# Phase Two Environmental Site Assessment - 220 Bradford Street, Barrie, Ontario

2020-04-20

Prepared for: Chayell Hotels Ltd.

Cambium Reference No.: 9326-001

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## 1.0 Executive Summary

Chayell Hotels Ltd. (Client) retained Cambium Inc. (Cambium) to complete a Phase Two Environmental Site Assessment (ESA) of the property at 220 Bradford Street in Barrie, Ontario (Site or Phase Two Property). The Phase Two ESA will be used to support filing a Record of Site Condition (RSC) under Section 168.3.1 of Part XV.1 of the *Environmental Protection Act*; therefore, it was completed to meet the requirements of Ontario Regulation (O.Reg.) 153/04.

The roughly 0.35 ha Site is on the west side of Bradford Street and extends to Sanford Street. The Site is currently vacant and undeveloped but was formerly used for residential and commercial purposes.

Twenty-two potentially contaminating activities (PCAs) were identified within the Phase One Study Area. These PCAs contributed to five areas of potential environmental concern (APECs).

To investigate the APECs, the following investigations have been completed by Cambium and others.

- Advanced 25 boreholes to depths ranging from 1.2 m to 10.7 m below ground surface (bgs) with 18 monitoring wells
- Soil samples were analyzed for volatile organic compounds (VOCs), petroleum hydrocarbons (PHC) F1-F4, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), metals, and inorganics.
- Groundwater samples were analyzed for VOCs, PHC F1-F4, PAHs, PCBs, and metals.

The investigation results identified the following:

- PHC F4 impacts in soil in the central portion of the Site
- VOC impacts in shallow groundwater across the south and east portions of the Site, from property line to property line

- VOC impacts in deeper groundwater are present across the Site and are part of the regional TCE plume north/northwest of the Site

## 2.0 Introduction

The Client retained Cambium to complete a Phase Two ESA at 220 Bradford Street in Barrie, Ontario.

The proposed future use of the Site is residential. Based on a review of historical property use, a change in land use to a more sensitive use will occur on the Site. This part of the Site is subject to Section 168.3.1 of Part XV.1 of the Environmental Protection Act, which requires a RSC to be filed in the Environmental Site Registry when a change to a more sensitive land use occurs.

It is the Client's intention the file an RSC for the entire Phase Two Property; therefore, this Phase Two ESA was prepared consistent with O.Reg. 153/04. The report headings, format, and content follow the requirements of O.Reg. 153/04. Additional sections have been added for the purpose of improving report clarity and completeness.

Site description, ownership, future land use, and applicable soil and groundwater standards are discussed in the following sub-sections.

### 2.1 Site Description

The Site is on the west side of Bradford Street and extends to Sanford Street in Barrie, Ontario in the County of Simcoe. Site information is summarized below. The Phase Two Property location is shown on Figure 1. A plan of survey is provided in Appendix A.

Property use surrounding the Site is as follows.

North: Commercial (The Speech Clinic – 218 Bradford Street) and residential (212 and 214 Bradford Street)

South: Commercial (Simcoe County Logistic Support Unit - 224 Bradford Street) and parkland (240 Bradford Street)

East: Bradford Street then industrial (249 Bradford Street - City of Barrie Wastewater Treatment Facility)

West: Residential (149 to 163 Sanford Street)

***Site Identification Information***

| | |
|---|---|
| **Municipal Address** | 220 Bradford Street, Barrie, Ontario |
| **Historical Land Use** | Commercial and Residential |
| **Current Land Use** | Vacant former commercial and residential |
| **Future Land Use** | Residential |
| **PIN** | 58794-0126 |
| **Roll No.** | 434204000108100 |
| **Universal Transverse Mercator Coordinates*** | Zone 17T<br>604130 m E, 4914439 m N |
| **Legal Description** | Part Parklot 15 West Side Bradford Street, Lot 16 West Side Bradford Street, Lot 17 West Side Bradford Street, Lot 18 West Side Bradford Street, Plan 15 Barrie, Part 4 of Plan 51R-7586; Barrie |
| **Site Area** | ≈0.35 ha (0.85 acres) |

* Coordinates were obtained from Google Earth Pro.

## 2.2 Property Ownership

Property owner and contact information is provided below.

| Property Owner | Contact Information |
|---|---|
| Chayell Palm Canada Ltd.<br>7815 Kent Boulevard<br>Brockville, Ontario<br>K6V 6N7 | Ali Rehman<br>Vice President/COO<br>Phone: (613) 484-6061<br>Email: ali@hiebrockville.com |

## 2.3 Current and Proposed Future Uses

The Site is currently vacant and undeveloped. Around 1945, a dwelling was constructed on the Site and in approximately 1949, a commercial building was constructed. The Site was used for residential and commercial purposes until 2012 when the buildings were demolished. From 1949 to 2012, commercial occupants included an autobody/auto repair shop and a car dealership.

Cambium understands that Chayell Hotels intends to redevelop the entire Site for residential use, which constitutes a change to a more sensitive land use for the former commercial portion of the Site. A proposed site plan is provided as Figure 2.

## 2.4 Applicable Site Condition Standards

O.Reg. 153/04, Records of Site Condition – Part XV.1 under the *Environmental Protection Act* specifies acceptable limits of contaminants in soil, groundwater, and sediment in the *Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act* (MOE, 2011). These standards are presented in tables (Tables 1 to 9) defined by groundwater use (i.e., potable or non-potable) and type of remediation (full depth or stratified). Each table presents chemical-specific site condition standards (SCS) based on property use (agricultural, residential/parkland/ institutional, or industrial/community/ commercial), grain-texture (medium/fine-textured or coarse-textured).

Selection of the applicable SCS considered the following characteristics specific to the Site:

- Intended property use
- Soil characteristics
- Environmental sensitivity, including:
    - Soil pH
    - Proximity to areas of natural significance
- Proximity of water bodies
- Groundwater use

**Intended Property-Use**

The proposed future use of the Site is residential. Therefore, the applicable land use category was residential/parkland/institutional (RPI).

**Soil Characteristics**

Investigations completed at the Site have identified the overburden stratigraphic profile as discontinuous fill (sand and gravel, silty sand, and sand) overlaying layers of sand, silt, and clay to the maximum depth investigated 10.7 mbgs.

Based on grain size distribution testing completed by Pinchin (2018) and grain size distribution and hydraulic conductivity testing by Cambium, coarse-textured soil was considered applicable. Grain size analysis results are included in Appendix B. Hydraulic conductivity test results are included in Appendix C.

**Environmentally Sensitive Areas**

The O.Reg.153/04 generic SCS cannot be used at properties that are within, include, or are proximate (i.e., within 30 m) to an area of natural significance, when soil pH is not within the acceptable ranges for surface (5 to 9) and/or sub-surface soils (5 to 11), or if a Qualified Person (QP) is of the opinion that it is appropriate to apply Section 41 of the regulation.

*Areas of Natural and Scientific Interest*

Based on a site sensitivity search completed as per the requirements of Section 41 of O.Reg.153/04, no areas of natural significance as defined by the regulation, were identified on or within 30 m of the Site. Therefore, the Site was not considered an environmentally sensitive area and the generic SCS were applicable.

*Soil pH*

Six soil samples were submitted for laboratory analysis by THEM (2016a), Pinchin (2018), and Cambium to assess soil pH at the Site. Soil pH results were within the acceptable ranges for surface and sub-surface soil.

*Qualified Person Opinion*

Geologic and hydrogeological parameters that influence the derivation of the O.Reg.153/04 generic SCS were compared to site-specific data and the generic values used in the derivation

of the SCS. The site-specific parameters were consistent with the defaults; therefore, it was the QP's opinion that the generic SCS were applicable.

**Proximity of Water Bodies and Shallow Bedrock**

SCS are defined for properties that are within 30 m of a water body or at which bedrock is less than 2 mbgs.

Hotchkiss Creek ranges from 20 m to 50 m south of the Site; therefore, the Site is within 30 m of a water body, as defined in O.Reg. 153/04. The generic SCS established for properties within 30 m of a water body (i.e., Tables 8 or 9) were considered applicable for the Site.

