

No sediment samples were collected as no sediment was encountered on the Site.

## 4.10 Analytical Testing

Soil and groundwater samples were submitted to Bureau Veritas Laboratories (BV Labs) of Ottawa, ON, for chemical analysis. BV Labs is a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited laboratory.

## 4.11 Residue Management Procedures

All soil cuttings resulting from drilling activities, purge water resulting from well development and purging activities, and fluids resulting from equipment decontamination were appropriately contained and secured on Site. Proper disposal is to be coordinated by the Client.

## 4.12 Elevation Surveying

Locations were surveyed by Englobe personnel using a Trimble R12 GPS system. No benchmarks were used.

## 4.13 Quality Assurance and Quality Control Measures

Englobe maintains a standard Quality Assurance/ Quality Control (QA/QC) program for environmental investigations. All project documentation was maintained and controlled by the appointed field supervisor. All borehole advancement and soil and groundwater sampling were completed in accordance with industry standards, and applicable provincial standards/guidelines.

Collected soil and groundwater samples during the investigation were placed in ice-packed coolers prior to being shipped, under a Chain of Custody protocol, to an accredited CALA laboratory for chemical analysis.

The potential for cross-contamination between samples was minimized by, where applicable, washing sampling tools with phosphorous-free soap and water, followed by rinsing with distilled water, and by wearing new disposable nitrile gloves prior to the handling of each sample. All field screening instruments (i.e., RKI Eagle™ vapour meter and the water quality meter) were calibrated prior to arriving on Site.

# 5 Review and Evaluation

## 5.1 Geology

Based on the soil data collected and review of historical borehole logs, the general soil stratigraphy around the buildings consists of a fill layer, overlaying a layer of sandy till followed by silty till until refusal (weathered bedrock).

The general soil stratigraphy beneath the building consists of granular bedding material, followed by a layer of silty sand until split spoon refusal (suspected till).

The general soil stratigraphy in the southern portion of the Site consisted of sand and till overlying clay until refusal (shale bedrock).

## 5.2 Ground Water: Elevations and Flow Direction

As noted in Section 4.6, Englobe field personnel collected groundwater level measurements from the installed monitoring wells prior to groundwater sampling activities. Englobe also collected groundwater levels and elevation data from the existing monitoring wells BHMW15-2 to BHMW15-4 (installed by DST in 2015). The groundwater levels are provided in the Table below. Groundwater elevations and the direction of local groundwater flow is demonstrated on Figure 7, in Appendix A.

**Table 6 Groundwater Elevation Data.**

Sample Location	Easting (m)	Northing (m)	Elevation at ground surface (masl)	Sampling Date (dd/mm/yy)	Groundwater Elevation (m asl)	Free Product (Y/N)
BHMW15-1	N/A	N/A	N/A	05/08/2022	N/A	N
BHMW15-2	448881.497	5025534.967	96.192	05/08/2022	93.039	N
BHMW15-3	448891.486	5025534.927	96.122	05/08/2022	92.803	N
BHMW15-4	448884.022	5025542.787	97.017	05/08/2022	93.119	N
BHMW22-1	448858.179	5025442.959	97.769	05/08/2022	92.972	N
BHMW22-2	448874.353	5025351.043	95.962	05/08/2022	93.476	N

M bgs: meters below ground surface

## 5.3 Ground Water: Hydraulic Gradients

The horizontal groundwater gradient for the Phase Two Property, based on groundwater levels measured, was approximately 0.0150 m/m (calculated from groundwater elevations in BHMW15-04 and BHMW22-02).

## 5.4 Fine-Medium Soil Texture

Englobe did not complete a grain size analysis on soil samples collected during the investigation. As noted in Section 1.4, a coarse-grained soil texture was selected for comparison of analytical data to applicable provincial standards as it represents the ‘worst-case’ scenario.

## 5.5 Soil: Field Screening

There were no visual or olfactory evidence of petroleum or other impacts observed in any of the soil or groundwater samples collected. No sheen, free-phase liquid petroleum hydrocarbons, or odours were noted during the drilling or sampling activities.

## 5.6 Soil Quality

Analytical results of the soil samples submitted for laboratory analyses were compared against the applicable MECP Table 3 standards for Residential/Parkland/Institutional Property Use and coarse textured soils. Based on the laboratory analytical results, all three laboratory-submitted soil samples met the applicable MECP Table 3 RPI Site Condition Standards for PHCs F1 - F4, BTEX and VOCs.

Refer to Table D-1 in Appendix D for the soil analytical results. The laboratory certificates of analysis are provided in Appendix E.

## 5.7 Ground Water Quality

Analytical results of the groundwater samples submitted for laboratory analyses was compared against the applicable MECP Table 3 RPI Site Condition Standards for all types of property use and coarse textured soils. Based on the laboratory analytical results, all groundwater samples met the applicable MECP Table 3 RPI Site Condition Standards for PHCs F1 - F4, BTEX and VOCs.

Refer to Table D-2 in Appendix D for the groundwater analytical results. The laboratory certificates of analysis are provided in Appendix E.

## 5.8 Sediment Quality

No sediment samples were analyzed as there was no sediment present on Site. Thus, this section is not applicable.

## 5.9 Quality Assurance and Quality Control (QA/QC) Results

Laboratory certificates of analysis, including laboratory QA/QC, have been received for all soil and groundwater samples analyzed as part of this assessment. Copies of the laboratory certificates of analysis are presented in Appendix E.

## 5.10 Phase Two Conceptual Site Model

The Phase Two Conceptual Site Model (CSM) is provided in Appendix F. A legal survey of the Site can be found in Appendix A.

# 6 Conclusions

Englobe conducted a Phase Two ESA at the property located at 1495 Heron Road in Ottawa, Ontario, to evaluate the environmental quality of soils and groundwater at the Site in response to the findings of the Phase One ESA report (Englobe, 2022).

A total of four soil samples (including one duplicate) and four groundwater samples (including one blank and one duplicate) were collected during the investigation and submitted for laboratory analysis of various COPCs, specifically as follows:

- One soil sample and one groundwater sample from both MW22-01 and MW22-02 as well as one duplicate soil sample and one duplicate groundwater sample from MW22-01 were submitted for laboratory analysis of PHCs/BTEX and VOCs.
- One surface level soil sample was submitted for analysis of pH.
- One groundwater field blank was submitted for quality assurance purposes.

Sample results were compared to the Ontario Ministry of the Environment, Conservation and Parks (MECP) Table 3 for Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition, as per “Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act”, April 15, 2011.

Based on a review of the laboratory analytical results, all samples for both soil and groundwater were in compliance with the applicable Site Condition Standards for all COPCs noted above. Thus, no further environmental investigation or remediation is recommended at this time.

Note: The installed monitoring wells should be abandoned within 180 days of their installation date, in accordance with Ontario Water Resource Act, Regulation 903 - Wells (as amended).

## 6.1 Closure

This report was prepared for the exclusive use of Canada Lands Company CLC Limited. Any use of this report by any third party, or any reliance on or decisions to be made based on it, are the responsibility of such parties. Englobe accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We trust the information herein meets your present requirements. Should you have any questions, please do not hesitate to contact us.

# 7 References

- AMEC Earth & Environmental. April 2009. "Groundwater Monitoring Program - Federal Study Centre, DFRP #30919 - 1495 Heron Road, Ottawa, Ontario". Reference No. TZ91006.7.
- AMEC Earth & Environmental. July 28, 2009. "Groundwater Monitoring Well Decommissioning - Federal Study Centre, DFRP #30919 - 1495 Heron Road, Ottawa, Ontario". Reference No. TZ91006.7.
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- DST Consulting Engineers Inc. March 2015. "Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Reference No. OE-OT-019917.
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- Ontario Ministry of the Environment, Conservation and Parks, 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*.
- Ontario Ministry of Northern Development and Mines, 2014a. OGS Earth Bedrock Geology. Available from :<http://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearth>.
- Ontario Ministry of Northern Development and Mines, 2014b. OGS Earth Quaternary Geology. Available from :<http://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearth>.
- Ontario Ministry of Northern Development and Mines, 2011. Ontario Geological Survey (OGS) Bedrock Geology of Ontario. Google Earth files available for download from: <https://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearth> [Accessed July 2022].
- Terra Solutions Inc. March 1996. "Phase One Environmental Site Assessment of Federal Study Centre". Reference No. 96-505.2.

# 8 Figures and Tables

Additional tables (soil data, groundwater data, maximum concentration tables) are included in Appendix D.

## 8.1 Monitoring Well Installation Details

Table 7 Monitoring well installation details.

Sample Location	Easting (m)	Northing (m)	Monitoring Well Depth (mbgs)	Elevation at top of well casing (masl)	Elevation at ground surface (masl)	Installation Date (dd/mm/yy)
BHMW15-1	N/A	N/A	1.2	N/A	N/A	13/03/2015
BHMW15-2	448881.497	5025534.967	4.6	97.977	96.192	19/03/2015
BHMW15-3	448891.486	5025534.927	4.6	97.162	96.122	19/03/2015
BHMW15-4	448884.022	5025542.787	5.3	97.222	97.017	19/03/2015
BHMW22-01	448858.179	5025442.959	6.90	98.629	97.769	22/07/2022
BHMW22-02	448874.353	5025351.043	4.97	96.902	95.962	22/07/2022

## 8.2 Measured Water Levels

Table 8 Groundwater elevations.

Sample Location	Monitoring Well Depth (mbgs)	Depth to Water (mbgs)	Elevation at ground surface (masl)	Groundwater Elevation (masl)	Date (dd/mm/yy)
BHMW15-1	1.2	0.532	N/A	N/A	05/08/22
BHMW15-2	4.6	3.153	96.192	93.039	05/08/22
BHMW15-3	4.6	3.319	96.122	92.803	05/08/22
BHMW15-4	5.3	3.898	97.017	93.119	05/08/22
BHMW22-1	6.90	4.797	97.769	92.972	05/08/22
BHMW22-2	4.97	2.486	95.962	93.476	05/08/22



# 9 Statement of Limitations

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The findings, recommendations, suggestions, or opinions expressed in this Report reflect the Company’s best professional judgement based on observations and/or information reasonably available at the time the work was performed, as appropriate for the scope, work schedule and budgetary constraints established by the Client. No other warranty or representation, expressed or implied, is included in this Report including, but not limited to, that the Report deals with all issues potentially applicable to the site and/or that the Report deals with any and all of the important features of the Site, except as expressly provided in the scope of work.

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Since the passage of time, natural occurrences, and direct or indirect human intervention may affect the views, conclusions, and recommendations (if any) provided in the Report, it is intended for immediate use.



The conclusions presented herein are based on information gathered from a limited historical review of readily available geological, historical, and regulatory information and a field inspection program. Sampling and analysis of soil, ground water, or any other material was not carried out as part of this assessment. Consequently, the presence and/or extent of any adverse environmental impact cannot be verified. The potential for environmental liability and/or environmental impact is an opinion that has been arrived at within the scope of this assessment.

Any results from laboratory or other subcontractors reported herein have been carried out by others, and the Company cannot warrant their accuracy.

While every effort has been made to use reliable and multiple sources, Englobe makes no guaranty of the accuracy or completeness of any third-party information available to us at the time of preparing this report.

More exhaustive examinations including hydrogeological or subsurface investigations may reveal conditions not apparent at the time of this assessment. This assessment is subject to any restrictions placed by physical obstructions, precipitation, denied access, inaccessible areas, time constraints, cost constraints, readily available documentation, safety considerations, confidentiality, and availability of knowledgeable individuals for interview purposes.

This Statement of Limitations forms an integral part of the report.

# Appendix A

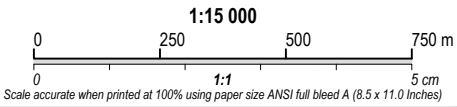
# Legal Survey & Figures







Source:  
Bing Maps 2022



**Note**

1. This drawing shall be read in conjunction with the associated technical report.

**DRAFT**

A	2022/11/28	Preliminary	
Revision	Date	Issue	Approval

Client <b>Canada Lands Company CLC Limited</b>		Site <b>1495 Heron Road, Ottawa, ON</b>	
	Report Title <b>Phase Two Environmental Site Assessment 1495 Heron Road, Ottawa, ON</b>	Designed By <b>AC</b>	Date <b>November 2022</b>
	Drawing Title <b>Site Location Map</b>	Drawn By <b>JM</b>	Project No. <b>02111459.000</b>
		Approved By	Figure No. <b>1</b>
		Scale <b>As shown</b>	

Drawing: 1 Site Location.mxd Folder: L:\TSCAD\Projects\Vantage Point\02111459 Heron Rd\2021 Phase II ESA\DWGS Monday, November 28, 2022 @ 15:32 by Joven Mendoza





Drawing: 2 PCA.dwg Folder: L:\TSCAD\Projects\Vantage Point\02111459\_Heron Rd\2021 Phase I\ESAD\DWGs Monday, November 28, 2022 @ 15:32 by Joven Mendoza

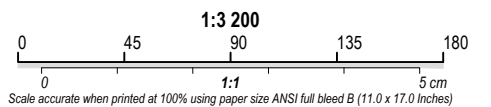


PCA #	O.Reg 153/04 Schedule D Table 2 No.	PCA Location
1	PCA No. 28 - Gasoline and Associated Products in Fixed Storage Tanks	On-Site
2	PCA No. 28 - Gasoline and Associated Products in Fixed Storage Tanks	On-Site
3	PCA No. 8 - Chemical Manufacturing, Processing and Bulk Storage	On-Site
4	PCA No. 8 - Chemical Manufacturing, Processing and Bulk Storage	On-Site
5	Undefined PCA No. - Spill greater than 25L	180m South of the Site
6	PCA No. 28 - Gasoline and Associated Products in Fixed Storage Tanks	On-Site and South of Site
7	Undefined PCA No. - Roadway Salting Activities	On-Site



**Note**  
 1. This drawing shall be read in conjunction with the associated technical report.

**Legend**  
 — Property limits  
 - - - Phase one study area - 250 m buffer  
 ① Potentially Contaminating Activity



Revision	Date	Issue	Approval
A	2022/11/28	Preliminary	

Client  
**Canada Lands Company CLC Limited**

Site  
**1495 Heron Road, Ottawa, ON**

Report Title  
**Phase Two Environmental Site Assessment  
 1495 Heron Road, Ottawa, ON**

Drawing Title  
**Potentially Contaminating Activities (PCAs)**

Designed By	<b>AC</b>	Scale	<b>As shown</b>
Drawn By	<b>JM</b>	Date	<b>November 2022</b>
Approved By		Project No.	<b>02111459.000</b>

Figure No. **2** **DRAFT**





APEC #	Location of APEC On Site	Contaminants of Potential Concern (COPCs)	Potentially Impacted Media
1	North of Building B	PHCs, BTEX	Soil & Groundwater
2	Within Building A	PHCs, BTEX	Soil & Groundwater
3	Southwest Perimeter of Site	PHCs, BTEX, VOCs	Soil & Groundwater
4	Throughout the Site	EC, SAR, Sodium, Chloride	Soil & Groundwater

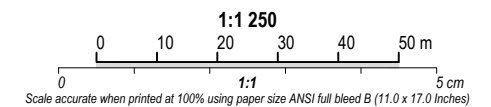


**Note**

- This drawing shall be read in conjunction with the associated technical report.