Subsurface investigations completed at the Site by THEM (2016a), Pinchin (2018), and Cambium did not encounter bedrock to a maximum depth of 10.7 mbgs. Therefore, the generic SCS established for properties with shallow bedrock (i.e., Tables 6 and 7) were not applicable.

**Shallow Groundwater and Groundwater Use**

Groundwater levels measured between 2016 and 2019 ranged from 0.81 to 3.91 mbgs. Generally, the depth to groundwater is less than 2 mbgs on the south side of the Site and greater than 2 mbgs on the north side of the Site. Therefore, the generic SCS established for properties with shallow bedrock (i.e., Tables 6 and 7) was deemed applicable when evaluating groundwater quality for purposes of risk assessment.

For groundwater at a property to be considered non-potable, all properties within 250 m of the property must be supplied by a municipal drinking water system that does not obtain its water from a groundwater source.

The City of Barrie obtains drinking water from surface water and groundwater wells; therefore, the generic SCS established for properties in a potable groundwater condition were considered applicable for the Site.

**Applicable Generic Site Condition Standards**

Based on the foregoing, Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition, were considered appropriate for use at the Site.

For evaluation of groundwater quality for purposes of risk assessment, Table 6: Generic Site Condition Standards for Shallow Soils in a Potable Ground Water Condition, were considered appropriate to account for shallow groundwater conditions on the south side of the Site.

# 3.0 Background Information

## 3.1 Physical Setting

The Site slopes gently toward the southeast. Site elevation generally ranges from 222 to 224 m above sea level (Simcoe, 2019). A roughly 2 m embankment, reported to be fill imported to the Site in 2012, is present along the retaining wall on the northeast property boundary. The topography increases regionally to the west (Simcoe, 2019).

The Site is within the Simcoe Lowlands physiographic region (Chapman & Putnam, 2007), characterized by level plains composed of sand, silt and clay. In the general area, the overburden is coarse-textured glaciolacustrine deposits of sand and gravel with minor silt and clay (OGS, 2010). The soils overlie Verulam formation limestone and shale (OGS, 2007). A search of the Ministry Water Well Information System by ERIS indicated that the stratigraphy in the Phase One Study Area generally consisted of sand, silty sand, and silt to the maximum depth of 14.3 mbgs. Clay was encountered around 9 to 11 mbgs in some locations and peat was encountered around to Hotchkiss Creek. Bedrock was not encountered.

No areas of natural significance, as defined by O.Reg. 153/04, were identified on or within 30 m of the Site.

## 3.2 Past Investigations

Relevant information from the available reports is summarized below by report. In addition, Cambium conducted a Phase One ESA at the Site (Cambium, 2019). Information from the Phase One ESA is incorporated throughout this report.

**Phase I ESA** (Skelton, Brumwell & Associates, 2012)

Skelton Brumwell indicated that the Phase I ESA was completed in accordance with the procedures outlined in O.Reg. 153/04. The Phase I ESA included a review of readily available historical and regulatory records, a site reconnaissance, interviews, and an evaluation of information and reporting.

A review of the Ministry of Natural Resources Ontario Base Map (OBM) based on 1983 aerial imagery indicates the property is relatively flat at an elevation of 225 m above sea level.

Skelton Brumwell interviewed Dennis Tascona, a representative of the owner of the propertry, and Les Babinchak, a former tenant at the site. Mr. Tascona stated that the property was used as a used car dealership and autobody shop from 1949 to 2012. His father owned the car dealership and autobody shop and in 1989, a portion of the building was rented to Mr. Babinchak. Mr. Babinchak owned Harris Auto Electric and completed repairs of electrical components of automobiles from 1989 to 2012. Any hazardous wastes generated on-site were disposed off-site by Mr. Babinchak or picked up and disposed off-site by Safety Kleen. Mr. Babinchak stated that the shop did not have any ASTs or USTs and he was unaware of why there would be a record in the Retail Fuel Storage Tanks database.

During the site reconnaissance in October 2012, the property was vacant. There was a large amount of fill, generally sand, on the north side of the property to support a concrete block retaining wall. Morris Shelswell & Sons Excavating & Grading Ltd. brought the fill to the property from 66 Lockhart Road in Barrie during the demolition of a former ship/car dealership and residence in 2012. An oil stain was observed on an asphalt surface on the north side of the property. Adjacent to the south of the property were two mechanic shops, A One Automotive Services and Ed’s Performance Shop.

Skelton Brumwell recommended that a Phase II ESA be conducted at the property “to determine whether or not any contamination exists on the subject lands”.

**Phase II ESA** (THEM, 2016a)

T. Harris Environmental Management (THEM) completed a Phase II ESA based on the information provided in Skelton Brumwell Phase I ESA. The Phase II ESA included the advancement of 10 boreholes (BH1 to BH10) to depths ranging from 1.2 m to 6.1 m below ground surface (mbgs). Three of the boreholes (BH1, BH2, and BH3) were instrumented with monitoring wells.

Soil samples from nine of the boreholes (BH1 to BH4 and BH6 to BH10) were analyzed for one or more of PHC/BTEX, PAHs, metals, electrical conductivity (EC), sodium adsorption ratio

(SAR), cyanide, and pH to assess the concerns identified by the Phase I ESA. A groundwater sample from each the monitoring wells was analyzed for PHCs, VOCs, PAHs, and metals. The findings of the Phase II ESA (with Cambium commentary in *italics)* indicated the following:

- Soil and groundwater analysis results were compared to the Table 9 Site Condition Standards (SCS) for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition (MOE, 2011) due to the proximity of the property to Hotchkiss Creek.
- The soil profile consisted of granular fill ranging from 0.6 to 1.2 m thick across much of the Site. The fill was underlain by native sand and clayey sand to the maximum depth of the investigation, 6.1 mbgs.
- The depth to groundwater was roughly 1.5 mbgs at all monitoring wells on February 26, 2016, three days after completion of the monitoring wells.
- Soil analysis results met the Table 9 SCS for BTEX, PHCs, PAHs, metals, and inorganics. *Concentrations of barium, cobalt, and vanadium exceed the Table 6 SCS applicable at properties with shallow groundwater (<3 mbgs).*
- Chlorinated solvents (a subset of VOCs) were present at concentrations greater than the Table 9 SCS in all three monitoring wells.

THEM concluded that VOC impacted groundwater was present at the Site. No recommendations were provided.

**Groundwater Sampling & Analysis** (THEM, 2016b)

The groundwater sampling and analysis was completed to minimize uncertainty associated with groundwater conditions in existing wells on the property.

Groundwater samples were collected from three existing on-site wells (BH1, BH2, and BH3) and submitted for analysis of VOCs. The findings of the groundwater sampling and analysis indicated the following:

- THEM compared the results to the Table 9 SCS.

- The depth to groundwater ranged from 1.51 m (BH1) to 2.27 mbgs (BH3) on May 26, 2016 (approximately three months after completion of the wells).
- Chlorinated solvents (cis-1,2-dichloroethylene, trichloroethylene, and vinyl chloride) were present at concentrations greater than the Table 9 SCS in the groundwater samples collected from all three wells.

**Phase II ESA** (Pinchin, 2018)

The purpose of this Phase II ESA was to further investigate soil and groundwater quality based on the findings of the Phase II ESA completed by THEM. Pinchin indicated that the Phase II ESA was completed in general accordance with the Canadian Standards Association (CSA) Standard Z769-00 (R2013). The Phase II ESA included the advancement of four boreholes (BH101 to BH104) to 6.1 mbgs. All four boreholes were instrumented with monitoring wells.

A soil sample collected at the bottom of each of the boreholes BH101 to BH104 was analyzed for VOCs. One soil sample collected at BH104 was analyzed for PHC/BTEX. Based on review of the borehole logs, the analyzed soil sample for PHC/BTEX was selected for analysis on the basis of field vapor screening results (i.e., samples with highest vapors submitted for analysis). In addition, two borehole soil samples were analyzed for grain size. A groundwater sample from each the new monitoring well and three existing monitoring wells was analyzed for VOCs. The findings of the Phase II ESA indicated the following:

- Pinchin compared the soil and groundwater analysis results to the Table 2 Full Depth Generic SCS in a Potable Ground Water Condition (MOE, 2011) for industrial/commercial/ community land use and coarse-textured soil.
- The soil profile consisted of fill (sand and gravel) to a depth of 0.3 to 0.46 mbgs. The fill was underlain by native sand to silty sand to the maximum depth of the investigation (6.1 mbgs).
- Groundwater levels were measured in the existing monitoring wells and the newly installed monitoring wells. The depth to groundwater ranged from 1.56 m (BH102) to 3.76 mbgs

(BH101) on August 27, 2018 (four days after completion of the wells). Groundwater flow direction was to the east-northeast toward Kempenfelt Bay.

- The overburden soil was coarse-textured.
- Soil analysis results met the Table 2 SCS for BTEX/PHCs and VOCs.
- Chlorinated solvents were present at concentrations greater than the Table 2 SCS in three existing monitoring wells (BH1 to BH3) and two new monitoring wells (BH102 and BH104)
- Non-aqueous phase liquids (NAPL) were not present in the on-site monitoring wells.
- Pinchin concluded that VOC impacted groundwater was present at the Site and recommended that a risk-based approach be completed to assess the human health and ecological risks resulting from the Table 2 SCS exceedances.

# 4.0 Scope of the Investigation

## 4.1 Overview of the Site Investigation

The proposed scope of work for the Phase Two ESA was based on the requirements of O.Reg. 153/04 and the findings of the Phase One ESA. The Phase Two ESA investigation included sampling of soil and groundwater. Soil and groundwater samples were submitted to an analytical laboratory accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA). The Phase Two ESA was subject to a Quality Assurance/Quality Control (QA/QC) program, including analysis of blind duplicate soil and groundwater samples and trip blanks as outlined in the Sampling and Analysis Plan (SAP) in Appendix D. The SAP was developed to assess APECs identified by the Phase One ESA and further assess contaminants of concern (COCs) identified during previous subsurface investigations.

Cambium coordinated and provided direction to subcontractors required to complete the work, including utility locators and a licensed well drilling contractor; and retained an accredited laboratory for analysis of soil and groundwater samples. Prior to conducting any field work, Cambium prepared a Site Health and Safety Plan (HASP) tailored to the known and possible contaminants on-site, physical site hazards and the type of work scheduled to be conducted. Included in the HASP was a detailed map showing the transportation route to the nearest hospital, emergency contact numbers, and other pertinent information required for site work on potentially contaminated sites. All persons entering the Site as contractors or otherwise were required to review the document and sign off prior to their admission.

Cambium arranged for underground services to be located and marked by public and private utility companies. Private utility locating company Utility Marx was at the Site on August 21, 2019 and January 27, 2020 to provide clearance for buried services at all proposed borehole locations.

## 4.2 Media Investigated

The Phase Two ESA investigated soil and groundwater quality. As no water bodies exist on the property, surface water and sediment sampling was not applicable. Soil quality at the Site was investigated through dual tube sampling. The drilling method was selected based on sample depth, subsurface conditions, and monitoring well requirements.

Groundwater samples were collected from monitoring wells using low-flow sampling techniques and a peristaltic pump. The low-flow sampling methodology minimizes the velocity of the formation water entering the well screen and reduces the amount of sediment entrained in the collected groundwater samples, as the drawdown is kept to a minimum by adjusting the pumping rate accordingly.

Soil sampling was completed on August 22 and 26, 2019. Groundwater sampling was completed on August 29, September 12, October 10, and October 24, 2019, and February 12, 2020.

## 4.3 Phase One Conceptual Site Model

The following descriptions and discussion supplement the attached Figure 3 and Figure 4, which comprise the Phase One Conceptual Site Model (CSM). The purpose of the CSM is to assist the QP in illustrating the results of the Phase One ESA and to provide a basis for further work, if required.

### 4.3.1 Site Description

The Site is on the west side of Bradford Street and extends to Sanford Street in Barrie, Ontario in the County of Simcoe. The legal description of the Site is *Part Parklot 15 West Side Bradford Street, Lot 16 West Side Bradford Street, Lot 17 West Side Bradford Street, Lot 18 West Side Bradford Street, Plan 15 Barrie, Part 4 of Plan 51R-7586; Barrie*. The Property Identification Number (PIN) is 58794-0126 (LT). The Universal Transverse Mercator (UTM) coordinates for the centroid for the Site are Zone 17 T, 604130 m east and 4914439 m north. The roughly 0.35 ha Site is bound by residential and commercial land use to the north,

commercial and parkland land use to the south, Bradford Street to the east, and residential land use to the west.

### 4.3.2 Existing Buildings and Structures

There is a retaining wall along northeast property boundary. The remainder of the Site is vacant and undeveloped. Historical structures were removed in 2012.

### 4.3.3 Water Bodies and Areas of Natural Significance

The closest water body is Hotchkiss Creek, which runs roughly parallel to the Site and ranges from 20 m to 50 m south of the Site; therefore, the Site is within 30 m of a water body, as defined in O.Reg. 153/04.

Cambium reviewed the Ministry of Natural Resources and Forestry (MNRF) online Make A Map: Natural Heritage Areas to determine if an area of natural significance, as defined in Section 1 of O.Reg. 153/04, is located in whole or in part within the Phase One Study Area (MNRF, 2019). The search did not identify occurrences of species at risk on the Site; therefore, the Site is not considered an area of natural significance.

### 4.3.4 Drinking Water Wells

The Phase One Study Area is municipally serviced for drinking water. No drinking water wells were observed on the Site and no records of drinking water wells at the Site were identified by the records review.

A search of the Ministry Water Well Information System by ERIS identified three records for on-site monitoring wells and 19 records for water wells within the Phase One Study Area ranging from about 15 m to 200 m from the Site. The wells were identified as observation wells, monitoring and test holes, or dewatering wells. Some records were for the abandonment of unspecified wells.

### 4.3.5 Potentially Contaminating Activities

Based on the records review, site reconnaissance, and interviews, 22 PCAs (three on-site and 19 off-site), listed below, were identified within the Phase One Study Area. Refer to Table 1 for PCA details and Figure 3 for PCA locations.

PCA #1 Former on-site commercial autobody shop
PCA #2 On-site fill of unknown quality adjacent to the retaining wall
PCA #3 On-site contaminants in groundwater
PCA #4 Former gasoline service station at 224 Bradford Street
PCA #5 Former automotive repair garage at 224 Bradford Street
PCA #6 Former automotive repair garage at 240 Bradford Street
PCA #7 Former gasoline service station off-site to the southeast
PCA #8 Former gasoline service station at 252 Bradford Street
PCA #9 Gasoline UST at Dangerfield Motors formerly off-site to the east
PCA #10 Dangerfield Motors formerly off-site to the east
PCA #11 Barrie sewage treatment plant off-site to the east
PCA #12 Automotive repair garage at 84 Tiffin Street
PCA #13 Former automotive repair garage at 94 Tiffin Street
PCA #14 Former bulk fuel plant at 91 Tiffin Street
PCA #15 Former gasoline service station at 254 Bradford Street
PCA #16 Former automotive repair garage at 212 Bradford Street
PCA #17 Motor oil spill on Bradford Street, north of Tiffin Street
PCA #18 Barrie Public Utilities Commission at 184 Innisfil Street
PCA #19 Historical landfill northeast of Brock and Sanford Street
PCA #20 Historical landfill northwest of Brock and Sanford Street
PCA #21 Former private service station at 85 Brock Street
PCA #22 Regional TCE plume north of the Site

### 4.3.6 Areas of Potential Environmental Concern

As required by O.Reg. 153/04, all on-site PCAs resulted in an APEC. Based on a review of potential to result in contamination at the Site, four of the off-site PCAs contributed to an

APEC. APECs are listed below. Refer to Table 2 for APEC details and Figure 4 for APEC locations.