**Legend**

- Property limits (APEC 4)
- APEC 1 (Investigated by DST, 2015)
- APEC 2 (Investigated by DST, 2015)
- APEC 3
- Existing monitoring well location (DST, 2015)
- Monitoring well location (Englobe, 2022)



Revision	Date	Issue	Approval
A	2022/11/28	Preliminary	

Client: **Canada Lands Company CLC Limited**

Site: **1495 Heron Road, Ottawa, ON**

Report Title: **Phase Two Environmental Site Assessment  
1495 Heron Road, Ottawa, ON**

Drawing Title: **Areas of Potential Environmental Concern (APECs)  
and Borehole / Monitoring Well Location Plan**

Designed By	<b>AC</b>	Scale	<b>As shown</b>
Drawn By	<b>JM</b>	Date	<b>November 2022</b>
Approved By		Project No.	<b>02111459.000</b>

Figure No. **3** **DRAFT**

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Source: Bing Maps 2022



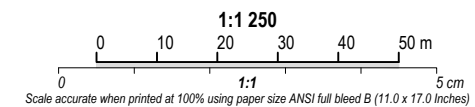


**Note**

1. This drawing shall be read in conjunction with the associated technical report.

**Legend**

- Property limits
- Existing monitoring well location (DST, 2015)
- Monitoring well location (Englobe, 2022)



<b>A</b>	2022/11/28	<b>Preliminary</b>	
<b>Revision</b>	<b>Date</b>	<b>Issue</b>	<b>Approval</b>

Client  
**Canada Lands Company CLC Limited**

Site  
**1495 Heron Road, Ottawa, ON**

Report Title  
**Phase Two Environmental Site Assessment  
1495 Heron Road, Ottawa, ON**

Drawing Title  
**Cross Section Locations**

Designed By	<b>AC</b>	Scale	<b>As shown</b>
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Drawn By	<b>JM</b>	Date	<b>November 2022</b>
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Approved By		Project No.	<b>02111459.000</b>
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Figure No.	<b>4</b>	<b>DRAFT</b>
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Drawing: 4-6 Section.dwg Folder: L:\TSCAD\Projects\Vantage Point\02111459 Heron Rd\2021 Phase II ESA\DWGs Monday, November 28, 2022 @ 15:32 by Joven Mendoza

Source:  
**Bing Maps 2022**

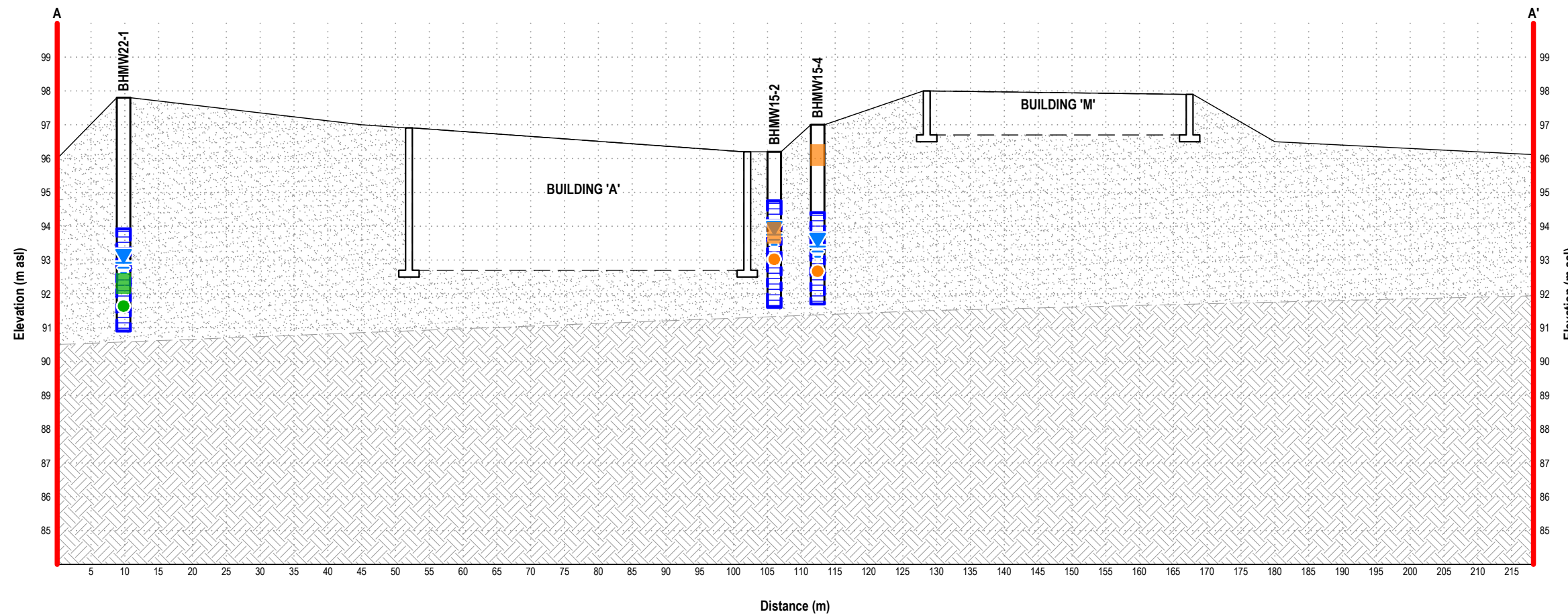


**Note**

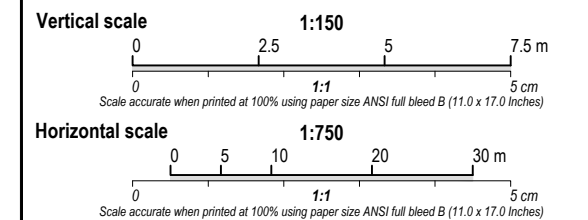
- This drawing shall be read in conjunction with the associated technical report.

**Legend**

- Property Limits
- Well Screen Interval
- Overburden
- Bedrock
- Groundwater Elevation
- Soil Sample Meets Applicable MECP Table 3 SCSs (2022)
- Soil Sample Meets Applicable MECP Table 3 SCSs (2015)
- Groundwater Sample Meets Applicable MECP Table 3 SCSs (2022)
- Groundwater Sample Meets Applicable MECP Table 3 SCSs (2015)



**SECTION A-A'**



<b>A</b>	<b>2022/11/28</b>	<b>Preliminary</b>	
<b>Revision</b>	<b>Date</b>	<b>Issue</b>	<b>Approval</b>

Client  
**Canada Lands Company CLC Limited**

Site  
**1495 Heron Road, Ottawa, ON**

Report Title  
**Phase Two Environmental Site Assessment  
1495 Heron Road, Ottawa, ON**

Drawing Title  
**Cross Section A - A'**

Designed By <b>AC</b>	Scale <b>As shown</b>
Drawn By <b>JM</b>	Date <b>November 2022</b>
Approved By	Project No. <b>02111459.000</b>

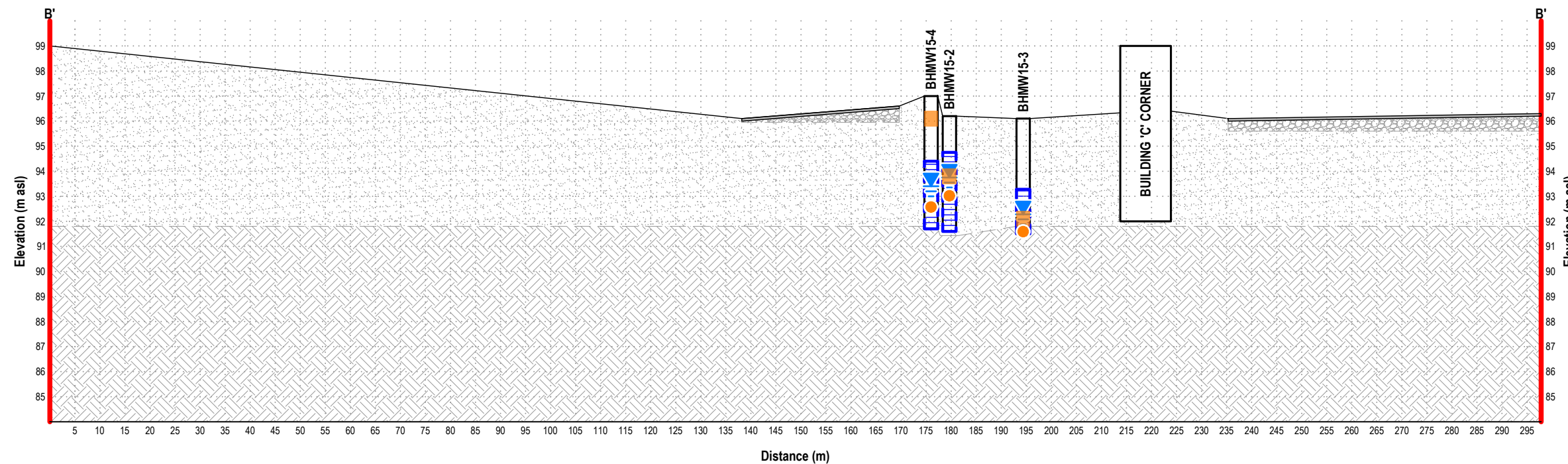
Figure No. **5** **DRAFT**

**Note**

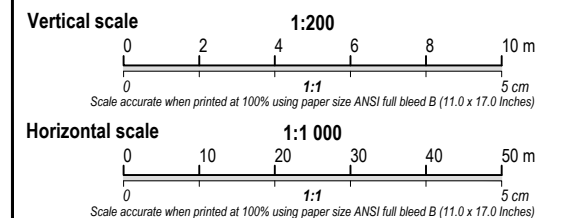
- This drawing shall be read in conjunction with the associated technical report.

**Legend**

- Property Limits
- Well Screen Interval
- Groundwater Elevation
- Overburden
- Bedrock
- Granular
- Asphalt
- Soil Sample Meets Applicable MECP Table 3 SCSs (2015)
- Groundwater Sample Meets Applicable MECP Table 3 SCSs (2015)



**SECTION B-B'**



<b>A</b>	2022/11/28	Preliminary	
Revision	Date	Issue	Approval

Client: **Canada Lands Company CLC Limited**

Site: **1495 Heron Road, Ottawa, ON**

Report Title: **Phase Two Environmental Site Assessment  
1495 Heron Road, Ottawa, ON**

Drawing Title: **Cross Section B - B'**

Designed By	<b>AC</b>	Scale	<b>As shown</b>
Drawn By	<b>JM</b>	Date	<b>November 2022</b>
Approved By		Project No.	<b>02111459.000</b>

Figure No. **6** **DRAFT**








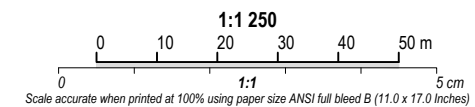


**Note**

1. This drawing shall be read in conjunction with the associated technical report.

**Legend**

-  Property limits
-  Existing monitoring well location and groundwater elevation (masl)
-  Monitoring well location and groundwater elevation (masl)
-  Groundwater contour and elevation (Measured August 2022)
-  Interpreted groundwater flow direction (Measured August 2022)



<b>A</b>	2022/11/28	Preliminary	
Revision	Date	Issue	Approval

Client: **Canada Lands Company CLC Limited**

Site: **1495 Heron Road, Ottawa, ON**

Report Title: **Phase Two Environmental Site Assessment  
1495 Heron Road, Ottawa, ON**

Drawing Title: **Groundwater Contours and  
Interpreted Flow Direction**

Designed By	<b>AC</b>	Scale	<b>As shown</b>
Drawn By	<b>JM</b>	Date	<b>November 2022</b>
Approved By		Project No.	<b>02111459.000</b>

Figure No. **7** **DRAFT**

Drawing: 7 GW Contours.dwg Folder: L:\TSCAD\Projects\Vantage Point\02111459 Heron Rd\2021 Phase II ESA\DWGs Monday, November 28, 2022 @ 15:32 by Joven Mendoza

Source:  
**Bing Maps 2022**



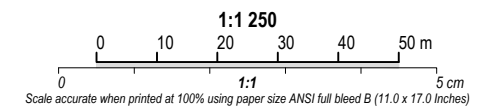


**Note**

1. This drawing shall be read in conjunction with the associated technical report.

**Legend**

- Property limits
- Soil sample meets applicable MECP Table 3 RPI SCS
- Soil sample meets applicable MECP Table 3 RPI SCS (DST, 2015)



<b>A</b>	<b>2022/11/28</b>	<b>Preliminary</b>	
<b>Revision</b>	<b>Date</b>	<b>Issue</b>	<b>Approval</b>

Client  
**Canada Lands Company CLC Limited**

Site  
**1495 Heron Road, Ottawa, ON**

Report Title  
**Phase Two Environmental Site Assessment  
1495 Heron Road, Ottawa, ON**

Drawing Title  
**Parameter Specific Sampling for VOCs in Soil**

Designed By <b>AC</b>	Scale <b>As shown</b>
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Drawn By <b>JM</b>	Date <b>November 2022</b>
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Approved By	Project No. <b>02111459.000</b>
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Figure No. <b>8</b>	<b>DRAFT</b>
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Monday, November 28, 2022 @ 15:32 by Joven Mendoza

Folder: L:\TSCAD\Projects\Vantage Point\0211459 Heron Rd\2021 Phase II ESA\DWGs

Source:  
**Bing Maps 2022**



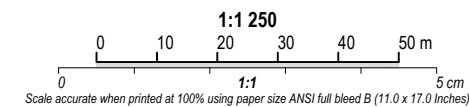


**Note**

1. This drawing shall be read in conjunction with the associated technical report.

**Legend**

- Property limits
- Soil sample meets applicable MECP Table 3 RPI SCS
- Soil sample meets applicable MECP Table 3 RPI SCS (DST, 2015)



<b>A</b>	<b>2022/11/28</b>	<b>Preliminary</b>	
<b>Revision</b>	<b>Date</b>	<b>Issue</b>	<b>Approval</b>

Client  
**Canada Lands Company CLC Limited**

Site  
**1495 Heron Road, Ottawa, ON**

Report Title  
**Phase Two Environmental Site Assessment  
1495 Heron Road, Ottawa, ON**

Drawing Title  
**Parameter Specific Sampling for PHCs in Soil**

Designed By <b>AC</b>	Scale <b>As shown</b>
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Drawn By <b>JM</b>	Date <b>November 2022</b>
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Approved By	Project No. <b>02111459.000</b>
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Figure No.	<b>9</b>	<b>DRAFT</b>
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Monday, November 28, 2022 @ 15:32 by Joven Mendoza

Folder: L:\TSCAD\Projects\Vantage Point\0211459 Heron Rd\2021 Phase II ESA\DWGs

Source:  
**Bing Maps 2022**



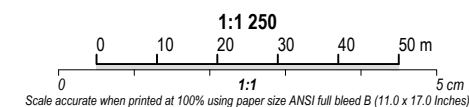


**Note**

1. This drawing shall be read in conjunction with the associated technical report.

**Legend**

- Property limits
- Groundwater sample meets applicable MECP Table 3 RPI SCS
- Groundwater sample meets applicable MECP Table 3 RPI SCS (DST, 2015)



<b>A</b>	<b>2022/11/28</b>	<b>Preliminary</b>	
<b>Revision</b>	<b>Date</b>	<b>Issue</b>	<b>Approval</b>

Client  
**Canada Lands Company CLC Limited**

Site  
**1495 Heron Road, Ottawa, ON**

Report Title  
**Phase Two Environmental Site Assessment  
1495 Heron Road, Ottawa, ON**

Drawing Title  
**Parameter Specific Sampling for  
VOCs in Groundwater**

Designed By	<b>AC</b>	Scale	<b>As shown</b>
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Drawn By	<b>JM</b>	Date	<b>November 2022</b>
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Approved By		Project No.	<b>02111459.000</b>
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Figure No.	<b>10</b>	<b>DRAFT</b>
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Drawing: 10 VOC in GW.dwg Folder: L:\TSCAD\Projects\Vantage Point\02111459 Heron Rd\2021 Phase II ESA\DWGs Monday, November 28, 2022 @ 15:32 by Joven Mendoza

Source:  
**Bing Maps 2022**



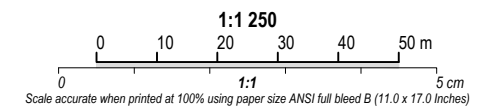


**Note**

1. This drawing shall be read in conjunction with the associated technical report.

**Legend**

- Property limits
- Groundwater sample meets applicable MECP Table 3 RPI SCS
- Groundwater sample meets applicable MECP Table 3 RPI SCS (DST, 2015)



<b>A</b>	<b>2022/11/28</b>	<b>Preliminary</b>	
<b>Revision</b>	<b>Date</b>	<b>Issue</b>	<b>Approval</b>

Client  
**Canada Lands Company CLC Limited**

Site  
**1495 Heron Road, Ottawa, ON**

Report Title  
**Phase Two Environmental Site Assessment  
1495 Heron Road, Ottawa, ON**

Drawing Title  
**Parameter Specific Sampling for  
PHCs in Groundwater**

Designed By <b>AC</b>	Scale <b>As shown</b>
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Drawn By <b>JM</b>	Date <b>November 2022</b>
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Approved By	Project No. <b>02111459.000</b>
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Figure No.	<b>11</b>	<b>DRAFT</b>
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Drawing: 11 PHC in GW.dwg Folder: L:\TSCAD\Projects\Vantage Point\02111459 Heron Rd\2021 Phase II ESA\DWGs Monday, November 28, 2022 @ 15:32 by Joven Mendoza

Source:  
**Bing Maps 2022**







# Appendix B

## Sampling & Analysis Plan



**eNGLOBE**



## Sampling and Analysis Plan

### Introduction

This Appendix presents the Sampling and Analysis Plan (SAAP) that was developed in support of the Phase Two Environmental Site Assessment (ESA) for the property located at 1495 Heron Road in Ottawa, Ontario (herein referred to as the “Site” or the “Phase Two Property”). The Phase Two ESA will be conducted to update the existing Phase Two ESA (DST Consulting Engineers, 2015) and evaluate the presence/absence of contamination on Site, in the three Areas of Potential Environmental Concern (APECs) that were identified in the Phase One ESA report (Englobe, 2022) and will be used as supporting documentation for the filing of an RSC for the Site. The SAAP presents the procedures and methodology that will be undertaken during field investigative activities to characterize the Site conditions and meet the data quality objectives of the Phase Two ESA.