APEC 1 Footprint of the former autobody shop (PCA 10 - Commercial Autobody Shops)

APEC 2 Embankment along the northeast side of the Site (PCA 30 - Importation of Fill Material of Unknown Quality)

APEC 3 South portion of the Site (Unidentified PCA – Previously identified VOC and metal contaminants)

APEC 4 Southeast property boundary due to historical off-site activities to the southeast (PCA 27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles and PCA 28 - Gasoline and Associated Products Storage in Fixed Tanks)

APEC 5 Entire Site (Unidentified PCA – Regional TCE plume north of the Site)

### 4.3.7 Contaminants of Potential Concern

COPCs were identified for each PCA contributing to an APEC. The COPCs specific to each APEC are summarized in Table 2. VOCs, PHCs, PAHs, PCBs, and metals were identified as COPCs related to the current and historical on and off-site PCAs.

### 4.3.8 Contaminant Distribution and Transport

No underground utilities were identified on, in, or under the Site. Contaminant distribution and transport may be influenced by the presence of utility trenches that were historically present on the Site. Water level data reviewed for the Site indicates that the water table is within sand, which would likely have similar properties as trench backfill. Therefore it is considered unlikely that preferential migration of contaminants would occur via historical utility trenches.

No specific climatic or meteorological conditions were observed that may influence the distribution or migration of contaminants.

### 4.3.9 Geological and Hydrogeological Setting

The Site slopes gently towards the southeast. Site elevation generally ranges from 222 to 224 m above sea level (Simcoe, 2019). A roughly 2 m embankment, reported to be fill imported to the Site in 2012, is present along the retaining wall on the northeast property boundary. The topography increases regionally to the west (Simcoe, 2019).

The Site is within the Simcoe Lowlands physiographic region (Chapman & Putnam, 2007), characterized by level plains composed of sand, silt and clay. In the general area, the overburden is coarse-textured glaciolacustrine deposits of sand and gravel with minor silt and clay (OGS, 2010). The soils overlie Verulam formation limestone and shale (OGS, 2007). A search of the Ministry Water Well Information System by ERIS indicated that the stratigraphy in the Phase One Study Area generally consisted of sand, silty sand, and silt to the maximum depth of 14.3 mbgs. Clay was encountered around 9 to 11 mbgs in some locations and peat was encountered around to Hotchkiss Creek. Bedrock was not encountered.

Subsurface investigations completed by THEM in 2016 and Pinchin in 2018 identified the soil profile as fill ranging from 0.3 to 1.2 m thick underlain by native sand, silty sand and clayey sand to the maximum depth of the investigations, 6.1 mbgs.

The depth to groundwater on February 26, 2016 was roughly 1.5 mbgs in the three monitoring wells installed on February 23, 2016. On August 27, 2018, the depth to groundwater ranged from 1.56 m to 3.76 mbgs in the three monitoring wells installed in 2016 and the four monitoring wells installed on August 23, 2018. Based on the water levels collected on August 27, 2018, the groundwater flow direction was northeasterly toward Kempenfelt Bay.

### 4.3.10 Uncertainty or Absence of Information

All aspects of the Phase One ESA were conducted consistent with O.Reg. 153/04, and as such, the Site was investigated thoroughly to the best of the assessor's abilities. As access to the entire Site was possible, and adequate historical information was available through the interviewee's and records review, uncertainty or absence of information is not expected. While the placement of historical off-site structures and PCAs based on FIPs may be of low

accuracy, investigations completed during the Phase Two ESA can account for this uncertainty with increased investigation and sample locations.

## 4.4 Deviations from Sampling and Analysis Plan

There were no deviations from the Sampling and Analysis Plan.

## 4.5 Impediments

No physical impediments or denial of access were encountered during the Phase Two ESA investigation.

# 5.0 Investigation Method

## 5.1 General

The following sections provide a description of the subsurface investigation conducted from August 22, 2019 to February 12, 2020. Soil and groundwater samples were analyzed for the COPCs: VOCs, PHC F1-F4, PAHs, PCBs, and/or metals.

As previously referenced in Section 2.4, the applicable SCS for the evaluation of soil and groundwater quality at the Site is Table 8 (Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Groundwater Condition). Residential property use and coarse grained soils were selected to determine concentration exceedances for the analyzed parameters.

## 5.2 Drilling and Excavating

Drilling was completed by Strata Drilling Group (Strata) and Walker Drilling Ltd. (Walker), qualified and licensed well contractors, consistent with R.R.O. Regulation 903.

On August 22 and 26, 2019, and January 29, 2020, Strata advanced 10 boreholes (BH201 to BH208 and BH401 and BH402) to a maximum depth of 10.7 mbgs, using a track-mounted Geoprobe 7822DT drilling rig. On October 21, 2019, Walker advanced four boreholes (BH301 to BH304) to 4.6 mbgs, using a track-mounted D52 drilling rig. BH201 to BH208, BH301, BH401, and BH402 were instrumented with groundwater monitoring wells. The drilling locations, except BH302 to BH304, which were drilled to provide geotechnical data, were selected to assess APECs identified in the Phase One ESA (Cambium, 2019). The borehole and monitoring well locations are shown on Figure 5.

## 5.3 Soil: Sampling

During the drilling program, soil samples were collected continuously or every 0.76 to 1.5 m. No soil samples were collected from BH301, BH401 and BH402 for the Phase Two ESA

investigation. Each sample was handled solely by the Cambium field technician using dedicated nitrile gloves to reduce the potential for cross-contamination.

Soil samples were logged for soil type, moisture content, presence of odour, and signs of impacts such as staining, consistent with standard geotechnical and environmental soil descriptions and nomenclature. A portion of each soil sample was placed in a dedicated polyethylene sample bag and field screened using an RKI Eagle 2 portable gas detector for concentrations of combustible soil vapour (CSV) and organic vapour (OV), calibrated to hexane and isobutylene, respectively. The field screening observations were used to determine which samples to submit for laboratory analysis.

Samples were collected consistent with the *Guidance on Sampling and Analytical Methods for use at Contaminated Sites in Ontario* (MOE, 1996) and O.Reg. 153/04. Samples to be submitted for analysis of VOCs and/or PHC F1 were collected using a Terra Core sampler and methanol preserved vial.

## 5.4 Field Screening Measurements

Olfactory and visual observations of the soil samples were documented immediately upon extraction for soil characteristics and potential indicators of environmental contamination. The samples placed in plastic sample bags and sealed, were used to determine if any vapours were present in the soil headspace. Each sample was measured for concentrations of CSV and OV using an Eagle 2 portable gas detector, calibrated to hexane and isobutylene, respectively. After agitating the sample, the peak reading was recorded by inserting the meter probe into the sample bag. Refer to the borehole logs in Appendix E for the recorded vapour readings.

## 5.5 Groundwater: Monitoring Well Installation

Monitoring wells were completed in the boreholes BH201 to BH208, BH301, BH401, and BH402. The monitoring wells were constructed using 50 mm or 25 mm inner diameter, flush threaded PVC well pipe with a 1.5 or 3.0 m section of screen at the base of the well. Washed silica sand filter pack was brought to 0.3 metres above the top of the screens. The wells were

completed with bentonite (seal) to at least 0.3 m below grade. The monitoring wells were completed with monument or flush-mount protective covers.

Following installation, monitoring wells were developed by purging ten well volumes of groundwater or purging dry three times. Groundwater was purged to remove sediment from the well, stabilize and grade the filter pack, improve connectivity between the well and the formation, and restore groundwater that may have been disturbed during the drilling process to ensure the samples are representative of true formation water.

Refer to the borehole logs in Appendix E for details regarding the monitoring well installation materials.

## 5.6 Groundwater: Field Measurement of Water Quality Parameters

Groundwater samples collected for analysis were field tested for pH, temperature, conductivity, dissolved oxygen, and oxidation-reduction potential (ORP), using specific field parameter meters.

## 5.7 Groundwater: Sampling

As per O.Reg. 153/04, all groundwater sampling was conducted consistent with the regulation by or under the supervision of a QP.

On August 29, 2019, Cambium staff completed groundwater sampling of 11 monitoring wells (BH201 to BH208, BH1, BH2, and BH102). On September 12, 2019, Cambium resampled BH201 and BH208 for select parameters. On October 10, 2019, Cambium resampled BH2 and sampled BH102 for metals. On October 24, 2019, Cambium sampled BH301 and on February 12, 2020, Cambium sampled BH401 and BH402.

Prior to all sampling events, the static groundwater elevation was collected at each of the monitoring wells, using an interface probe, which can accurately measure the depth to groundwater and the thickness of non-aqueous phase liquids (DNAPL & LNAPL) that may be present in groundwater monitoring wells.

Prior to sampling monitoring wells installed by THEM in 2016 (BH1 and BH2) and Pinchin in 2018 (BH102), a minimum of three well volumes of groundwater were purged from to remove stagnant water and to ensure the samples are representative of true formation water.

Groundwater samples were collected using low-flow sampling techniques and a peristaltic pump, with dedicated tubing installed in each of the monitoring wells. Low-flow sampling reduces the amount of sediment entrained in the collected groundwater samples, as agitation of the water column is minimized by lowering the pumping rate and limiting the movement of the tubing in the water column. Prior to sample collection, each monitoring well was purged until field-measured parameters (pH, temperature, conductivity, dissolved oxygen, and oxidation/reduction potential) had stabilized, to ensure samples were representative of the surrounding groundwater aquifer. Groundwater samples submitted for analysis of metals were field filtered.

Technicians wore nitrile sample gloves while collecting the groundwater samples and replaced the glove set between each sample location.

## 5.8 Analytical Testing

All samples submitted for chemical analysis were placed in a cooler and kept at less than 10°C for transport to Caduceon in Barrie, Ontario.

Soil and groundwater samples, including duplicate samples, were submitted for analysis of the following parameters: PHCs, VOCs, PAHs, metals, PCBs, and/or pH. A summary of the samples submitted for analysis is provided in Table 3. Additionally, trip blanks were submitted for analysis of VOCs with each submission of groundwater samples collected for VOC analysis.

The analysis results are discussed in Section 6.0. Copies of the laboratory Certificates of Analysis as received from Caduceon are included in Appendix F.

## 5.9 Residue Management Procedures

Soil cuttings from the drilling program and purged groundwater were stored in steel drums on the Site.

## 5.10 Elevation Surveying

On September 3 and October 23, 2019, and March 13, 2020, Cambium surveyed the location and elevation of monitoring wells using a Topcon RTK enabled HiPer II GPS system with an FC-25 field controller. Monitoring wells surveyed on October 23, 2019 and March 13, 2020, were surveyed relative to the known elevation of a monitoring well previously surveyed. The surveyed elevations, along with groundwater measurements, were used to determine the direction of groundwater flow at the Site. A summary of the monitoring well elevation data is provided in Table 4.

## 5.11 Quality Assurance and Quality Control Measures

As part of the QA/QC program, blind duplicate soil and groundwater samples were submitted in conjunction with the original sample for comparison purposes, at a minimum rate of one duplicate sample for every 10 samples submitted. Blind duplicate samples were collected at the same time as the original sample and placed into a separate container; split sampling methodology was used to ensure that the sampling was completed in exactly the same way for both original and duplicate samples. Refer to Section 6.8 for the results of the QA/QC program.

Trip blanks were prepared by Caduceon and was submitted for analysis of VOCs together with the groundwater samples submitted on August 29, September 12, and October 24, 2019, and February 13, 2020. A trip blank is a sample of laboratory grade water that has negligible or immeasurable amounts of the substance of interest, and is transported to and from the sampling location, and carried through the entire sampling and analytical process.

All equipment and tools used to obtain soil samples were cleaned with Alconox© and distilled water before the collection of each sample. Technicians wore dedicated nitrile gloves which were replaced with each sample.

# 6.0 Review and Evaluation

## 6.1 Geology

The physiography and geology of the Site has been discussed previously in Section 3.1. Investigations completed at the Site have identified the overburden stratigraphic profile as discontinuous fill (sand and gravel, silty sand, and sand) overlaying layers of sand, silt, and clay to the maximum depth investigated 10.7 mbgs.

Bedrock was not encountered during subsurface investigations. A review of Ministry water well records within 300 m of the Site (Ministry, 2019) indicated that bedrock was not encountered to the maximum depth of 93.3 mbgs.

## 6.2 Groundwater: Elevations and Flow Direction

Water level data was collected from six existing monitoring wells installed in 2016 by THEM and 2018 by Pinchin, and from the 11 monitoring wells installed in 2019 and 2020 by Cambium. To evaluate groundwater flow direction and hydrogeological characteristics, the monitoring wells were classified as shallow or deep based on installation depth of the screen.

Shallow Wells: BH1, BH2, BH3, BH101, BH102, BH103, BH104, BH201, BH202, BH203, BH204, BH205, BH206, BH207, BH301

Deep Wells: BH208, BH401, BH402

Water level data was available for select wells for February 26 and May 26, 2016; August 24 and 27, 2018; August 29, October 3, November 19, and December 10, 2019; and January 10,February 13, March 11, and April 8, 2020. Water level data is provided in Table 4. Minimum, maximum, and average depths to the water table are summarized below.

| | Shallow Wells | Deep Wells |
|---|---|---|
| **Minimum (mbgs)** | 0.51 | 0.45 |
| **Maximum (mbgs)** | 3.79 | 3.97 |
| **Average (mbgs)** | 2.16 | 1.41 |

The water level (WL) data was used to calculate groundwater elevations. Elevation data is summarized below. Groundwater elevations (GWE) were calculated as follows.

$$GWE = Top\ of\ Casing\ Elevation - WL\ Depth\ below\ Top\ of\ Casing$$

**Summary of Groundwater Elevation Data**

| | Shallow | Deep |
|---|---|---|
| **Highest (masl)** | 222.32 | 222.30 |
| **Lowest (masl)** | 220.29 | 220.62 |
| **Average (masl)** | 221.22 | 221.71 |

masl – metres above sea level

Pinchin (Pinchin) indicated that the shallow groundwater flow was towards the east-northeast on August 27, 2018. Groundwater levels on August 27, 2018 ranged from 1.56 to 3.76 mbgs.

Elevation data for 2016, 2018, 2019, and 2020, indicates the shallow groundwater is easterly with temporal variations to the northeast and southeast. April 2020 elevation data was used to generate the flow direction figures for shallow groundwater (Figure 6) and deep groundwater (Figure 7). Shallow groundwater flow beneath the Site was easterly and deep groundwater flow beneath the Site was northeasterly toward Kempenfelt Bay in April 2020.

## 6.3 Groundwater: Hydraulic Gradients

The average horizontal hydraulic gradient in the shallow groundwater in October 2019, and April 2020 was 0.01 m/m.

Cambium conducted rising and falling head slug tests at three shallow monitoring wells. The data generated was processed using AquiferTest Pro ™ software and is summarized below. Slug test analysis reports are presented in Appendix B.

The well screens only partially penetrated the aquifer, therefore the rising head slug tests (slug out) was considered more representative of aquifer conditions. The hydraulic conductivity varied from 7.72 x $10^{-5}$ m/s to 1.00 x $10^{-4}$ m/s. The results were considered representative of the sand layer within which the wells were screened and similar to results outlined in literature (Fetter, 2001; J.P.Powers, 2007).

***Hydraulic Conductivity Results (m/s)***

| Test # | BH202 | BH204 | BH207 |
|---|---|---|---|
| | Slug Out | Slug Out | Slug Out |
| Slug Test 1 | $8.65 \times 10^{-5}$ | $2.53 \times 10^{-4}$ | $1.01 \times 10^{-4}$ |
| Slug Test 2 | $7.72 \times 10^{-5}$ | $2.67 \times 10^{-4}$ | $1.00 \times 10^{-4}$ |
| Slug Test 3 | $8.46 \times 10^{-5}$ | $2.82 \times 10^{-4}$ | $1.15 \times 10^{-4}$ |
| Slug Test 4 | $8.28 \times 10^{-5}$ | $2.83 \times 10^{-4}$ | $1.10 \times 10^{-4}$ |

Assuming a porosity range of 20% to 25%, hydraulic gradient of 0.01, and a geometric mean hydraulic conductivity of $1.3 \times 10^{-4}$, the average linear shallow groundwater flow velocity ranges from 164 to 205 m per year. The actual velocity is likely significantly lower due to tortuosity.