The SAAP presents the sampling program proposed for the Site, the recommended procedures and protocols for sampling and related field activities, the data quality objectives, and the quality assurance/quality control measures that will be undertaken to provide for the collection of accurate, reproducible, and representative data.

### Field Sampling Program

The field sampling program was developed to provide guidance for the collection of soil and groundwater samples at the Site. Samples of subsurface soil materials will be analyzed for chemical analysis of petroleum hydrocarbons (PHCs), benzene, toluene, ethylbenzene and xylenes (‘BTEX’), and volatile organic compounds (VOCs). The soil sampling will be location-specific based on the identification of APECs. Vapour readings will be collected in the field to determine which samples shall be submitted for BTEX and PHC F1-F2 analysis. Soil sample intervals will extend from the surface up to a maximum depth of approximately 6 meters below grade surface (mbgs).

The groundwater sampling will be location specific to assess for the potential presence of PHCs and VOCs, based on the identification of APECs.

In 2022, two additional boreholes will be advanced on Site, both of which are to be instrumented with groundwater monitoring wells (BHMW2022-01 through BHMW2022-02). Three soil samples (including one duplicate) and four groundwater samples (including one duplicate and one field blank) will be collected during the investigation and submitted for laboratory analysis of various Potential Contaminants of Potential Concern (PCOCs).

An elevation survey is to be completed, to obtain surveyed elevations of the boreholes and monitoring wells. Groundwater flow and direction in the water table aquifer will also be determined through groundwater level measurements and the elevations established from the Site elevation survey.

### Field Methods

To meet the requirements of the field sampling program, the following field investigative methods will be undertaken:

- Borehole drilling;
- Soil screening and sampling;
- Monitoring well installation;
- Monitoring well development;
- Groundwater level measurements;





- Groundwater sampling; and,
- Elevation survey.

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

## Borehole Drilling

Boreholes will be advanced at the Site to facilitate the collection of soil samples for chemical analysis and geologic characterization, and for the installation of groundwater monitoring wells. During drilling activities, rigs will be equipped with a soil sampling device, which will allow for continuous soil sampling in the overburden. Decontamination of the split spoons and/or the use of clean soil sample sleeves will be completed between each sample to minimize the potential for cross-contamination. The borehole locations will be selected to determine the presence or absence of impacts in the soils and groundwater on Site in relation to the APECs outlined in Englobe's Phase One ESA report (Englobe, 2022).

Prior to borehole drilling, utility clearances will be obtained from public and private locators, as required. If any uncertainty regarding the location of a buried utility at a borehole location is encountered, hang augering or digging will be performed beforehand to confirm the presence or absence of the utility.

## Soil Screening and Sampling

Soil samples will be collected for chemical analysis and geologic property characterization. Upon retrieval from the boreholes, the split spoons or vinyl sampling tubes will be placed on a flat surface and disassembled by drilling personnel to provide access of the recovered cores. The recovered cores will be logged in the field for texture, odour, moisture, and visual appearance (staining). An RKI Eagle 2 multi-gas detector or similar equipment will be utilized to screen the soil samples for combustible vapour concentrations (CVC). Representative worst-case soil samples from each borehole will be collected and submitted to a certified laboratory for analysis based on CVC field-screening measurements, sample depth, visual and/or olfactory field observations.

Soil samples are to be placed directly into laboratory-supplied sample jars and vials. Samples to be submitted for laboratory analysis of PHCs F2-F4, PAHs, metals and inorganics are placed in unpreserved 120 mL clear glass jars with Teflon lids, while samples to be submitted for laboratory analysis of volatile compounds (PHC F1 and VOCs, including BTEX) are collected using disposable soil plug sample collectors supplied by the laboratory. The soil plugs are then placed in laboratory-supplied vials that contain measured volumes of methanol for sample preservation. All soil sample containers will be labelled with the Englobe project number and site name, borehole identification, and sampling date. The samples will then be placed in clean laboratory-supplied coolers, to store and maintain the samples at a temperature below 10°C. New powder-free nitrile gloves will be donned by the Englobe technician prior to the handling of each sample, to eliminate cross-contamination.

Based on visual and olfactory observations, CVC field-screening measurements, and the position of the collected soil samples with respect to the inferred groundwater table, select soil samples will be submitted under a Chain of Custody protocol, to an accredited CALA laboratory for chemical analysis of PCOCs.

## Monitoring Well Installation

Two additional boreholes (BHMW2022-01 and BHMW2022-02) will be instrumented with groundwater monitoring wells. The wells will be constructed of a 2" diameter polyvinyl chloride (PVC) pipe and a slotted 10' PVC well screen, placed to intercept the inferred groundwater table. A sand-pack consisting of clean silica sand will be placed within the annular space surrounding the screened section of the wells, and bentonite chips will be added



from the top of the sand layer to within approximately 0.3 m of the surface to minimize the potential for cross-contamination. A locking J-Plug cap will be placed at the top of each well pipe and a protective monument steel casing will be installed to protect the well.

## Monitoring Well Development

Following monitoring well installation activities, the wells are to be equipped with dedicated low-density polyethylene (LDPE) Waterra™ tubing (approximately 1.25 cm in diameter) and inertial lift foot valves for well development purposes. The wells will be developed until approximately 3 well volumes of water will be removed and/or until purged dry. Monitoring wells are developed to remove any groundwater impacted by drilling activities and to reduce the amount of sediment within the wells. All purge water will be collected and stored in labeled, sealed containers on Site.

## Groundwater Level Measurements

Englobe field personnel will collect groundwater level measurements from the installed monitoring wells prior to groundwater sampling activities. The water levels will be measured using a Solinst Canada Ltd. Model 122 oil/water interface meter which is also used to confirm the presence/absence of light and/or dense non-aqueous phase liquids (LNAPLs and DNAPLs) in the groundwater. The electronic interface probe will be decontaminated (washed with phosphorous-free soap and rinsed with distilled water) prior to the collection of each groundwater level measurement.

## Field Measurements of Water Quality Parameters

Prior to collecting the groundwater sample, field measurements of water quality parameters will be recorded from the monitoring wells. Field measurements of dissolved oxygen concentration, electrical conductivity, oxidation-reduction potential, pH, temperature, turbidity and water levels will be recorded. Equipment used during groundwater monitoring will be thoroughly cleaned and decontaminated between wells.

## Groundwater Sampling

All sampling events will be done using low flow sampling techniques, a Horiba™ U52 multi-parameter water quality meter, submersible (bladder) pump, and dedicated LDPE tubing. Groundwater samples will be collected directly into laboratory-supplied vials or bottles provided with analytical test group specific preservatives, as required. All groundwater sample containers are to be labelled with the Englobe project number and site name, monitoring well identification, and sampling date, and then placed in clean laboratory-supplied coolers, to store and maintain the samples at a temperature below 10°C.

Prior to the collection of each groundwater sample, the bladder pump and other sampling equipment are to be decontaminated with phosphorous-free soap and distilled water, followed by a distilled water rinse. New powder-free nitrile gloves will be used by the Englobe technician prior to the handling of each sample, to eliminate cross-contamination.

## Elevation Survey

An elevation survey will be conducted by Englobe personnel using a Trimble R12 GPS system to obtain accurate location and elevation data of the newly installed monitoring wells and boreholes.



## Field Quality Assurance/Quality Control Program

Englobe maintains a standard Quality Assurance/ Quality Control (QA/QC) program for environmental investigations. All project documentation was maintained and controlled by the appointed field supervisor. All borehole advancement and soil and groundwater sampling were completed in accordance with industry standards, and applicable provincial standards/guidelines.

The objective of the field quality assurance/quality control (QA/QC) program is to obtain soil and groundwater samples and other field measurements that provide data of acceptable quality that meets the objectives of the Phase Two ESA. The objectives of the QA/QC program are achieved through the implementation of procedures for the collection of unbiased (i.e., non-contaminated) samples, sample documentation and the collection of appropriate QC samples to provide a measure of sample reproducibility and accuracy. The field QA/QC measures comprise of:

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

Details on the field QA/QC measures are provided below.

### Decontamination Protocols

The potential for cross-contamination between samples was minimized by, where applicable, washing sampling tools with phosphorous-free soap and water, followed by rinsing with distilled water, and by wearing new disposable nitrile gloves prior to the handling of each sample.

### Equipment Calibration

All field screening instruments (i.e., RKI Eagle™ vapour meter and the water quality meter) were calibrated prior to arriving on Site.

### Sample Preservation

All soil and groundwater samples are to be preserved using appropriate analytical test group specific reagents, as required, and upon collection were placed in ice-packed coolers prior to being shipped, under a Chain of Custody (COC) protocol, to an accredited CALA laboratory for chemical analysis.

### Sample Documentation

All samples are to be assigned a unique identification number, which is to be recorded along with the date, time, project number, company name, location and requested analysis in a bound field notebook. All samples will be handled and transported following COC protocols.

### Field Quality Control

The field QA/QC program will include the submission of one blind field duplicate groundwater sample and one blind field duplicate soil sample. In addition, one trip blank (QC) and one field blank will be submitted for the 2022 VOC groundwater sampling event.



The following written procedures and referenced methods incorporating QA/QC protocols. Chemical analyses for specific analytical test groups were performed in accordance with the MOE 2011 document *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*. Analytical test group specific quality control samples were prepared and analyzed by the contractual laboratory including:

- Duplicates to evaluate method reproducibility and sample homogeneity;
- Method blanks to evaluate potential bias;
- Spike blanks to evaluate method accuracy and bias;
- Matrix spikes to evaluate extraction efficiency and matrix interferences; and,
- Surrogate samples to evaluate extraction efficiency.

Quality control results evaluated by the contractual laboratory were compared to applicable alert and control criteria and are presented in the quality control reports accompanying the Certificates of Analysis as presented in Appendix E of the Phase Two ESA report.

# Appendix C

## Borehole Logs



eNGLOBE



# BHMW22-02

Englobe Project #	02111459.000	Date	July 22, 2022
Client	Canada Lands Company CLC Limited	Method	Hollow Stem Auger
Project	Phase Two Environmental Site Assessment	Diameter	200 mm
Address	1495 Heron Road Complex, Ottawa, ON	Coordinates	5025351 m N, 448874 m E
		Surface Elevation	95.96 m

Depth (m)	Elevation (m)	Water level	Well construction	Depth (m) Elevation (m)	Symbol	Material Description	Sample #	Sample Type	% Sample Recov.	CHVC / PID		Analysis					Remarks
										CHVC	PID	PAHs	PHC/BTEX	Metals	VOCs	Others	
0.5	95.96			0 95.96		SAND - some gravel, dark brown, loose, dry	1		50								
1.0	95.36			0.6 95.36		CLAY - firm, dark brown, moist	2		30	1 ppm							
1.5	94.56			1.4 94.56		SILTY CLAY - stiff, dark brown, damp	3		70	15 ppm							
2.5	93.47	93.47					4		30	35 ppm		✓			✓		Groundwater level at 2.49 mbgs on August 5, 2022.
3.0	93.06			2.9 93.06		CLAYEY SILT - some cobbles, stiff, dark brown, damp	5		70	25 ppm							
4.0	92.31			3.65 92.31		SHALE - crushed	6		10	35 ppm							

End of Borehole at 4.10 m.

Template: DST - ENVIRONMENTAL LOG SHEET A1 Date: September 1, 2022  
 File: D:\JOVEN ONEDRIVE\ONEDRIVE - ENGLOBE CORP\WORK\02111459 HERON RD\GINT FILES\02111459 HERON RD PHASE II ESA.GPJ





# Appendix D

## Laboratory Analytical Data



eNGLOBE

**Table D-1. Summary of analytical soil results.**

Parameter	MECP Table 3 SCS (µg/g)	MW22-01	MW22-01 SS8	MW22-02 SS4	MW-01 (dup of MW22-01)
		0 - 0.6m bgs	5.9 - 6.5m bgs	2.2 - 2.8m bgs	5.9 - 6.5m bgs
		12-Sep-2022	22-Jul-2022	22-Jul-2022	22-Jul-2022
pH	NG	7.20	-	-	-
<b>Petroleum Hydrocarbons (PHCs)</b>					
F1 (C6-C10) - BTEX	55	-	12	<10	10
F1 PHCs (C6-C10)	55	-	12	<10	10
F2 (C10-C16 Hydrocarbons)	98	-	24	40	27
F3 (C16-C34 Hydrocarbons)	300	-	<50	54	<50
F4 (C34-C50 Hydrocarbons)	2800	-	<50	<50	<50
<b>Volatile Organic Compounds (VOCs)</b>					
Acetone (2-Propanone)	16	-	<0.49	<0.49	<0.49
Benzene	0.21	-	<0.0060	<0.0060	<0.0060
Bromodichloromethane	13	-	<0.040	<0.040	<0.040
Bromoform	0.27	-	<0.040	<0.040	<0.040
Bromomethane	0.05	-	<0.040	<0.040	<0.040
Carbon Tetrachloride	0.05	-	<0.040	<0.040	<0.040
Chlorobenzene	2.4	-	<0.040	<0.040	<0.040
Chloroform	0.05	-	<0.040	<0.040	<0.040
Dibromochloromethane	9.4	-	<0.040	<0.040	<0.040
Dichlorodifluoromethane (FREON 12)	16	-	<0.040	<0.040	<0.040
1,2-Dichlorobenzene	3.4	-	<0.040	<0.040	<0.040
1,3-Dichlorobenzene	4.8	-	<0.040	<0.040	<0.040
1,4-Dichlorobenzene	0.083	-	<0.040	<0.040	<0.040
1,1-Dichloroethane	3.5	-	<0.040	<0.040	<0.040
1,2-Dichloroethane	0.05	-	<0.049	<0.049	<0.049
1,1-Dichloroethylene	0.05	-	<0.040	<0.040	<0.040
cis-1,2-Dichloroethylene	3.4	-	<0.040	<0.040	<0.040
trans-1,2-Dichloroethylene	0.084	-	<0.040	<0.040	<0.040
1,2-Dichloropropane	0.05	-	<0.040	<0.040	<0.040
cis-1,3-Dichloropropene	NG	-	<0.030	<0.030	<0.030
trans-1,3-Dichloropropene	NG	-	<0.040	<0.040	<0.040
1,3-Dichloropropene (cis+trans)	0.05	-	<0.050	<0.050	<0.050
Ethylbenzene	2	-	<0.010	<0.010	<0.010
Ethylene Dibromide	0.05	-	<0.040	<0.040	<0.040
Hexane	2.8	-	<0.040	<0.040	<0.040
Methyl Ethyl Ketone (2-Butanone)	16	-	<0.40	<0.40	<0.40
Methyl Isobutyl Ketone	1.7	-	<0.40	<0.40	<0.40
Methyl t-butyl ether (MTBE)	0.75	-	<0.040	<0.040	<0.040
Methylene Chloride(Dichloromethane)	0.1	-	<0.049	<0.049	<0.049
Styrene	0.7	-	<0.040	<0.040	<0.040
1,1,1,2-Tetrachloroethane	0.058	-	<0.040	<0.040	<0.040
1,1,2,2-Tetrachloroethane	0.05	-	<0.040	<0.040	<0.040
Tetrachloroethylene	0.28	-	<0.040	<0.040	<0.040
Toluene	2.3	-	<0.020	<0.020	<0.020
1,1,1-Trichloroethane	0.38	-	<0.040	<0.040	<0.040
1,1,2-Trichloroethane	0.05	-	<0.040	<0.040	<0.040
Trichloroethylene	0.061	-	<0.010	<0.010	<0.010
Trichlorofluoromethane (FREON 11)	4	-	<0.040	<0.040	<0.040
Vinyl Chloride	0.02	-	<0.019	<0.019	<0.019
p+m-Xylene	NG	-	<0.020	<0.020	<0.020
o-Xylene	NG	-	<0.020	<0.020	<0.020
Total Xylenes	3.1	-	<0.020	<0.020	<0.020

**NOTES:**

NG No guideline available

MECP Table 3 SCS (µg/g) Ontario Ministry of the Environment, Conservation, and Parks (MECP), "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act", April 2011. Table 3: Full Depth Generic Site Condition Standards (SCS) in a Non-Potable Ground Water Condition; Residential/Parkland/Institutional Property Use (Coarse textured soils)

< Below laboratory reportable detection limit (RDL) (value indicated).