The horizontal hydraulic gradient for the deeper groundwater in April 2020 was 0.01 m/m. Vertical hydraulic gradients were calculated using April 2020 water level data for clustered monitoring wells BH101/BH402, BH104/BH401, and BH1/BH208. The vertical gradient was 0.10 at BH101/BH402, 0.15 at BH104/BH401, and 0.19 at BH1/BH208. The gradient was upward at all three well clusters.

## 6.4 Fine-Medium Soil Texture

Pinchin (2018) reported grain size results for two soil samples collected from 3.8 to 4.6 mbgs. Cambium completed grain size distribution analyses on four samples of the native soil as summarized below. The grain size distribution results are provided in Appendix B. Based on grain size distribution testing, more than one third of the soil at the Site, measured by volume, is coarse textured.

***Particle Size Distribution Results***

| Borehole | Depth (mbgs) | Material | % Gravel | % Sand | % Silt | % Clay |
|---|---|---|---|---|---|---|
| BH301-19-SS3 | 1.5 – 2.0 | Sand some Gravel trace Silt trace Clay | 10 | 83 | 5 | 2 |
| BH302-19-SS20 | 25.9 – 26.4 | Silt trace Sand trace Clay | 0 | 7 | 88 | 5 |
| BH303-19-SS1 | 0 – 0.6 | Sand some Silt trace Gravel trace Clay | 5 | 77 | 13 | 4 |
| BH304-19-SS9 | 9.5 – 9.6 | Silty sand trace Gravel trace Clay | 1 | 67 | 25 | 7 |

## 6.5 Soil: Field Screening

A portion of each soil sample collected from the boreholes was field screened. No soil samples were collected from BH301, BH401 and BH402 for the Phase Two ESA investigation. Refer to the detailed borehole logs included with this report as Appendix E for the results of field soil screening. Soil samples submitted for analysis can be found in Table 3.

## 6.6 Soil Quality

The submission and analysis of soil samples obtained during the subsurface investigation was discussed in Section 5.8. Cambium submitted soil samples for analysis of: VOCs, PHC F1-F4, PAHs, PCBs, metals, and/or pH. A complete summary of analysis is included in Table 5 and Laboratory Certificates of Analysis are included in Appendix F.

### 6.6.1 Volatile Organic Compounds

Cambium submitted seven soil samples, including one duplicate sample, for analysis of VOCs. There were no exceedances of the Table 8 SCS.

Four soil samples collected in 2018 (Pinchin) were submitted for analysis of VOCs and six soil samples collected in 2016 (THEM) were submitted for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX). There were no exceedances of the Table 8 SCS.

### 6.6.2 Petroleum Hydrocarbons

Cambium submitted eight soil samples, including one duplicate sample, for analysis of PHC F1-F4. The concentration of PHC F4 exceeded the Table 8 SCS in one soil sample collected at BH201 3.0-3.7 m. The remaining results met the Table 8 SCS.

Six soil samples collected in 2016 (THEM) and one soil sample collected in 2018 (Pinchin) were submitted for analysis of PHC F1-F4. There were no exceedances of the Table 8 SCS.

Refer to Figure 10 for the location of the impact, and Figure 11 and Figure 12 for the vertical extent of the PHC F4 impact.

### 6.6.3 Polycyclic Aromatic Hydrocarbons

Cambium submitted five soil samples, including one duplicate sample, for analysis of PAHs. There were no exceedances of the Table 8 SCS.

Two soil samples collected in 2016 (THEM) were submitted for analysis of PAHs. There were no exceedances of the Table 8 SCS.

### 6.6.4 Polychlorinated Biphenyls

Cambium submitted two soil samples, including one duplicate sample, for analysis of PCBs. There were no exceedances of the Table 8 SCS.

### 6.6.5 Metals

Cambium submitted six soil samples, including one duplicate sample, for analysis of metals. There were no exceedances of the Table 8 SCS.

Two soil samples collected in 2016 (THEM) were submitted for analysis of metals. There were no exceedances of the Table 8 SCS.

### 6.6.6 pH

Cambium submitted 2 soil samples, one surface soil (<1.5 mbgs) and one subsurface (>1.5 mbgs) to assess soil pH at the Site. Additionally, four soil samples were submitted for pH analysis by THEM (2016a) and Pinchin (2018) to assess soil pH at the Site.

Soil pH results were within the acceptable ranges for surface (5-9) and sub-surface soil (5-11).

## 6.7 Groundwater Quality

The submission and analysis of groundwater samples obtained during the subsurface investigation was discussed in Section 5.8. Cambium submitted groundwater samples for analysis of: VOCs, PHC F1-F4, PAHs, PCBs, and/or metals. A complete summary of analysis is included in Table 6 and a summary of VOC concentrations in groundwater compared to Table 6 SCS is included in Table 7. Laboratory Certificates of Analysis are included in Appendix F.

### 6.7.1 Volatile Organic Compounds

Cambium submitted 17 groundwater samples, including 3 duplicate samples, for analysis of VOCs. Additionally, Cambium submitted two groundwater samples, including one duplicate sample, for analysis of BTEX.

Six groundwater samples collected in 2016 (THEM) and seven groundwater samples collected in 2018 (Pinchin) were submitted for analysis of VOCs.

VOCs impacts in shallow groundwater are present across the south and east sides of the Site and VOC impacts in deeper groundwater are present across the entire Site. The lateral distribution of VOC impacts is shown on Figure 16. The vertical extent of VOC impacts is shown on Figure 17 and Figure 18.

### 6.7.2 Petroleum Hydrocarbons

Cambium submitted eight groundwater samples, including one duplicate sample, for analysis of PHC F1-F4. There were no exceedances of the Table 8 SCS.

Three groundwater samples collected in 2016 (THEM) were submitted for analysis of PHC F1-F4. There were no exceedances of the Table 8 SCS.

### 6.7.3 Polycyclic Aromatic Hydrocarbons

Cambium submitted four groundwater samples, including one duplicate sample, for analysis of PAHs. There were no exceedances of the Table 8 SCS.

One groundwater sample collected in 2016 (THEM) was submitted for analysis of PAHs. There were no exceedances of the Table 8 SCS.

### 6.7.4 Polychlorinated Biphenyls

Cambium submitted two groundwater samples, including one duplicate sample, for analysis of PCBs. There were no exceedances of the Table 8 SCS.

### 6.7.5 Metals

Cambium submitted eight groundwater samples, including one duplicate sample, for analysis of metals. There were no exceedances of the Table 8 SCS.

One groundwater sample collected in 2016 (THEM) from BH2 was submitted for analysis of metals. The concentrations of barium, cobalt, and vanadium exceeded the Table 8 SCS. However, Cambium resampled BH2 two times in 2019 and the concentrations of all metals parameters met the Table 8 SCS.

## 6.8 Quality Assurance and Quality Control Results

Five duplicate soil samples and three duplicate groundwater samples were submitted to Caduceon for analysis consistent with the SAP.

Where analytical parameters were detected in both the parent and the duplicate samples at more than five times the detection limits, relative percent difference (RPD) was calculated to assess the precision of the analytical data. Based on acceptable RPDs for laboratory duplicates (MOE, 2011) and to account for added sampling and handling variability, the results were evaluated based on data quality objectives (DQOs) of 60% for soil and 40% for groundwater. RPD values were calculated as follows:

$$RPD(\%) = \frac{|x_1 - x_2|}{x_m} \times 100\%$$

Where: $x_1$ = initial sample result

$x_2$ = duplicate sample result

$x_m$ = arithmetic mean of initial and duplicate sample results

The RPDs met the DQOs for soil and groundwater.

Two trip blanks were also submitted in for analysis of VOCs with groundwater samples submitted on August 29 and September 12, 2019. The trip blanks were submitted as part of the QA/QC program to monitor whether VOCs may have been introduced into a sample during transport to and from the analytical laboratory. Results of analysis indicated that all parameters analyzed were less than the laboratory method detection limits.

Certificates of Analysis received for each sample submitted to Maxxam have been included in full in Appendix F. All laboratory Certificates of Analysis pursuant to clause 47 (2) (b) of O.Reg. 153/04, are in compliance of subsection 47(3) of the regulation.