Table D-2. Summary of analytical groundwater results.

Parameter	MECP Table 3 SCS (µg/L)	MW22-01	MW22-02	MW-01 (dup of MW22-01)	Field Blank
		26-Jul-2022	26-Jul-2022	26-Jul-2022	26-Jul-2022
<b>Petroleum Hydrocarbons (PHCs)</b>					
F1 (C6-C10) - BTEX	750	<25	<25	<25	-
F1 PHCs (C6-C10)	750	<25	<25	<25	-
F2 (C10-C16 Hydrocarbons)	150	<100	<100	<100	-
F3 (C16-C34 Hydrocarbons)	500	<200	<200	<200	-
F4 (C34-C50 Hydrocarbons)	500	<200	<200	<200	-
<b>Volatile Organic Compounds (VOCs)</b>					
Acetone (2-Propanone)	130000	<10	34	11	<10
Benzene	44	<0.17	0.2	<0.17	<0.20
Bromodichloromethane	85000	<0.50	<0.50	<0.50	<0.50
Bromoform	380	<1.0	<1.0	<1.0	<1.0
Bromomethane	5.6	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	0.79	<0.20	<0.20	<0.20	<0.19
Chlorobenzene	630	<0.20	<0.20	<0.20	<0.20
Chloroform	2.4	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	82000	<0.50	<0.50	<0.50	<0.50
1,2-Dichlorobenzene	4600	<0.50	<0.50	<0.50	<0.40
1,3-Dichlorobenzene	9600	<0.50	<0.50	<0.50	<0.40
1,4-Dichlorobenzene	8	<0.50	<0.50	<0.50	<0.40
Dichlorodifluoromethane (FREON 12)	4400	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	320	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	1.6	<0.50	<0.50	<0.50	<0.49
1,1-Dichloroethylene	1.6	<0.20	<0.20	<0.20	<0.20
cis-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethylene	1.6	<0.50	<0.50	<0.50	<0.50
1,2-Dichloropropane	16	<0.20	<0.20	<0.20	<0.20
cis-1,3-Dichloropropene	NG	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	NG	<0.40	<0.40	<0.40	<0.40
1,3-Dichloropropene (cis+trans)	5.2	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	2300	<0.20	<0.20	<0.20	<0.20
Ethylene Dibromide	0.25	<0.20	<0.20	<0.20	<0.19
Hexane	51	<1.0	<1.0	<1.0	<1.0
Methylene Chloride(Dichloromethane)	610	<2.0	<2.0	<2.0	<2.0
Methyl Ethyl Ketone (2-Butanone)	470000	<10	14	<10	<10
Methyl Isobutyl Ketone	140000	<5.0	<5.0	<5.0	<5.0
Methyl t-butyl ether (MTBE)	190	<0.50	<0.50	<0.50	<0.50
Styrene	1300	<0.50	<0.50	<0.50	<0.40
1,1,1,2-Tetrachloroethane	3.3	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	3.2	<0.50	<0.50	<0.50	<0.40
Tetrachloroethylene	1.6	<0.20	<0.20	<0.20	<0.20
Toluene	18000	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	640	<0.20	<0.20	<0.20	<0.20
1,1,2-Trichloroethane	4.7	<0.50	<0.50	<0.50	<0.40
Trichloroethylene	1.6	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane (FREON 11)	2500	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	0.5	<0.20	<0.20	<0.20	<0.20
p+m-Xylene	NG	<0.20	<0.20	<0.20	<0.20
o-Xylene	NG	<0.20	<0.20	<0.20	<0.20
Total Xylenes	4200	<0.20	<0.20	<0.20	<0.20

**NOTES:**

NG

No guideline available

MECP Table 3 SCS (µg/L)

Ontario Ministry of the Environment, Conservation, and Parks (MECP), "Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act", April 2011. Table 3: Full Depth Generic Site Condition Standards (SCS) in a Non-Potable Ground Water Condition; All Types of Property Use)

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Below laboratory reportable detection limit (RDL) (value indicated).



Table D-3. Maximum Concentrations Table - Soil

Contaminant Name	Maximum Concentration *	Applicable Standard MECP 2011 Table 3	Unit of Measure	Location	Depth (m bgs)	Source	
<b>Petroleum Hydrocarbons (PHCs)</b>							
Benzene	<	0.0060	0.21	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Toluene	<	0.02	2.3	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Ethylbenzene	<	0.01	2.0	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Xylenes		0.1	3	µg/g	BH1	1.8 - 2.4	"CCME Phase II/III Environmental Site Assessment and Associated Activities" Intera Engineering Ltd, 2002.
PHC-F1 (C6 - C10)		15	55	µg/g	BHMW15-4	5.2 - 5.7	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". DST Consulting Engineers Inc, 2015
PHC-F2 (>C10 - C16)		40	98	µg/g	BHMW22-02	2.2 - 2.7	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
PHC-F3 (>C16 - C34)		54	300	µg/g	BHMW22-02	2.2 - 2.7	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
PHC-F4 (>C34 - C50)	<	50	2800	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
<b>Volatile Organic Compounds (VOCs)</b>							
Acetone	<	0.49	16	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Bromodichloromethane	<	0.040	13	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Bromoform	<	0.040	0.27	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Bromomethane	<	0.040	0.05	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Carbon Tetrachloride	<	0.040	0.05	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Chlorobenzene	<	0.040	2.4	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Chloroform	<	0.040	0.05	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Dibromochloromethane	<	0.040	9.4	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,2-Dichlorobenzene	<	0.040	3.4	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,3-Dichlorobenzene	<	0.040	4.8	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,4-Dichlorobenzene	<	0.040	0.1	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,1-Dichloroethane	<	0.040	3.5	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,2-Dichloroethane	<	0.049	0.05	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,1-Dichloroethylene	<	0.040	0.050	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Cis-1,2-Dichloroethylene	<	0.040	3.4	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Trans-1,2-Dichloroethylene	<	0.040	0.1	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,2-Dichloropropane	<	0.040	0.05	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Cis-1,3-Dichloropropylene	<	0.030	NV	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Trans-1,3-Dichloropropylene	<	0.040	NV	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Ethylene Dibromide	<	0.040	0.05	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Methyl Ethyl Ketone	<	0.40	16	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Methylene Chloride	<	0.049	0.1	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Methyl Isobutyl Ketone	<	0.40	2	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Methyl-t-Butyl Ether	<	0.040	0.8	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Styrene	<	0.040	1	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,1,1,2-Tetrachloroethane	<	0.040	0.058	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,1,2,2-Tetrachloroethane	<	0.040	0.05	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Tetrachloroethylene	<	0.040	0.3	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,1,1-Trichloroethane	<	0.040	0.4	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,1,2-Trichloroethane	<	0.040	0.05	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Trichloroethylene	<	0.010	0.06	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Vinyl Chloride	<	0.019	0.020	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Dichlorodifluoromethane	<	0.040	16	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Hexane(n)	<	0.040	3	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Trichlorofluoromethane	<	0.040	4	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,3-Dichloropropene (cis + trans)	<	0.050	0.05	µg/g	Multiple	-	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022

MECP - Table 3 from "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (MECP, April, 2011)  
 for Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Soil - Residential/Parkland/Institutional Property Use (Coarse Texture)

NV - No guideline criteria available

- - Parameter not measured

Table D-3. Maximum Concentrations Table - Groundwater

Contaminant Name	Maximum Concentration	Applicable Standard MECP 2011 Table 3	Unit of Measure	Location	Source	
<b>Petroleum Hydrocarbons (PHCs)</b>						
Benzene	0.2	44	µg/L	BHMW22-02	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022	
Toluene	<	1.5	18000	µg/L	"MW"	"Groundwater Monitoring Program, Federal Study Centre, 1495 Heron Road, Ottawa, Ontario". AMEC Earth & Environmental, 2009
Ethylbenzene	<	0.2	2300	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Xylenes	<	0	4200	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
PHC-F1 (C6 - C10)	<	25	750	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
PHC-F1 (C6 - C10) - BTEX	<	25	750	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
PHC-F2 (>C10 - C16)	<	100	150	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
PHC-F3 (>C16 - C34)	<	600 <sup>1</sup>	500	µg/L	"MW"	"Groundwater Monitoring Program, Federal Study Centre, 1495 Heron Road, Ottawa, Ontario". AMEC Earth & Environmental, 2009
PHC-F4 (>C34 - C50)	<	200	500	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
<b>Volatile Organic Compounds</b>						
Acetone	<	34	130000	µg/L	BHMW22-02	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Bromodichloromethane	<	0.5	85000	µg/L	BHMW22-02	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Bromoform	<	1	380	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Bromomethane	<	0.5	5600	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Carbon Tetrachloride	<	0.2	0.79	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Chlorobenzene	<	0.2	630	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Chloroform	<	0.2	2.4	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Dibromochloromethane	<	0.5	82000	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,2-Dichlorobenzene	<	0.5	4600	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,3-Dichlorobenzene	<	0.5	9600	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,4-Dichlorobenzene	<	0.5	8	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,1-Dichloroethane	<	0.2	320	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,2-Dichloroethane	<	0.5	1.6	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,1-Dichloroethylene	<	0.2	1.6	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Cis-1,2-Dichloroethylene	<	0.5	1.6	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Trans-1,2-Dichloroethylene	<	0.5	1.6	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,2-Dichloropropane	<	0.2	16	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Cis-1,3-Dichloropropylene	<	0.3	NV	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Trans-1,3-Dichloropropylene	<	0.4	NV	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Ethylene Dibromide	<	0.2	0.3	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Methyl Ethyl Ketone	<	14	470000	µg/L	BHMW22-02	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Methylene Chloride	<	2	610	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Methyl Isobutyl Ketone	<	5	140000	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Methyl-t-Butyl Ether	<	0.5	190	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Styrene	<	0.5	1300	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,1,1,2-Tetrachloroethane	<	0.5	3.3	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,1,2,2-Tetrachloroethane	<	0.5	3	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Tetrachloroethylene	<	0.2	1.6	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,1,1-Trichloroethane	<	0.2	640	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,1,2-Trichloroethane	<	0.5	4.7	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Trichloroethylene	<	0.2	1.6	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Vinyl Chloride	<	0.2	0.5	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Dichlorodifluoromethane	<	1	4400	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Hexane(n)	<	1	51	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
Trichlorofluoromethane	<	0.5	2500	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022
1,3-Dichloropropene (cis + trans)	<	0.5	5	µg/L	Multiple	"Phase Two Environmental Site Assessment, 1495 Heron Road, Ottawa, Ontario". Englobe Corporation, 2022

MECP - Table 3 from "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (MECP, April, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, Soil - All Types of Property Use

NV - No guideline criteria available

1 - While the 2009 sample results exceed the applicable MECP Table 3 SCS, samples collected from later dates in the same vicinity of the MW are below the applicable SCS and thus, this is not considered an exceedance of the MECP Table 3 SCS

- Parameter not measured

# Appendix E

## Laboratory Certificates of Analysis



eNGLOBE



Your Project #: 2111459  
 Site Location: 1495 HERON  
 Your C.O.C. #: 887395-01-01

**Attention: Andrew Couturier**

Englobe Corp.  
 Ottawa - Standing Offer  
 2713 Lancaster Road  
 Unit 101  
 Ottawa, ON  
 CANADA K1B 5R6

**Report Date: 2022/08/02**  
 Report #: R7236043  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BUREAU VERITAS JOB #: C2K9078**

**Received: 2022/07/25, 13:00**

Sample Matrix: Soil  
 # Samples Received: 3

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
1,3-Dichloropropene Sum (1)	1	N/A	2022/07/29		EPA 8260C m
1,3-Dichloropropene Sum (1)	2	N/A	2022/07/30		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Soil (1, 2)	1	2022/07/28	2022/07/28	CAM SOP-00316	CCME CWS m
Petroleum Hydrocarbons F2-F4 in Soil (1, 2)	2	2022/07/28	2022/07/29	CAM SOP-00316	CCME CWS m
Moisture (1)	3	N/A	2022/07/27	CAM SOP-00445	Carter 2nd ed 51.2 m
Volatile Organic Compounds and F1 PHCs (1)	3	N/A	2022/07/29	CAM SOP-00230	EPA 8260C m

**Remarks:**

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested. This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd, Mississauga, ON, L5N 2L8

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





Your Project #: 2111459  
Site Location: 1495 HERON  
Your C.O.C. #: 887395-01-01

**Attention: Andrew Couturier**

Englobe Corp.  
Ottawa - Standing Offer  
2713 Lancaster Road  
Unit 101  
Ottawa, ON  
CANADA K1B 5R6

**Report Date: 2022/08/02**  
Report #: R7236043  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BUREAU VERITAS JOB #: C2K9078**

**Received: 2022/07/25, 13:00**

reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Katherine Szozda, Project Manager

Email: Katherine.Szozda@bureauveritas.com

Phone# (613)274-0573 Ext:7063633

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This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.

For Service Group specific validation please refer to the Validation Signature Page.