Based on the results of the QA/QC program, the analytical results discussed herein can be interpreted with confidence.

## 6.9 Phase Two Conceptual Site Model

As per Table 1 of Schedule E of O.Reg. 153/04, a Phase Two Conceptual Site Model (CSM) is required assist the qualified person(s) (QP) in illustrating the results of the Phase Two ESA, demonstrating the current condition of the Phase Two Property, or where remedial actions have been undertaken, the condition of the Phase Two Property before the remedial actions were undertaken. The following sections provide the requisite narrative that accompanies Figure 2 to Figure 22.

### 6.9.1 APECs, PCAs, and Structures

Cambium (2019) identified 22 PCAs, 3 on-site and 19 off-site, within the Phase One ESA Study Area. Cambium assessed the PCAs for their risk of contamination to the Site. This assessment resulted in seven PCAs that contributed to areas of potential environmental concern (APECs). The PCAs, APECs, and subsurface utilities and structures on and around the Site are discussed in the following sections. PCAs and APECs are summarized in Table 1 and Table 2, respectively.

#### 6.9.1.1 PCAs

The following on-site and off-site PCAs were identified by the Phase One ESA. Surrounding property use and PCA locations are shown on Figure 3.

**On-site**

PCA #1 Former on-site commercial autobody shop
PCA #2 On-site fill of unknown quality adjacent to the retaining wall
PCA #3 On-site contaminants in groundwater

**Off-site**

PCA #4 Former gasoline service station at 224 Bradford Street
PCA #5 Former automotive repair garage at 224 Bradford Street
PCA #6 Former automotive repair garage at 240 Bradford Street
PCA #7 Former gasoline service station off-site to the southeast
PCA #8 Former gasoline service station at 252 Bradford Street

PCA #9 Gasoline UST at Dangerfield Motors formerly off-site to the east
PCA #10 Dangerfield Motors formerly off-site to the east
PCA #11 Barrie sewage treatment plant off-site to the east
PCA #12 Automotive repair garage at 84 Tiffin Street
PCA #13 Former automotive repair garage at 94 Tiffin Street
PCA #14 Former bulk fuel plant at 91 Tiffin Street
PCA #15 Former gasoline service station at 254 Bradford Street
PCA #16 Former automotive repair garage at 212 Bradford Street
PCA #17 Motor oil spill on Bradford Street, north of Tiffin Street
PCA #18 Barrie Public Utilities Commission at 184 Innisfil Street
PCA #19 Historical landfill northeast of Brock and Sanford Street
PCA #20 Historical landfill northwest of Brock and Sanford Street
PCA #21 Former private service station at 85 Brock Street
PCA #22 Regional TCE plume north of the Site

6.9.1.2 Areas of Potential Environmental Concern

The following four APECs were identified at the Site. The APECs are shown on Figure 4.

APEC 1 Footprint of the former autobody shop (PCA 10 - Commercial Autobody Shops)

APEC 2 Embankment along the northeast side of the Site (PCA 30 - Importation of Fill Material of Unknown Quality)

APEC 3 South portion of the Site (Unidentified PCA – Previously identified VOC and metal contaminants)

APEC 4 Southeast property boundary due to historical off-site activities to the southeast (PCA 27 - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles and PCA 28 - Gasoline and Associated Products Storage in Fixed Tanks)

APEC 5 Entire Site (Unidentified PCA – Regional TCE plume north of the Site)

#### 6.9.1.3 Subsurface Structures and Utilities

Underground communications cables are present beneath the north side of the Site. The depth to the cables is not known. Underground utilities are also present east of the Site beneath Bradford Street and west of the Site beneath Sanford Street.

Contaminants from on- and off-site sources could potentially migrate along utility corridors given that the water table is within the depth typical of utility trenches.

#### 6.9.1.4 Proposed Structures

The Site will be redeveloped for residential use with a mid-rise condominium apartment building. The proposed development is shown on Figure 2.

Volatile COCs are present in groundwater at the Site. These COCs may migrate to indoor air under the proposed redevelopment scenario.

### 6.9.2 Physical Setting

The following subsections describe the physical setting of the Phase Two Property.

#### 6.9.2.1 Stratigraphy

The Site is within the Simcoe Lowlands physiographic region (Chapman & Putnam, 2007), characterized by level plains composed of sand, silt and clay. In the general area, the overburden is coarse-textured glaciolacustrine deposits of sand and gravel with minor silt and clay (OGS, 2010). The soils overlie Verulam formation limestone and shale (OGS, 2007).

Investigations completed at the Site have identified the overburden stratigraphic profile as discontinuous fill (sand and gravel, silty sand, and sand) overlaying layers of sand, silt, and clay to the maximum depth investigated 10.7 mbgs.

Bedrock was not encountered during subsurface investigations. A review of Ministry water well records within 300 m of the Site (Ministry, 2019) indicated that bedrock was not encountered to the maximum depth of 93.3 mbgs.

### 6.9.2.2 Hydrogeology

#### 6.9.2.2.1 Groundwater Elevations and Flow Direction

Water level data was collected from six existing monitoring wells installed in 2016 by THEM and 2018 by Pinchin, and from the 11 monitoring wells installed in 2019 and 2020 by Cambium. To evaluate groundwater flow direction and hydrogeological characteristics, the monitoring wells were classified as shallow or deep based on installation depth of the screen.

Shallow Wells: BH1, BH2, BH3, BH101, BH102, BH103, BH104, BH201, BH202, BH203, BH204, BH205, BH206, BH207, BH301

Deep Wells: BH208, BH401, BH402

Water level data was available for select wells for February 26 and May 26, 2016; August 24 and 27, 2018; August 29, October 3, November 19, and December 10, 2019; and January 10,February 13, March 11, and April 8, 2020. Water level data is provided in Table 4. Minimum, maximum, and average depths to the water table are summarized below.

| | Shallow Wells | Deep Wells |
|---|---|---|
| **Minimum (mbgs)** | 0.51 | 0.45 |
| **Maximum (mbgs)** | 3.79 | 3.97 |
| **Average (mbgs)** | 2.16 | 1.41 |

The water level (WL) data was used to calculate groundwater elevations. Elevation data is summarized below. Groundwater elevations (GWE) were calculated as follows.

$$GWE = Top\ of\ Casing\ Elevation - WL\ Depth\ below\ Top\ of\ Casing$$

**Summary of Groundwater Elevation Data**

| | Shallow | Deep |
|---|---|---|
| **Highest (masl)** | 222.32 | 222.30 |
| **Lowest (masl)** | 220.29 | 220.62 |
| **Average (masl)** | 221.22 | 221.71 |

masl – metres above sea level

Pinchin (Pinchin) indicated that the shallow groundwater flow was towards the east-northeast on August 27, 2018. Groundwater levels on August 27, 2018 ranged from 1.56 to 3.76 mbgs.

Elevation data for 2016, 2018, 2019, and 2020, indicates the shallow groundwater is easterly with temporal variations to the northeast and southeast. April 2020 elevation data was used to generate the flow direction figures for shallow groundwater (Figure 6) and deep groundwater (Figure 7). Shallow groundwater flow beneath the Site was easterly and deep groundwater flow beneath the Site was northeasterly toward Kempenfelt Bay in April 2020.

#### 6.9.2.2.2 Soil Texture

Pinchin (2018) reported grain size results for two soil samples collected from 3.8 to 4.6 mbgs. Cambium completed grain size distribution analyses on four samples of the native soil as summarized below. Based on grain size distribution testing, more than one third of the soil at the Site, measured by volume, is coarse textured.

***Particle Size Distribution Results***

| Borehole | Depth (mbgs) | Material | % Gravel | % Sand | % Silt | % Clay |
|---|---|---|---|---|---|---|
| BH301-19-SS3 | 1.5 – 2.0 | Sand some Gravel trace Silt trace Clay | 10 | 83 | 5 | 2 |
| BH302-19-SS20 | 25.9 – 26.4 | Silt trace Sand trace Clay | 0 | 7 | 88 | 5 |
| BH303-19-SS1 | 0 – 0.6 | Sand some Silt trace Gravel trace Clay | 5 | 77 | 13 | 4 |
| BH304-19-SS9 | 9.5 – 9.6 | Silty sand trace Gravel trace Clay | 1 | 67 | 25 | 7 |

#### 6.9.2.2.3 Hydraulic Gradients

The average horizontal hydraulic gradient in the shallow groundwater in October 2019, and April 2020 was 0.01 m/m.