BUREAU  
VERITAS

Bureau Veritas Job #: C2K9078  
Report Date: 2022/08/02

Englobe Corp.  
Client Project #: 2111459  
Site Location: 1495 HERON  
Sampler Initials: S.T

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

Bureau Veritas ID		TGT717	TGT718		TGT719		
Sampling Date		2022/07/22 11:10	2022/07/22 13:30		2022/07/22 11:10		
COC Number		887395-01-01	887395-01-01		887395-01-01		
	UNITS	MW22-01 SS8 1495 HERON	MW22-02 SS4 1495 HERON	QC Batch	MW-01 1495 HERON	RDL	QC Batch
<b>Inorganics</b>							
Moisture	%	9.5	10	8133198	6.3	1.0	8133198
<b>Calculated Parameters</b>							
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	<0.050	8130952	<0.050	0.050	8130952
<b>Volatile Organics</b>							
Acetone (2-Propanone)	ug/g	<0.49	<0.49	8134919	<0.49	0.49	8134559
Benzene	ug/g	<0.0060	<0.0060	8134919	<0.0060	0.0060	8134559
Bromodichloromethane	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Bromoform	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Bromomethane	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Carbon Tetrachloride	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Chlorobenzene	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Chloroform	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Dibromochloromethane	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
1,2-Dichlorobenzene	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
1,3-Dichlorobenzene	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
1,4-Dichlorobenzene	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Dichlorodifluoromethane (FREON 12)	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
1,1-Dichloroethane	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
1,2-Dichloroethane	ug/g	<0.049	<0.049	8134919	<0.049	0.049	8134559
1,1-Dichloroethylene	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
cis-1,2-Dichloroethylene	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
trans-1,2-Dichloroethylene	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
1,2-Dichloropropane	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
cis-1,3-Dichloropropene	ug/g	<0.030	<0.030	8134919	<0.030	0.030	8134559
trans-1,3-Dichloropropene	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Ethylbenzene	ug/g	<0.010	<0.010	8134919	<0.010	0.010	8134559
Ethylene Dibromide	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Hexane	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Methylene Chloride(Dichloromethane)	ug/g	<0.049	<0.049	8134919	<0.049	0.049	8134559
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.40	<0.40	8134919	<0.40	0.40	8134559
Methyl Isobutyl Ketone	ug/g	<0.40	<0.40	8134919	<0.40	0.40	8134559
Methyl t-butyl ether (MTBE)	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Styrene	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
RDL = Reportable Detection Limit QC Batch = Quality Control Batch							



BUREAU  
VERITAS

Bureau Veritas Job #: C2K9078  
Report Date: 2022/08/02

Englobe Corp.  
Client Project #: 2111459  
Site Location: 1495 HERON  
Sampler Initials: S.T

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

Bureau Veritas ID		TGT717	TGT718		TGT719		
Sampling Date		2022/07/22 11:10	2022/07/22 13:30		2022/07/22 11:10		
COC Number		887395-01-01	887395-01-01		887395-01-01		
	<b>UNITS</b>	<b>MW22-01 SS8 1495 HERON</b>	<b>MW22-02 SS4 1495 HERON</b>	<b>QC Batch</b>	<b>MW-01 1495 HERON</b>	<b>RDL</b>	<b>QC Batch</b>
1,1,1,2-Tetrachloroethane	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
1,1,2,2-Tetrachloroethane	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Tetrachloroethylene	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Toluene	ug/g	<0.020	<0.020	8134919	<0.020	0.020	8134559
1,1,1-Trichloroethane	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
1,1,2-Trichloroethane	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Trichloroethylene	ug/g	<0.010	<0.010	8134919	<0.010	0.010	8134559
Trichlorofluoromethane (FREON 11)	ug/g	<0.040	<0.040	8134919	<0.040	0.040	8134559
Vinyl Chloride	ug/g	<0.019	<0.019	8134919	<0.019	0.019	8134559
p+m-Xylene	ug/g	<0.020	<0.020	8134919	<0.020	0.020	8134559
o-Xylene	ug/g	<0.020	<0.020	8134919	<0.020	0.020	8134559
Total Xylenes	ug/g	<0.020	<0.020	8134919	<0.020	0.020	8134559
F1 (C6-C10)	ug/g	12	<10	8134919	10	10	8134559
F1 (C6-C10) - BTEX	ug/g	12	<10	8134919	10	10	8134559
<b>F2-F4 Hydrocarbons</b>							
F2 (C10-C16 Hydrocarbons)	ug/g	24	40	8135800	27	10	8135800
F3 (C16-C34 Hydrocarbons)	ug/g	<50	54	8135800	<50	50	8135800
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	8135800	<50	50	8135800
Reached Baseline at C50	ug/g	Yes	Yes	8135800	Yes		8135800
<b>Surrogate Recovery (%)</b>							
o-Terphenyl	%	92	88	8135800	92		8135800
4-Bromofluorobenzene	%	98	99	8134919	101		8134559
D10-o-Xylene	%	90	89	8134919	88		8134559
D4-1,2-Dichloroethane	%	102	102	8134919	97		8134559
D8-Toluene	%	98	96	8134919	99		8134559
RDL = Reportable Detection Limit QC Batch = Quality Control Batch							



BUREAU  
VERITAS

Bureau Veritas Job #: C2K9078  
Report Date: 2022/08/02

Englobe Corp.  
Client Project #: 2111459  
Site Location: 1495 HERON  
Sampler Initials: S.T

### TEST SUMMARY

**Bureau Veritas ID:** TGT717  
**Sample ID:** MW22-01 SS8 1495 HERON  
**Matrix:** Soil

**Collected:** 2022/07/22  
**Shipped:**  
**Received:** 2022/07/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	8130952	N/A	2022/07/30	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	8135800	2022/07/28	2022/07/28	(Kent) Maolin Li
Moisture	BAL	8133198	N/A	2022/07/27	Mathew Bowles
Volatile Organic Compounds and F1 PHCs	GC/MSFD	8134919	N/A	2022/07/29	Anna Gabrielyan

**Bureau Veritas ID:** TGT718  
**Sample ID:** MW22-02 SS4 1495 HERON  
**Matrix:** Soil

**Collected:** 2022/07/22  
**Shipped:**  
**Received:** 2022/07/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	8130952	N/A	2022/07/30	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	8135800	2022/07/28	2022/07/29	(Kent) Maolin Li
Moisture	BAL	8133198	N/A	2022/07/27	Mathew Bowles
Volatile Organic Compounds and F1 PHCs	GC/MSFD	8134919	N/A	2022/07/29	Anna Gabrielyan

**Bureau Veritas ID:** TGT719  
**Sample ID:** MW-01 1495 HERON  
**Matrix:** Soil

**Collected:** 2022/07/22  
**Shipped:**  
**Received:** 2022/07/25

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	8130952	N/A	2022/07/29	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	8135800	2022/07/28	2022/07/29	(Kent) Maolin Li
Moisture	BAL	8133198	N/A	2022/07/27	Mathew Bowles
Volatile Organic Compounds and F1 PHCs	GC/MSFD	8134559	N/A	2022/07/29	Xueming Jiang



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VERITAS

Bureau Veritas Job #: C2K9078  
Report Date: 2022/08/02

Englobe Corp.  
Client Project #: 2111459  
Site Location: 1495 HERON  
Sampler Initials: S.T

### GENERAL COMMENTS

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

Package 1	9.3°C
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**Results relate only to the items tested.**



BUREAU  
VERITAS

Bureau Veritas Job #: C2K9078

Report Date: 2022/08/02

### QUALITY ASSURANCE REPORT

Englobe Corp.

Client Project #: 2111459

Site Location: 1495 HERON

Sampler Initials: S.T

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8134559	4-Bromofluorobenzene	2022/07/29	101	60 - 140	101	60 - 140	99	%		
8134559	D10-o-Xylene	2022/07/29	89	60 - 130	100	60 - 130	102	%		
8134559	D4-1,2-Dichloroethane	2022/07/29	98	60 - 140	100	60 - 140	95	%		
8134559	D8-Toluene	2022/07/29	100	60 - 140	100	60 - 140	100	%		
8134919	4-Bromofluorobenzene	2022/07/27	105	60 - 140	105	60 - 140	95	%		
8134919	D10-o-Xylene	2022/07/27	104	60 - 130	104	60 - 130	93	%		
8134919	D4-1,2-Dichloroethane	2022/07/27	95	60 - 140	97	60 - 140	98	%		
8134919	D8-Toluene	2022/07/27	104	60 - 140	102	60 - 140	93	%		
8135800	o-Terphenyl	2022/07/28	90	60 - 130	93	60 - 130	92	%		
8133198	Moisture	2022/07/27							2.8	20
8134559	1,1,1,2-Tetrachloroethane	2022/07/29	85	60 - 140	87	60 - 130	<0.040	ug/g	NC	50
8134559	1,1,1-Trichloroethane	2022/07/29	95	60 - 140	99	60 - 130	<0.040	ug/g	NC	50
8134559	1,1,2,2-Tetrachloroethane	2022/07/29	86	60 - 140	89	60 - 130	<0.040	ug/g	NC	50
8134559	1,1,2-Trichloroethane	2022/07/29	95	60 - 140	98	60 - 130	<0.040	ug/g	NC	50
8134559	1,1-Dichloroethane	2022/07/29	90	60 - 140	93	60 - 130	<0.040	ug/g	NC	50
8134559	1,1-Dichloroethylene	2022/07/29	97	60 - 140	99	60 - 130	<0.040	ug/g	NC	50
8134559	1,2-Dichlorobenzene	2022/07/29	93	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
8134559	1,2-Dichloroethane	2022/07/29	90	60 - 140	93	60 - 130	<0.049	ug/g	NC	50
8134559	1,2-Dichloropropane	2022/07/29	89	60 - 140	92	60 - 130	<0.040	ug/g	NC	50
8134559	1,3-Dichlorobenzene	2022/07/29	92	60 - 140	93	60 - 130	<0.040	ug/g	NC	50
8134559	1,4-Dichlorobenzene	2022/07/29	107	60 - 140	108	60 - 130	<0.040	ug/g	NC	50
8134559	Acetone (2-Propanone)	2022/07/29	95	60 - 140	99	60 - 140	<0.49	ug/g	NC	50
8134559	Benzene	2022/07/29	89	60 - 140	91	60 - 130	<0.0060	ug/g	NC	50
8134559	Bromodichloromethane	2022/07/29	86	60 - 140	89	60 - 130	<0.040	ug/g	NC	50
8134559	Bromoform	2022/07/29	68	60 - 140	70	60 - 130	<0.040	ug/g	NC	50
8134559	Bromomethane	2022/07/29	92	60 - 140	91	60 - 140	<0.040	ug/g	NC	50
8134559	Carbon Tetrachloride	2022/07/29	85	60 - 140	87	60 - 130	<0.040	ug/g	NC	50
8134559	Chlorobenzene	2022/07/29	95	60 - 140	97	60 - 130	<0.040	ug/g	NC	50
8134559	Chloroform	2022/07/29	93	60 - 140	96	60 - 130	<0.040	ug/g	NC	50
8134559	cis-1,2-Dichloroethylene	2022/07/29	91	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
8134559	cis-1,3-Dichloropropene	2022/07/29	79	60 - 140	78	60 - 130	<0.030	ug/g	NC	50
8134559	Dibromochloromethane	2022/07/29	76	60 - 140	78	60 - 130	<0.040	ug/g	NC	50



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VERITAS

Bureau Veritas Job #: C2K9078

Report Date: 2022/08/02

### QUALITY ASSURANCE REPORT(CONT'D)

Englobe Corp.

Client Project #: 2111459

Site Location: 1495 HERON

Sampler Initials: S.T

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8134559	Dichlorodifluoromethane (FREON 12)	2022/07/29	114	60 - 140	118	60 - 140	<0.040	ug/g	NC	50
8134559	Ethylbenzene	2022/07/29	88	60 - 140	90	60 - 130	<0.010	ug/g	NC	50
8134559	Ethylene Dibromide	2022/07/29	89	60 - 140	92	60 - 130	<0.040	ug/g	NC	50
8134559	F1 (C6-C10) - BTEX	2022/07/29					<10	ug/g		
8134559	F1 (C6-C10)	2022/07/29	85	60 - 140	90	80 - 120	<10	ug/g		
8134559	Hexane	2022/07/29	97	60 - 140	101	60 - 130	<0.040	ug/g	NC	50
8134559	Methyl Ethyl Ketone (2-Butanone)	2022/07/29	97	60 - 140	103	60 - 140	<0.40	ug/g	NC	50
8134559	Methyl Isobutyl Ketone	2022/07/29	88	60 - 140	94	60 - 130	<0.40	ug/g	NC	50
8134559	Methyl t-butyl ether (MTBE)	2022/07/29	88	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
8134559	Methylene Chloride(Dichloromethane)	2022/07/29	100	60 - 140	102	60 - 130	<0.049	ug/g	NC	50
8134559	o-Xylene	2022/07/29	86	60 - 140	88	60 - 130	<0.020	ug/g	NC	50
8134559	p+m-Xylene	2022/07/29	91	60 - 140	93	60 - 130	<0.020	ug/g	NC	50
8134559	Styrene	2022/07/29	95	60 - 140	98	60 - 130	<0.040	ug/g	NC	50
8134559	Tetrachloroethylene	2022/07/29	90	60 - 140	92	60 - 130	<0.040	ug/g	NC	50
8134559	Toluene	2022/07/29	85	60 - 140	87	60 - 130	<0.020	ug/g	NC	50
8134559	Total Xylenes	2022/07/29					<0.020	ug/g	NC	50
8134559	trans-1,2-Dichloroethylene	2022/07/29	93	60 - 140	95	60 - 130	<0.040	ug/g	NC	50
8134559	trans-1,3-Dichloropropene	2022/07/29	83	60 - 140	78	60 - 130	<0.040	ug/g	NC	50
8134559	Trichloroethylene	2022/07/29	101	60 - 140	103	60 - 130	<0.010	ug/g	NC	50
8134559	Trichlorofluoromethane (FREON 11)	2022/07/29	98	60 - 140	101	60 - 130	<0.040	ug/g	NC	50
8134559	Vinyl Chloride	2022/07/29	86	60 - 140	88	60 - 130	<0.019	ug/g	NC	50
8134919	1,1,1,2-Tetrachloroethane	2022/07/28	102	60 - 140	101	60 - 130	<0.040	ug/g	NC	50
8134919	1,1,1-Trichloroethane	2022/07/28	104	60 - 140	102	60 - 130	<0.040	ug/g	NC	50
8134919	1,1,2,2-Tetrachloroethane	2022/07/28	96	60 - 140	96	60 - 130	<0.040	ug/g	NC	50
8134919	1,1,2-Trichloroethane	2022/07/28	99	60 - 140	99	60 - 130	<0.040	ug/g	NC	50
8134919	1,1-Dichloroethane	2022/07/28	96	60 - 140	95	60 - 130	<0.040	ug/g	NC	50
8134919	1,1-Dichloroethylene	2022/07/28	102	60 - 140	99	60 - 130	<0.040	ug/g	NC	50
8134919	1,2-Dichlorobenzene	2022/07/28	102	60 - 140	101	60 - 130	<0.040	ug/g	NC	50
8134919	1,2-Dichloroethane	2022/07/28	93	60 - 140	93	60 - 130	<0.049	ug/g	NC	50
8134919	1,2-Dichloropropane	2022/07/28	97	60 - 140	96	60 - 130	<0.040	ug/g	NC	50
8134919	1,3-Dichlorobenzene	2022/07/28	105	60 - 140	103	60 - 130	<0.040	ug/g	NC	50
8134919	1,4-Dichlorobenzene	2022/07/28	123	60 - 140	120	60 - 130	<0.040	ug/g	NC	50



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VERITAS

Bureau Veritas Job #: C2K9078

Report Date: 2022/08/02

### QUALITY ASSURANCE REPORT(CONT'D)

Englobe Corp.

Client Project #: 2111459

Site Location: 1495 HERON

Sampler Initials: S.T

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8134919	Acetone (2-Propanone)	2022/07/28	98	60 - 140	100	60 - 140	<0.49	ug/g	NC	50
8134919	Benzene	2022/07/28	96	60 - 140	95	60 - 130	<0.0060	ug/g	NC	50
8134919	Bromodichloromethane	2022/07/28	101	60 - 140	100	60 - 130	<0.040	ug/g	NC	50
8134919	Bromoform	2022/07/28	100	60 - 140	100	60 - 130	<0.040	ug/g	NC	50
8134919	Bromomethane	2022/07/28	104	60 - 140	97	60 - 140	<0.040	ug/g	NC	50
8134919	Carbon Tetrachloride	2022/07/28	102	60 - 140	100	60 - 130	<0.040	ug/g	NC	50
8134919	Chlorobenzene	2022/07/28	101	60 - 140	100	60 - 130	<0.040	ug/g	NC	50
8134919	Chloroform	2022/07/28	100	60 - 140	98	60 - 130	<0.040	ug/g	NC	50
8134919	cis-1,2-Dichloroethylene	2022/07/28	105	60 - 140	103	60 - 130	<0.040	ug/g	NC	50
8134919	cis-1,3-Dichloropropene	2022/07/28	98	60 - 140	95	60 - 130	<0.030	ug/g	NC	50
8134919	Dibromochloromethane	2022/07/28	97	60 - 140	97	60 - 130	<0.040	ug/g	NC	50
8134919	Dichlorodifluoromethane (FREON 12)	2022/07/28	128	60 - 140	125	60 - 140	<0.040	ug/g	NC	50
8134919	Ethylbenzene	2022/07/28	96	60 - 140	94	60 - 130	<0.010	ug/g	NC	50
8134919	Ethylene Dibromide	2022/07/28	97	60 - 140	97	60 - 130	<0.040	ug/g	NC	50
8134919	F1 (C6-C10) - BTEX	2022/07/28					<10	ug/g	NC	30
8134919	F1 (C6-C10)	2022/07/28	99	60 - 140	89	80 - 120	<10	ug/g	NC	30
8134919	Hexane	2022/07/28	106	60 - 140	103	60 - 130	<0.040	ug/g	NC	50
8134919	Methyl Ethyl Ketone (2-Butanone)	2022/07/28	108	60 - 140	111	60 - 140	<0.40	ug/g	NC	50
8134919	Methyl Isobutyl Ketone	2022/07/28	86	60 - 140	88	60 - 130	<0.40	ug/g	NC	50
8134919	Methyl t-butyl ether (MTBE)	2022/07/28	94	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
8134919	Methylene Chloride(Dichloromethane)	2022/07/28	101	60 - 140	99	60 - 130	<0.049	ug/g	NC	50
8134919	o-Xylene	2022/07/28	99	60 - 140	97	60 - 130	<0.020	ug/g	NC	50
8134919	p+m-Xylene	2022/07/28	102	60 - 140	100	60 - 130	<0.020	ug/g	NC	50
8134919	Styrene	2022/07/28	114	60 - 140	113	60 - 130	<0.040	ug/g	NC	50
8134919	Tetrachloroethylene	2022/07/28	98	60 - 140	95	60 - 130	<0.040	ug/g	NC	50
8134919	Toluene	2022/07/28	93	60 - 140	91	60 - 130	<0.020	ug/g	NC	50
8134919	Total Xylenes	2022/07/28					<0.020	ug/g	NC	50
8134919	trans-1,2-Dichloroethylene	2022/07/28	103	60 - 140	101	60 - 130	<0.040	ug/g	NC	50
8134919	trans-1,3-Dichloropropene	2022/07/28	106	60 - 140	97	60 - 130	<0.040	ug/g	NC	50
8134919	Trichloroethylene	2022/07/28	110	60 - 140	108	60 - 130	<0.010	ug/g	NC	50
8134919	Trichlorofluoromethane (FREON 11)	2022/07/28	102	60 - 140	99	60 - 130	<0.040	ug/g	NC	50
8134919	Vinyl Chloride	2022/07/28	96	60 - 140	93	60 - 130	<0.019	ug/g	NC	50





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Bureau Veritas Job #: C2K9078

Report Date: 2022/08/02

### QUALITY ASSURANCE REPORT(CONT'D)

Englobe Corp.

Client Project #: 2111459

Site Location: 1495 HERON

Sampler Initials: S.T

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8135800	F2 (C10-C16 Hydrocarbons)	2022/07/29	99	60 - 130	100	80 - 120	<10	ug/g	NC	30
8135800	F3 (C16-C34 Hydrocarbons)	2022/07/29	96	60 - 130	98	80 - 120	<50	ug/g	NC	30
8135800	F4 (C34-C50 Hydrocarbons)	2022/07/29	99	60 - 130	98	80 - 120	<50	ug/g	NC	30

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

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

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

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

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

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



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Bureau Veritas Job #: C2K9078  
Report Date: 2022/08/02

Englobe Corp.  
Client Project #: 2111459  
Site Location: 1495 HERON  
Sampler Initials: S.T

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

A handwritten signature in black ink, appearing to read 'A. Hamanov', written over a horizontal line.

Anastassia Hamanov, Scientific Specialist

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Your Project #: 02111459  
 Site Location: HP CON  
 Your C.O.C. #: 889738-01-01

**Attention: Andrew Couturier**

Englobe Corp.  
 Ottawa - Standing Offer  
 2713 Lancaster Road  
 Unit 101  
 Ottawa, ON  
 CANADA K1B 5R6

**Report Date: 2022/08/02**  
 Report #: R7236627  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BUREAU VERITAS JOB #: C2L0486**

**Received: 2022/07/26, 15:46**

Sample Matrix: Ground Water  
 # Samples Received: 4

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
1,3-Dichloropropene Sum (1)	4	N/A	2022/08/02		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1, 2)	3	2022/07/28	2022/07/29	CAM SOP-00316	CCME PHC-CWS m
Volatile Organic Compounds and F1 PHCs (1)	3	N/A	2022/07/29	CAM SOP-00230	EPA 8260C m
Volatile Organic Compounds in Water (1)	1	N/A	2022/07/29	CAM SOP-00228	EPA 8260C m

**Remarks:**

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8

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



Your Project #: 02111459  
Site Location: HP CON  
Your C.O.C. #: 889738-01-01

**Attention: Andrew Couturier**

Englobe Corp.  
Ottawa - Standing Offer  
2713 Lancaster Road  
Unit 101  
Ottawa, ON  
CANADA K1B 5R6

**Report Date: 2022/08/02**  
Report #: R7236627  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BUREAU VERITAS JOB #: C2L0486**  
**Received: 2022/07/26, 15:46**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Katherine Szozda, Project Manager  
Email: Katherine.Szozda@bureauveritas.com  
Phone# (613)274-0573 Ext:7063633

=====

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For Service Group specific validation please refer to the Validation Signature Page.



BUREAU  
VERITAS

Bureau Veritas Job #: C2L0486  
Report Date: 2022/08/02

Englobe Corp.  
Client Project #: 02111459  
Site Location: HP CON  
Sampler Initials: JB

### O.REG 153 VOCs BY HS & F1-F4 (GROUND WATER)

Bureau Veritas ID		THB318	THB319	THB320		
Sampling Date		2022/07/26 14:00	2022/07/26 11:45	2022/07/26 14:00		
COC Number		889738-01-01	889738-01-01	889738-01-01		
	UNITS	MW22-01	MW22-02	MW-01	RDL	QC Batch
<b>Calculated Parameters</b>						
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	0.50	8133219
<b>Volatile Organics</b>						
Acetone (2-Propanone)	ug/L	<10	34	11	10	8135913
Benzene	ug/L	<0.17	0.20	<0.17	0.17	8135913
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	0.50	8135913
Bromoform	ug/L	<1.0	<1.0	<1.0	1.0	8135913
Bromomethane	ug/L	<0.50	<0.50	<0.50	0.50	8135913
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	0.20	8135913
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	0.20	8135913
Chloroform	ug/L	<0.20	<0.20	<0.20	0.20	8135913
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	0.50	8135913
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8135913
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8135913
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	8135913
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	1.0	8135913
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	8135913
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	8135913
1,1-Dichloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	8135913
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	8135913
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	8135913
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	0.20	8135913
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	0.30	8135913
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	0.40	8135913
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	8135913
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	0.20	8135913
Hexane	ug/L	<1.0	<1.0	<1.0	1.0	8135913
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	2.0	8135913
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	14	<10	10	8135913
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	5.0	8135913
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	0.50	8135913
Styrene	ug/L	<0.50	<0.50	<0.50	0.50	8135913
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	8135913
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	8135913
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						



BUREAU  
VERITAS

Bureau Veritas Job #: C2L0486  
Report Date: 2022/08/02

Englobe Corp.  
Client Project #: 02111459  
Site Location: HP CON  
Sampler Initials: JB

**O.REG 153 VOCs BY HS & F1-F4 (GROUND WATER)**

Bureau Veritas ID		THB318	THB319	THB320		
Sampling Date		2022/07/26 14:00	2022/07/26 11:45	2022/07/26 14:00		
COC Number		889738-01-01	889738-01-01	889738-01-01		
	UNITS	MW22-01	MW22-02	MW-01	RDL	QC Batch
Tetrachloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	8135913
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	8135913
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	8135913
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	8135913
Trichloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	8135913
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	0.50	8135913
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	0.20	8135913
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	8135913
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	8135913
Total Xylenes	ug/L	<0.20	<0.20	<0.20	0.20	8135913
F1 (C6-C10)	ug/L	<25	<25	<25	25	8135913
F1 (C6-C10) - BTEX	ug/L	<25	<25	<25	25	8135913
<b>F2-F4 Hydrocarbons</b>						
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	100	8137548
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	<200	200	8137548
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	200	8137548
Reached Baseline at C50	ug/L	Yes	Yes	Yes		8137548
<b>Surrogate Recovery (%)</b>						
o-Terphenyl	%	98	99	98		8137548
4-Bromofluorobenzene	%	93	94	93		8135913
D4-1,2-Dichloroethane	%	107	106	100		8135913
D8-Toluene	%	89	91	93		8135913
RDL = Reportable Detection Limit QC Batch = Quality Control Batch						



BUREAU  
VERITAS

Bureau Veritas Job #: C2L0486  
Report Date: 2022/08/02

Englobe Corp.  
Client Project #: 02111459  
Site Location: HP CON  
Sampler Initials: JB

### O.REG 153 VOCS BY HS (WATER)

Bureau Veritas ID		THB321		
Sampling Date		2022/07/26 14:30		
COC Number		889738-01-01		
	UNITS	F. BLANK	RDL	QC Batch
<b>Calculated Parameters</b>				
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	8133219
<b>Volatile Organics</b>				
Acetone (2-Propanone)	ug/L	<10	10	8133856
Benzene	ug/L	<0.20	0.20	8133856
Bromodichloromethane	ug/L	<0.50	0.50	8133856
Bromoform	ug/L	<1.0	1.0	8133856
Bromomethane	ug/L	<0.50	0.50	8133856
Carbon Tetrachloride	ug/L	<0.19	0.19	8133856
Chlorobenzene	ug/L	<0.20	0.20	8133856
Chloroform	ug/L	<0.20	0.20	8133856
Dibromochloromethane	ug/L	<0.50	0.50	8133856
1,2-Dichlorobenzene	ug/L	<0.40	0.40	8133856
1,3-Dichlorobenzene	ug/L	<0.40	0.40	8133856
1,4-Dichlorobenzene	ug/L	<0.40	0.40	8133856
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	8133856
1,1-Dichloroethane	ug/L	<0.20	0.20	8133856
1,2-Dichloroethane	ug/L	<0.49	0.49	8133856
1,1-Dichloroethylene	ug/L	<0.20	0.20	8133856
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	8133856
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	8133856
1,2-Dichloropropane	ug/L	<0.20	0.20	8133856
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	8133856
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	8133856
Ethylbenzene	ug/L	<0.20	0.20	8133856
Ethylene Dibromide	ug/L	<0.19	0.19	8133856
Hexane	ug/L	<1.0	1.0	8133856
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	8133856
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	8133856
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	8133856
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	8133856
Styrene	ug/L	<0.40	0.40	8133856
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	8133856
1,1,2,2-Tetrachloroethane	ug/L	<0.40	0.40	8133856
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				



**O.REG 153 VOCS BY HS (WATER)**

<b>Bureau Veritas ID</b>		THB321		
<b>Sampling Date</b>		2022/07/26 14:30		
<b>COC Number</b>		889738-01-01		
	<b>UNITS</b>	<b>F. BLANK</b>	<b>RDL</b>	<b>QC Batch</b>
Tetrachloroethylene	ug/L	<0.20	0.20	8133856
Toluene	ug/L	<0.20	0.20	8133856
1,1,1-Trichloroethane	ug/L	<0.20	0.20	8133856
1,1,2-Trichloroethane	ug/L	<0.40	0.40	8133856
Trichloroethylene	ug/L	<0.20	0.20	8133856
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	8133856
Vinyl Chloride	ug/L	<0.20	0.20	8133856
p+m-Xylene	ug/L	<0.20	0.20	8133856
o-Xylene	ug/L	<0.20	0.20	8133856
Total Xylenes	ug/L	<0.20	0.20	8133856
<b>Surrogate Recovery (%)</b>				
4-Bromofluorobenzene	%	92		8133856
D4-1,2-Dichloroethane	%	115		8133856
D8-Toluene	%	91		8133856
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				





BUREAU  
VERITAS

Bureau Veritas Job #: C2L0486  
Report Date: 2022/08/02

Englobe Corp.  
Client Project #: 02111459  
Site Location: HP CON  
Sampler Initials: JB

### TEST SUMMARY

**Bureau Veritas ID:** THB318  
**Sample ID:** MW22-01  
**Matrix:** Ground Water

**Collected:** 2022/07/26  
**Shipped:**  
**Received:** 2022/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	8133219	N/A	2022/08/02	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8137548	2022/07/28	2022/07/29	(Kent) Maolin Li
Volatile Organic Compounds and F1 PHCs	GC/MSFD	8135913	N/A	2022/07/29	Chandni Khawas

**Bureau Veritas ID:** THB319  
**Sample ID:** MW22-02  
**Matrix:** Ground Water

**Collected:** 2022/07/26  
**Shipped:**  
**Received:** 2022/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	8133219	N/A	2022/08/02	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8137548	2022/07/28	2022/07/29	(Kent) Maolin Li
Volatile Organic Compounds and F1 PHCs	GC/MSFD	8135913	N/A	2022/07/29	Chandni Khawas

**Bureau Veritas ID:** THB320  
**Sample ID:** MW-01  
**Matrix:** Ground Water

**Collected:** 2022/07/26  
**Shipped:**  
**Received:** 2022/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	8133219	N/A	2022/08/02	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	8137548	2022/07/28	2022/07/29	(Kent) Maolin Li
Volatile Organic Compounds and F1 PHCs	GC/MSFD	8135913	N/A	2022/07/29	Chandni Khawas

**Bureau Veritas ID:** THB321  
**Sample ID:** F. BLANK  
**Matrix:** Ground Water

**Collected:** 2022/07/26  
**Shipped:**  
**Received:** 2022/07/26

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	8133219	N/A	2022/08/02	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	8133856	N/A	2022/07/29	Dina Wang



BUREAU  
VERITAS

Bureau Veritas Job #: C2L0486  
Report Date: 2022/08/02

Englobe Corp.  
Client Project #: 02111459  
Site Location: HP CON  
Sampler Initials: JB

### GENERAL COMMENTS

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

Package 1	15.3°C
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**Results relate only to the items tested.**



BUREAU  
VERITAS

Bureau Veritas Job #: C2L0486

Report Date: 2022/08/02

### QUALITY ASSURANCE REPORT

Englobe Corp.

Client Project #: 02111459

Site Location: HP CON

Sampler Initials: JB

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8133856	4-Bromofluorobenzene	2022/07/29	101	70 - 130	101	70 - 130	95	%		
8133856	D4-1,2-Dichloroethane	2022/07/29	108	70 - 130	103	70 - 130	113	%		
8133856	D8-Toluene	2022/07/29	103	70 - 130	105	70 - 130	92	%		
8135913	4-Bromofluorobenzene	2022/07/29	105	70 - 130	106	70 - 130	94	%		
8135913	D4-1,2-Dichloroethane	2022/07/29	102	70 - 130	98	70 - 130	104	%		
8135913	D8-Toluene	2022/07/29	102	70 - 130	105	70 - 130	91	%		
8137548	o-Terphenyl	2022/07/28	103	60 - 130	104	60 - 130	101	%		
8133856	1,1,1,2-Tetrachloroethane	2022/07/29	98	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
8133856	1,1,1-Trichloroethane	2022/07/29	98	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
8133856	1,1,2,2-Tetrachloroethane	2022/07/29	102	70 - 130	96	70 - 130	<0.40	ug/L	NC	30
8133856	1,1,2-Trichloroethane	2022/07/29	104	70 - 130	100	70 - 130	<0.40	ug/L	NC	30
8133856	1,1-Dichloroethane	2022/07/29	95	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
8133856	1,1-Dichloroethylene	2022/07/29	96	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
8133856	1,2-Dichlorobenzene	2022/07/29	95	70 - 130	94	70 - 130	<0.40	ug/L	NC	30
8133856	1,2-Dichloroethane	2022/07/29	103	70 - 130	98	70 - 130	<0.49	ug/L	NC	30
8133856	1,2-Dichloropropane	2022/07/29	98	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
8133856	1,3-Dichlorobenzene	2022/07/29	92	70 - 130	93	70 - 130	<0.40	ug/L	NC	30
8133856	1,4-Dichlorobenzene	2022/07/29	106	70 - 130	107	70 - 130	<0.40	ug/L	NC	30
8133856	Acetone (2-Propanone)	2022/07/29	114	60 - 140	104	60 - 140	<10	ug/L	NC	30
8133856	Benzene	2022/07/29	93	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
8133856	Bromodichloromethane	2022/07/29	101	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
8133856	Bromoform	2022/07/29	104	70 - 130	99	70 - 130	<1.0	ug/L	NC	30
8133856	Bromomethane	2022/07/29	102	60 - 140	95	60 - 140	<0.50	ug/L	NC	30
8133856	Carbon Tetrachloride	2022/07/29	94	70 - 130	96	70 - 130	<0.19	ug/L	NC	30
8133856	Chlorobenzene	2022/07/29	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
8133856	Chloroform	2022/07/29	97	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
8133856	cis-1,2-Dichloroethylene	2022/07/29	102	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
8133856	cis-1,3-Dichloropropene	2022/07/29	106	70 - 130	95	70 - 130	<0.30	ug/L	NC	30
8133856	Dibromochloromethane	2022/07/29	99	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
8133856	Dichlorodifluoromethane (FREON 12)	2022/07/29	106	60 - 140	109	60 - 140	<1.0	ug/L	NC	30
8133856	Ethylbenzene	2022/07/29	88	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
8133856	Ethylene Dibromide	2022/07/29	99	70 - 130	94	70 - 130	<0.19	ug/L	NC	30



BUREAU  
VERITAS

Bureau Veritas Job #: C2L0486

Report Date: 2022/08/02

### QUALITY ASSURANCE REPORT(CONT'D)

Englobe Corp.

Client Project #: 02111459

Site Location: HP CON

Sampler Initials: JB

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8133856	Hexane	2022/07/29	99	70 - 130	100	70 - 130	<1.0	ug/L	NC	30
8133856	Methyl Ethyl Ketone (2-Butanone)	2022/07/29	123	60 - 140	110	60 - 140	<10	ug/L	NC	30
8133856	Methyl Isobutyl Ketone	2022/07/29	121	70 - 130	110	70 - 130	<5.0	ug/L	NC	30
8133856	Methyl t-butyl ether (MTBE)	2022/07/29	94	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
8133856	Methylene Chloride(Dichloromethane)	2022/07/29	102	70 - 130	99	70 - 130	<2.0	ug/L	NC	30
8133856	o-Xylene	2022/07/29	87	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
8133856	p+m-Xylene	2022/07/29	94	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
8133856	Styrene	2022/07/29	103	70 - 130	106	70 - 130	<0.40	ug/L	NC	30
8133856	Tetrachloroethylene	2022/07/29	87	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
8133856	Toluene	2022/07/29	95	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
8133856	Total Xylenes	2022/07/29					<0.20	ug/L	NC	30
8133856	trans-1,2-Dichloroethylene	2022/07/29	97	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
8133856	trans-1,3-Dichloropropene	2022/07/29	119	70 - 130	101	70 - 130	<0.40	ug/L	NC	30
8133856	Trichloroethylene	2022/07/29	100	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
8133856	Trichlorofluoromethane (FREON 11)	2022/07/29	93	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
8133856	Vinyl Chloride	2022/07/29	89	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
8135913	1,1,1,2-Tetrachloroethane	2022/07/29	98	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
8135913	1,1,1-Trichloroethane	2022/07/29	97	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
8135913	1,1,2,2-Tetrachloroethane	2022/07/29	98	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
8135913	1,1,2-Trichloroethane	2022/07/29	98	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
8135913	1,1-Dichloroethane	2022/07/29	91	70 - 130	91	70 - 130	<0.20	ug/L	NC	30
8135913	1,1-Dichloroethylene	2022/07/29	92	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
8135913	1,2-Dichlorobenzene	2022/07/29	96	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
8135913	1,2-Dichloroethane	2022/07/29	92	70 - 130	89	70 - 130	<0.50	ug/L	NC	30
8135913	1,2-Dichloropropane	2022/07/29	94	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
8135913	1,3-Dichlorobenzene	2022/07/29	97	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
8135913	1,4-Dichlorobenzene	2022/07/29	111	70 - 130	118	70 - 130	<0.50	ug/L	NC	30
8135913	Acetone (2-Propanone)	2022/07/29	96	60 - 140	90	60 - 140	<10	ug/L	NC	30
8135913	Benzene	2022/07/29	91	70 - 130	91	70 - 130	<0.17	ug/L	NC	30
8135913	Bromodichloromethane	2022/07/29	99	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
8135913	Bromoform	2022/07/29	103	70 - 130	103	70 - 130	<1.0	ug/L	NC	30
8135913	Bromomethane	2022/07/29	96	60 - 140	96	60 - 140	<0.50	ug/L	NC	30



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Bureau Veritas Job #: C2L0486

Report Date: 2022/08/02

### QUALITY ASSURANCE REPORT(CONT'D)

Englobe Corp.

Client Project #: 02111459

Site Location: HP CON

Sampler Initials: JB

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8135913	Carbon Tetrachloride	2022/07/29	95	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
8135913	Chlorobenzene	2022/07/29	95	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
8135913	Chloroform	2022/07/29	96	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
8135913	cis-1,2-Dichloroethylene	2022/07/29	100	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
8135913	cis-1,3-Dichloropropene	2022/07/29	94	70 - 130	91	70 - 130	<0.30	ug/L	NC	30
8135913	Dibromochloromethane	2022/07/29	97	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
8135913	Dichlorodifluoromethane (FREON 12)	2022/07/29	107	60 - 140	115	60 - 140	<1.0	ug/L	NC	30
8135913	Ethylbenzene	2022/07/29	84	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
8135913	Ethylene Dibromide	2022/07/29	98	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
8135913	F1 (C6-C10) - BTEX	2022/07/29					<25	ug/L	NC	30
8135913	F1 (C6-C10)	2022/07/29	89	60 - 140	90	60 - 140	<25	ug/L	NC	30
8135913	Hexane	2022/07/29	92	70 - 130	97	70 - 130	<1.0	ug/L	NC	30
8135913	Methyl Ethyl Ketone (2-Butanone)	2022/07/29	107	60 - 140	101	60 - 140	<10	ug/L	NC	30
8135913	Methyl Isobutyl Ketone	2022/07/29	85	70 - 130	82	70 - 130	<5.0	ug/L	NC	30
8135913	Methyl t-butyl ether (MTBE)	2022/07/29	89	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
8135913	Methylene Chloride(Dichloromethane)	2022/07/29	98	70 - 130	97	70 - 130	<2.0	ug/L	NC	30
8135913	o-Xylene	2022/07/29	88	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
8135913	p+m-Xylene	2022/07/29	89	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
8135913	Styrene	2022/07/29	103	70 - 130	110	70 - 130	<0.50	ug/L	NC	30
8135913	Tetrachloroethylene	2022/07/29	91	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
8135913	Toluene	2022/07/29	86	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
8135913	Total Xylenes	2022/07/29					<0.20	ug/L	NC	30
8135913	trans-1,2-Dichloroethylene	2022/07/29	96	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
8135913	trans-1,3-Dichloropropene	2022/07/29	98	70 - 130	96	70 - 130	<0.40	ug/L	NC	30
8135913	Trichloroethylene	2022/07/29	102	70 - 130	105	70 - 130	<0.20	ug/L	NC	30
8135913	Trichlorofluoromethane (FREON 11)	2022/07/29	93	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
8135913	Vinyl Chloride	2022/07/29	85	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
8137548	F2 (C10-C16 Hydrocarbons)	2022/07/29	93	60 - 130	94	60 - 130	<100	ug/L	NC	30
8137548	F3 (C16-C34 Hydrocarbons)	2022/07/29	108	60 - 130	110	60 - 130	<200	ug/L	NC	30



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Bureau Veritas Job #: C2L0486

Report Date: 2022/08/02

### QUALITY ASSURANCE REPORT(CONT'D)

Englobe Corp.

Client Project #: 02111459

Site Location: HP CON

Sampler Initials: JB

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8137548	F4 (C34-C50 Hydrocarbons)	2022/07/29	112	60 - 130	113	60 - 130	<200	ug/L	NC	30

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

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

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

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

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

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



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Bureau Veritas Job #: C2L0486  
Report Date: 2022/08/02

Englobe Corp.  
Client Project #: 02111459  
Site Location: HP CON  
Sampler Initials: JB

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

*Cristina Carriere*

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Cristina Carriere, Senior Scientific Specialist

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Your Project #: 2111459  
 Site Location: 1495 HERON ROAD  
 Your C.O.C. #: n/a

**Attention: Andrew Couturier**

Englobe Corp.  
 Ottawa - Standing Offer  
 2713 Lancaster Road  
 Unit 101  
 Ottawa, ON  
 CANADA K1B 5R6

**Report Date: 2022/09/16**  
 Report #: R7298947  
 Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BUREAU VERITAS JOB #: C2Q2277**

**Received: 2022/09/12, 15:30**

Sample Matrix: Soil  
 # Samples Received: 1

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
pH CaCl2 EXTRACT (1)	1	2022/09/15	2022/09/15	CAM SOP-00413	EPA 9045 D m

**Remarks:**

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

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

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

(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8





Your Project #: 2111459  
Site Location: 1495 HERON ROAD  
Your C.O.C. #: n/a

**Attention: Andrew Couturier**

Englobe Corp.  
Ottawa - Standing Offer  
2713 Lancaster Road  
Unit 101  
Ottawa, ON  
CANADA K1B 5R6

**Report Date: 2022/09/16**  
Report #: R7298947  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BUREAU VERITAS JOB #: C2Q2277**  
**Received: 2022/09/12, 15:30**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Katherine Szozda, Project Manager  
Email: Katherine.Szozda@bureauveritas.com  
Phone# (613)274-0573 Ext:7063633

=====

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Bureau Veritas Job #: C2Q2277  
Report Date: 2022/09/16

Englobe Corp.  
Client Project #: 2111459  
Site Location: 1495 HERON ROAD  
Sampler Initials: AC

### RESULTS OF ANALYSES OF SOIL

<b>Bureau Veritas ID</b>		TSE316	TSE316	
<b>Sampling Date</b>		2022/09/12 15:09	2022/09/12 15:09	
<b>COC Number</b>		n/a	n/a	
	<b>UNITS</b>	<b>BHMW22-01</b>	<b>BHMW22-01 Lab-Dup</b>	<b>QC Batch</b>
<b>Inorganics</b>				
Available (CaCl <sub>2</sub> ) pH	pH	7.20	7.19	8226565
QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate				



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Bureau Veritas Job #: C2Q2277  
Report Date: 2022/09/16

Englobe Corp.  
Client Project #: 2111459  
Site Location: 1495 HERON ROAD  
Sampler Initials: AC

### TEST SUMMARY

**Bureau Veritas ID:** TSE316  
**Sample ID:** BHMW22-01  
**Matrix:** Soil

**Collected:** 2022/09/12  
**Shipped:**  
**Received:** 2022/09/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	8226565	2022/09/15	2022/09/15	Taslina Aktar

**Bureau Veritas ID:** TSE316 Dup  
**Sample ID:** BHMW22-01  
**Matrix:** Soil

**Collected:** 2022/09/12  
**Shipped:**  
**Received:** 2022/09/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	8226565	2022/09/15	2022/09/15	Taslina Aktar



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Bureau Veritas Job #: C2Q2277  
Report Date: 2022/09/16

Englobe Corp.  
Client Project #: 2111459  
Site Location: 1495 HERON ROAD  
Sampler Initials: AC

### GENERAL COMMENTS

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

Package 1	20.0°C
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**Results relate only to the items tested.**



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Bureau Veritas Job #: C2Q2277  
Report Date: 2022/09/16

### QUALITY ASSURANCE REPORT

Englobe Corp.  
Client Project #: 2111459  
Site Location: 1495 HERON ROAD  
Sampler Initials: AC

QC Batch	Parameter	Date	SPIKED BLANK		RPD	
			% Recovery	QC Limits	Value (%)	QC Limits
8226565	Available (CaCl2) pH	2022/09/15	101	97 - 103	0.17	N/A
<p>N/A = Not Applicable</p> <p>Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.</p> <p>Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.</p>						



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Bureau Veritas Job #: C2Q2277  
Report Date: 2022/09/16

Englobe Corp.  
Client Project #: 2111459  
Site Location: 1495 HERON ROAD  
Sampler Initials: AC

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

A handwritten signature in cursive script that reads 'Cristina Carriere'.

---

Cristina Carriere, Senior Scientific Specialist

---

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# Appendix F

## Phase Two Conceptual Site Model



**eNGLOBE**



# Phase Two Conceptual Site Model

This Phase Two Conceptual Site Model (Phase Two CSM) is prepared in support of filing a Record of Site Condition (RSC) for the Heron Road Complex property, municipally known as 1495 Heron Road, in Ottawa, Ontario (herein referred to as the “Site”, “Phase One Property”, “Phase Two Property”, or “RSC Property”). The location the Site is shown on the Figure 1 Site Location Map, in the attached figures. The format of this Phase Two CSM is consistent with the requirements of Ontario Regulation 153/04, as amended up to Ontario Regulation 407/19 (O.Reg 153/04, as amended).

This Phase Two CSM is prepared based on the findings of the Phase One ESA, dated August 2022, and this Phase Two ESA, dated August 2022, conducted by Englobe for the RSC Property.

## 1. Description and Assessment

The Phase Two Property, subject to this Phase Two CSM, is irregularly shaped and is approximately 72,969 m<sup>2</sup> in area. At the time of the Phase One site reconnaissance on November 4<sup>th</sup> and 5<sup>th</sup>, 2021, 13 institutional building structures were present on the Site but were vacant with no operations conducted.

The Phase Two Property is bordered by parkland followed by a residential neighbourhood to the north; by Conseil scolaire catholique d’Ottawa Carleton to the west, followed by parkland; by the St. Patrick’s Intermediate School, followed by Hilda Jayewardenaramaya Buddhist Monastery, Heron Road, and a mixed community & residential development to the south; and by a residential neighbourhood to the east. The Site and surrounding properties are shown on the Figure 2 Site and Surrounding Land Use Plan.

At the time of Englobe’s environmental site assessment, the Phase Two Property was owned and managed by Canada Lands Company CLC Limited. A summary of the Site details is presented in the following table:

Item	Detail
Site Address	1495 Heron Road, Ottawa, ON
Site Area	72,969 m <sup>2</sup>
PIN(s)	04189-0241
Legal Description(s)	PCL 6967, Sec Carl; Pt Lt 20, Con JG, PT 8, 4R699; S/T LT969947 Ottawa/Gloucester; Together with an easement over Part 2, 4R28609 As In OC1788113; Together with an easement over Part 3, 4R28609 As in OC1788113; Subject to an Easement Over Parts 4, 5, and 6, 4R28609 in Favour of Part 4, 4R699 As In OC1788114; Subject to an Easement over parts 4, 5, and 6, 4R28609 in Favour of Part 7, 4R699 Save & Except PTS 1 to 7, 4R1729 as in OC1788114
Geodetic Coordinates to Centroid	UTM Zone 18T 48869.17 m E 5025527.62 m N 1984 World Geodetic System





## 1.1. Historical Information

Terra Solutions Inc. conducted a Phase One ESA at the Phase One property in 1996. The following potential environmental concerns were identified by the Phase One ESA:

- The former suspected presence of an underground storage tank (UST) for fuel oil between Buildings B and M. The tank was reportedly removed in 1989; however, no environmental assessments were conducted at the time of the removal of the tank.
- Evidence of contamination was noticed in the sump adjacent to the hydraulic elevator in Building A. Hydraulic oil was observed in the sump at the time of inspection.

Based on the results of the Phase One ESA, a Phase Two ESA was recommended in order to address the above-noted potential environmental concerns.

In March of 2002, INTERA Engineering Ltd. completed a Phase Two ESA at the Phase One property in order to address the area of potential environmental concern (APEC) associated with the former fuel oil UST, as identified by the Phase One ESA completed by Terra Solutions Inc. The Phase Two ESA consisted of the advancement of four boreholes in the suspected area of the former UST, and the laboratory submission of select soil samples, collected during borehole drilling, for laboratory analysis of petroleum hydrocarbon fractions F1 - F4 (PHC F1 - F4) and benzene, toluene, ethylbenzene and xylenes (BTEX). None of the boreholes were instrumented with groundwater monitoring wells and, thus, no groundwater samples were collected as part of the Phase Two ESA.

Analytical results of the laboratory-submitted soil samples were in compliance with the applicable Canadian Council of Ministers of the Environment (CCME) and Ontario Ministry of the Environment (MOE) guidelines/standards at the time. Therefore, no impacts to the soil quality were identified in the area of the former UST.

AMEC Earth and Environmental (AMEC) conducted a groundwater monitoring program at the Phase One property in February and March of 2009. The monitoring program consisted of collecting three groundwater samples, including a field duplicate, from a previously installed monitoring well in the suspected area of the former UST onsite (no report is available documenting the installation of the well or any previous findings). The collected samples were submitted for laboratory analysis of PHC F1 - F4 and BTEX.

The first groundwater sample and a field duplicate were collected on February 26, 2009. Visual and olfactory evidence of petroleum impact, including an iridescent sheen and a petroleum-like odour, was observed during the groundwater purging and sampling activities. On March 9, 2009, an additional groundwater sample was collected from the well using a no-purge protocol. No evidence of petroleum impact was observed during the March sampling event.

Laboratory analytical results of all three groundwater samples were in compliance with the applicable federal and provincial guidelines/standards at the time.

DST Consulting Engineers Inc. completed a Phase One ESA at the subject property in December 2014. The following potential environmental concerns were identified by the Phase One ESA:

- The former presence of an underground storage tank (UST) for fuel oil, suspected to be between Buildings B and M. The tank was reportedly removed in 1989. It was noted that the PHC F3 results from the AMEC Groundwater Monitoring Program exceeded the currently applicable MECP Table 3 Groundwater SCS.
- Evidence of contamination was noticed in the sump adjacent to the hydraulic elevator in Building A. Hydraulic oil was observed in the sump at the time of inspection.



Based on the results of the Phase One ESA, a Phase Two ESA was recommended in order to address the above-noted potential environmental concerns.

In March of 2015, DST Consulting Engineers Inc. completed a Phase Two ESA at the Phase One property in order to address the areas of potential environmental concern (APECs) associated with the former fuel oil UST and Building A hydraulic elevator leakage, as identified by the Phase One ESA completed by DST Consulting Engineers Inc. in 2014. The Phase Two ESA consisted of the advancement of three boreholes in the area of the former UST, and one borehole in the room behind the Building A hydraulic elevator. Select soil samples, collected during borehole drilling, and groundwater from installed monitoring wells, were submitted for laboratory analysis of petroleum hydrocarbon fractions F1 - F4 (PHC F1 - F4) and benzene, toluene, ethylbenzene and xylenes (BTEX).

Analytical results of the laboratory-submitted soil and groundwater samples were in compliance with the applicable Ontario Regulation 153/04 Table 3 standards. No impacts to the soil or groundwater quality were identified in the area of the former UST or hydraulic oil leak.

## 1.2. Areas where Potentially Contaminating Activity Has Occurred

Based on the Englobe Phase One ESA report dated August 2022, the following table provided both the description and assessment of identified Potentially Contaminating Activities (PCAs) within the Phase One Study Area (description based on the O. Reg. 153/04, as amended - Table 2: Potentially Contaminating Activities):

Potentially Contaminating Activity	Location on Phase One Property	Description	Contributes to APEC?
<b>PCA 1</b> PCA No. 28 - Gasoline and Associated Products in Fixed Tanks	Northern portion of the Site	One (1) UST was historically identified on the Phase One subject property.	No (Investigated by DST Consulting Engineers in 2015)
<b>PCA 2</b> PCA No. 28 - Gasoline and Associated Products Storage in Fixed Tanks	Northern portion of the Site	Former leakage of the Hydraulic Elevator in Building A.	No (Investigated by DST Consulting Engineers in 2015)
<b>PCA 3</b> PCA No. 8 - Chemical Manufacturing, Processing and Bulk Storage	On-Site	Three (3) waste generators. The wastes included: - Paints/Pigments/Coating Residues - Alkaline Waste - Reactive Anion Wastes; - Inorganic Laboratory Chemicals; - Organic Laboratory Chemicals - PCBs - Aromatic Solvents; - Aliphatic Solvents; - Petroleum Distillates; - Halogenated Pesticides, - Oil Skimming & Sludges; - Waste Oils & Lubricants; - Waste Compressed Gases	No
<b>PCA 4</b>	West Adjacent Property	One (1) waste generator. The wastes included: - Paints/Pigments/Coating Residues	No



Potentially Contaminating Activity	Location on Phase One Property	Description	Contributes to APEC?
PCA No. 8 - Chemical Manufacturing, Processing and Bulk Storage		- Inorganic Laboratory Chemicals; - Organic Laboratory Chemicals - PCBs - Petroleum Distillates; - Waste Oils & Lubricants; - Waste Compressed Gases	
<b>PCA 5</b> Undefined PCA No. - Petroleum Hydrocarbon Spill	Approximately 180 m south of the Site.	One (1) Ontario Spills (SPL) record indicates that an unknown quantity of hydrocarbons was released into the sewers in March 2012	No (Separation Distance, Down-Gradient)
<b>PCA 6</b> PCA No. 28 - Gasoline and Associated Products in Fixed Tanks	Various - South and Southwest of the Site.	Five (5) records from the City of Ottawa Historical Land Use Inventory identify the historical presence of USTs within the Phase One Study Area.	Yes (On-Site)
<b>PCA 7</b> Undefined PCA No. - Roadway Salting Activities	Paved Areas of the Site.	It is assumed that road salt was applied to the paved surfaces of the Site for the purpose of vehicular or pedestrian traffic under conditions of snow or ice.	Yes (On-Site)

The approximate locations of the PCAs are shown on Figure 3.

### 1.3. Areas of Potential Environmental Concern (APECs)

The following APEC was identified as part of the Phase One ESA completed at the Phase Two Property and documented in the Englobe Phase One ESA report dated July 2022.

APEC	Location of APEC	Potentially Contaminating Activity	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern (COPCs)	Media Potentially Impacted
<b>APEC 1</b> One (1) UST was historically identified on the Phase One subject property.	Northern Portion of the Site	PCA No. 28 - Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHCs BTEX	Soil & Groundwater
<b>APEC 2</b> Former leakage of Building A Hydraulic Elevator	Northern Portion of the Site	PCA No. 28 - Gasoline and Associated Products Storage in Fixed Tanks	On-Site	PHCs BTEX	Soil & Groundwater
<b>APEC 3</b> Former USTs were identified at 1495 Heron Road, 1480 Heron Road, 1440 Heron Road, and 2810 Baycrest Drive	Southern perimeter of the Site.	PCA No. 28 - Gasoline and Associated Products Storage in Fixed Tanks Stored in Fixed Tanks	Off-Site	PHCs BTEX VOCs	Soil & Groundwater
<b>APEC 4</b> Roadway Salting Activities are assumed for	Throughout the Site	Undefined PCA No. - Roadway Salting Activities	On-Site	EC SAR Sodium	Soil & Groundwater



APEC	Location of APEC	Potentially Contaminating Activity	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern (COPCs)	Media Potentially Impacted
paved areas of the Phase One Property.				Chloride	

Notes:

- The acronyms noted above indicate the following contaminants of potential concern: petroleum hydrocarbons F1 – F4 fractions (PHCs); benzene, toluene, ethylbenzene and xylenes (BTEX); volatile organic compounds (VOCs), electrical conductivity (EC); Sodium Adsorption Ratio (SAR).

The locations of the APEC associated with On-Site and Off-Site PCAs is shown on Figure 2.

## 1.4. Subsurface Structures and Utilities On, In, Or Under the Phase Two Property that may Affect Contamination Distribution And Transport.

Subsurface structures and utilities associated with the buildings and structures on the Phase Two Property as well as associated with the current parking areas consist of sewer, water, gas, hydro, and telecom services. In addition, all buildings on-Site, with the exception of Building M, contain basements.

Based on the groundwater depth measurements taken in August 2022, the groundwater levels ranged from approximately 0.532 to 4.797 m below ground surface (bgs). Based on the Phase Two ESA conducted at the Site, soil and groundwater contamination were not identified as all samples collected met the applicable MECP Table 3 RPI SCS. As such, there is no concern associated with contaminant distribution or transport.

## 2. A Description of and, as appropriate, figures illustrating the Physical Setting of the Phase Two Property and any Areas under it

### 2.1. Stratigraphy from ground surface to the deepest aquifer or aquitard investigated

Topographic information obtained from the Ministry of Natural Resources and Forestry mapping shows the Site elevation ranging from 92 to 98 masl. This is consistent with the recorded ground elevations by Englobe personnel on Site using a Trimble R12 GPS system. The ground surface at the Phase Two Property was generally observed to be flat, with the Site sloping towards the south-east. The nearest surface water feature to the Site is an unnamed creek, approximately 1.78 km to the north-west of the Site.

Based on a review of the Ontario Geological Survey Bedrock Geology of Ontario, the bedrock geology of the Site consists of shale, limestone, dolostone, and siltstone of the Georgian Bay formation, Blue Mountain formation, and Billings formation. Based on a review of the Ontario Geological Survey Quaternary Geology Map, the Site consists of undifferentiated till, predominantly sandy silt to silt matrix, commonly rich in clasts, often high in total matrix carbonate content. Based on the Ontario Geological Survey Surficial Geology Map, the Site consists of fine-textured glaciomarine deposits of well-laminated silt and clay from the Pleistocene era.

Data obtained from boreholes indicates that the Site generally consists of the following:

#### Northern Section (DST, 2015)

- Topsoil from 0.0m bgs to 0.05m bgs.
- Fill material, consisting of silt with trace sand and gravel, from 0.05m bgs to 1.5m bgs.



- Till material, consisting of silt with trace sand and gravel, from 1.5m bgs to 4.5m bgs
- Fractured shale bedrock at 4.5m bgs.

### Southern Section (Englobe, 2022)

- Topsoil from 0.0m bgs to 0.05m bgs.
- Sand with some gravel from 0.05m bgs to 0.6m bgs
- Clay from 0.6m bgs to 1.4m bgs
- Clay and silt from 1.4m bgs to 3.65m bgs
- Fractured shale bedrock at 3.65m bgs.

## 2.2. Hydrogeological Characteristics

A total of six boreholes (BHMW15-01 through BHMW15-04, and BHMW22-01 and BHMW22-02) were advanced and instrumented with groundwater monitoring wells in 2015 and 2022. Based on the depth of groundwater elevation, the groundwater flow direction was determined to flow north-west at the Phase Two Property. A groundwater contour and interpreted flow direction plan based on groundwater elevation data is provided on Figure 7.

The horizontal groundwater gradient for the Phase Two Property, based on groundwater levels measured, was approximately 0.0150 m/m (calculated from groundwater elevations in BHMW15-04 and BHMW22-02).

## 2.3. Approximate Depth to Bedrock

Based on borehole data information on the Phase Two Property, bedrock is assumed to be existing at an approximate elevation of 92.31m asl.

Geological cross sections are shown on Figures 5 and 6, which include soil stratigraphy and depths to groundwater at the Phase Two Property.

## 2.4. Approximate Depth to Water Table

Data obtained from water level measurements throughout the Site indicates that the average water table elevation was approximately 93.08m asl.

Geological cross sections are shown on Figures 5 and 6, which include soil stratigraphy and depths to groundwater at the Phase Two Property.

## 2.5. Any Respect to which Section 35, 41, or 43.1 of the Regulation Applies to the Property

Section 35 of the Regulation dictates restrictions and requirements for application of non-potable site condition standards and applies to the Phase Two Property. The Phase Two Property is not located within a well-head protection area and potable water is serviced by the City of Ottawa water distribution system. To the best of Englobe's knowledge, all properties within 250 m of the Phase Two Property are serviced by the municipal water supply (i.e., there are no potable water supply wells located within the Phase One Study Area).





Section 41 of the Regulation does not apply to the Phase Two Property based on the following rationale:

- The Phase Two Property is not located within an area of natural significance;
- The Phase Two Property does not include or is not adjacent to an area of natural significance or part of such an area;
- The Phase Two Property does not include land that is within 30 m of an area of natural significance or part of such an area;

Section 43.1 of the Regulation does not apply to the Phase Two Property based on the following rationale:

- The Phase Two Property is not considered a shallow soil property as shallow bedrock (within 2 m bgs) was not encountered at the Phase Two Property during the Phase Two ESA investigation;
- The Phase Two Property does not include all or part of a water body and is not adjacent to a water body and does not include land that is within 30 m of a water body.

## **2.6. Areas on, in, or under the Phase Two Property where Excess Soil is Finally Placed.**

As no contamination has been found in any previous environmental investigation, no remedial excavation activities have been completed at the Phase Two Property and, as such, no Excess Soils have been placed at the Site.

## **2.7. Approximate Locations, if known, of any proposed buildings or other structures.**

The Phase Two Property is expected to be redeveloped for mixed residential and commercial purposes. The proposed redevelopment plan is expected to include the existing buildings on the Site. Detailed redevelopment plans and locations of proposed new buildings and other structures are not available at this time.

## **3. Provide, where a contaminant is present on, in, or under the Phase Two Property at a Concentration greater than the applicable Site Condition Standards**

Based on a review of the laboratory analytical results, all samples for both soil and groundwater were in compliance with the applicable MECP Table 3 Residential/Parkland/Institutional Site Condition Standards for all COPCs noted above. Thus, no further environmental work is recommended at this time.



## **4 If the Exemption Set Out in Paragraph 1, 1.1 or 2 of Section 49.1 of the Regulation Is Being Relied Upon, Provide a Statement as to the Reliance Upon the Exemption and a Narrative Description of the Rationale for Relying Upon the Exemption, Which May Be Based on Information Gathered During the Site Investigation**

It is highly possible that the application of road salt or de-icing substances along these roadways and on the driveways and parking areas of the Phase Two Property during the winter seasons. However, as road salt and de-icing substances on these roadways, driveways, and parking areas were applied for the purposes of keeping these areas safe for traffic and pedestrians under conditions of snow or ice or both, exemptions for potential road salt and/or de-icing substance impacts to the Phase Two Property are provided for under Paragraph 1 of Section 49.1 of O. Reg. 153/04, as amended.

Englobe intends to rely upon the exemption set out in Paragraph 1 of Section 49.1 of O. Reg. 153/04, as amended, to exempt road salt and/or de-icing substance impacts to the Phase Two Property in the area of the driving and parking area, specific to impacts of electrical conductivity and SAR, in soil, and sodium and chloride, in groundwater.

Englobe does not intend to rely upon the exemption set out in Paragraph 1.1 or 2 of Section 49.1 of O. Reg. 153/04, as amended, as Englobe is not aware of any previously identified exceedances at the Site to which this exemption would apply.

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# Appendix G

## Qualifications of the Assessors



eNGLOBE

# Qualifications of the Assessors

**Andrew Couturier, B.Sc., C.E.T., EP** is a Project Manager with Englobe. Andrew Couturier has over 6 years of experience in the environmental industry. He has a wide range of professional experience in environmental, hazardous materials, and building demolition engineering. He has been involved in several types of environmental projects, including Phase One and Phase Two environmental site assessments under Ontario Provincial Standards in accordance with both CSA Standards and Ontario Regulations, conducting soil, groundwater, and surface water sampling, designing and overseeing building demolition operations, and evaluating structures for designated substances and hazardous materials, including PCBs, mould, and radioactivity.

**Andrew Naoum, P. Eng., QP<sub>ESA</sub> (Ont)** is a Senior Director with Englobe with 14 years of experience in environmental field studies including all Phases for ESAs, risk assessment field work, site remediation, specifications and tender documents, site supervision, audit management/remediation environmental compliance audits. He has managed teams of engineers and professionals in environmental, geotechnical, civil and structural engineering. In addition, Mr. Naoum has been involved in providing independent peer review services to major site remediation projects, expert witness on numerous litigation cases related to environmental forensic investigations and building construction. He is a designated “Qualified Person” as defined under O.Reg. 153/04.