Cambium conducted rising and falling head slug tests at three shallow monitoring wells. The data generated was processed using AquiferTest Pro ™ software and is summarized below.

The well screens only partially penetrated the aquifer, therefore the rising head slug tests (slug out) was considered more representative of aquifer conditions. The hydraulic conductivity varied from $7.72 \times 10^{-5}$ m/s to $1.00 \times 10^{-4}$ m/s. The results were considered representative of the sand layer within which the wells were screened and similar to results outlined in literature (Fetter, 2001; J.P.Powers, 2007).

***Hydraulic Conductivity Results (m/s)***

| Test # | BH202 | BH204 | BH207 |
|---|---|---|---|
| | Slug Out | Slug Out | Slug Out |
| Slug Test 1 | $8.65 \times 10^{-5}$ | $2.53 \times 10^{-4}$ | $1.01 \times 10^{-4}$ |
| Slug Test 2 | $7.72 \times 10^{-5}$ | $2.67 \times 10^{-4}$ | $1.00 \times 10^{-4}$ |
| Slug Test 3 | $8.46 \times 10^{-5}$ | $2.82 \times 10^{-4}$ | $1.15 \times 10^{-4}$ |
| Slug Test 4 | $8.28 \times 10^{-5}$ | $2.83 \times 10^{-4}$ | $1.10 \times 10^{-4}$ |

Assuming a porosity range of 20% to 25%, hydraulic gradient of 0.01, and a geometric mean hydraulic conductivity of $1.3 \times 10^{-4}$, the average linear shallow groundwater flow velocity ranges from 164 to 205 m/yr. The actual velocity is likely significantly lower due to tortuosity.

The horizontal hydraulic gradient for the deeper groundwater in April 2020 was 0.01 m/m. Vertical hydraulic gradients were calculated using April 2020 water level data for clustered monitoring wells BH101/BH402, BH104/BH401, and BH1/BH208. The vertical gradient was 0.10 at BH101/BH402, 0.15 at BH104/BH401, and 0.19 at BH1/BH208. The gradient was upward at all three well clusters.

### 6.9.3 Applicable Site Condition Standards

O.Reg. 153/04, Records of Site Condition – Part XV.1 under the *Environmental Protection Act* specifies acceptable limits of contaminants in soil, groundwater, and sediment in the *Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act* (MOE, 2011). These standards are presented in tables (Tables 1 to 9) defined by groundwater use (i.e., potable or non-potable) and type of remediation (full depth or stratified). Each table presents chemical-specific site condition standards (SCS) based on property use (agricultural, residential/parkland/ institutional, or industrial/community/ commercial), grain-texture (medium/fine-textured or coarse-textured).

Selection of the applicable SCS considered the following characteristics specific to the Site:

1. Intended property use
2. Soil characteristics
3. Environmental sensitivity, including:
    a. Soil pH

   b. Proximity to areas of natural significance
4. Proximity of water bodies
5. Groundwater use

**Intended Property-Use**

The proposed future use of the Site is residential. Therefore, the applicable land use category was residential/parkland/institutional (RPI).

**Soil Characteristics**

Investigations completed at the Site have identified the overburden stratigraphic profile as discontinuous fill (sand and gravel, silty sand, and sand) overlaying layers of sand, silt, and clay to the maximum depth investigated 10.7 mbgs.

Based on grain size distribution testing completed by Pinchin (2018) and observations made by Cambium during this subsurface investigation, coarse-textured soil was considered applicable.

**Environmentally Sensitive Areas**

The O.Reg.153/04 generic SCS cannot be used at properties that are within, include, or are proximate (i.e., within 30 m) to an area of natural significance, when soil pH is not within the acceptable ranges for surface (5 to 9) and/or sub-surface soils (5 to 11), or if a Qualified Person (QP) is of the opinion that it is appropriate to apply Section 41 of the regulation.

*Areas of Natural and Scientific Interest*

Based on a site sensitivity search completed as per the requirements of Section 41 of O.Reg.153/04, no areas of natural significance as defined by the regulation, were identified on or within 30 m of the Site. Therefore, the Site was not considered an environmentally sensitive area and the generic SCS were applicable.

*Soil pH*

Six soil samples were submitted for laboratory analysis by THEM (2016a), Pinchin (2018), and Cambium to assess soil pH at the Site. Soil pH results were within the acceptable ranges for surface and sub-surface soil.

*Qualified Person Opinion*

Geologic and hydrogeological parameters that influence the derivation of the O.Reg.153/04 generic SCS were compared to site-specific data and the generic values used in the derivation of the SCS. The site-specific parameters were consistent with the defaults; therefore, it was the QP's opinion that the generic SCS were applicable.

**Proximity of Water Bodies and Shallow Bedrock**

SCS are defined for properties that are within 30 m of a water body or at which bedrock is less than 2 mbgs.

Hotchkiss Creek ranges from 20 m to 50 m south of the Site; therefore, the Site is within 30 m of a water body, as defined in O.Reg. 153/04. The generic SCS established for properties within 30 m of a water body (i.e., Tables 8 or 9) were considered applicable for the Site.

Subsurface investigations completed at the Site by THEM (2016a), Pinchin (2018), and Cambium did not encounter bedrock to a maximum depth of 10.7 mbgs. Therefore, the generic SCS established for properties with shallow bedrock (i.e., Tables 6 and 7) were not applicable.

**Shallow Groundwater and Groundwater Use**

Groundwater levels measured between 2016 and 2019 ranged from 0.81 to 3.91 mbgs. Generally, the depth to groundwater is less than 2 mbgs on the south side of the Site and greater than 2 mbgs on the north side of the Site. Therefore, the generic SCS established for properties with shallow bedrock (i.e., Tables 6 and 7) was deemed applicable when evaluating groundwater quality for purposes of risk assessment.

For groundwater at a property to be considered non-potable, all properties within 250 m of the property must be supplied by a municipal drinking water system that does not obtain its water from a groundwater source.

The City of Barrie obtains drinking water from surface water and groundwater wells; therefore, the generic SCS established for properties in a potable groundwater condition were considered applicable for the Site.

**Applicable Generic Site Condition Standards**

Based on the foregoing, Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition, were considered appropriate for use at the Site.

For evaluation of groundwater quality for purposes of risk assessment, Table 6: Generic Site Condition Standards for Shallow Soils in a Potable Ground Water Condition, were considered appropriate to account for shallow groundwater conditions on the south side of the Site.

### 6.9.4 Source Water Protection

Cambium reviewed the Ministry`s Source Protection Information Atlas to determine if the Site is in or within 250 m of the following, as set out in the Assessment Report portion of the applicable Source Protection Plan under the Clean Water Act (MECP, 2019).

- The Site is in designated well head protection area (WHPA) B.
- The Site is in a significant groundwater recharge area (SGRA) 6.
- The Site is in a highly vulnerable aquifer (HVA).
- The Site is in an issue contributing area (ICA).
- The Site is in a Source Water Intake Protection Zone (IPZ) 3.

Mapping showing the Site in relation to the Source Water Protection Areas discussed above is included in Appendix G.

### 6.9.5 Soil Quality

Soil samples were submitted for analysis of one or more of the COPCs: VOCs, PHCs, PAHs, PCBs, and metals. All analysis results met the Table 8 SCS with the exception of PHC F4 in soil sample BH201 3.0-3.7 m. The impact is localized to a small area in the centre of the Site and extends to 4.1 mbgs.

Refer to Figure 10 for the location of the PHC F4 impact, and Figure 11 and Figure 12 for the vertical extent of the PHC F4 impact.

### 6.9.6 Groundwater Quality

Groundwater samples were submitted for analysis of the COPCs: VOCs, PHCs, PAHs, PCBs, and/or metals. PHCs, PAHs, PCBs, and metals met the Table 8 SCS.

VOC impacts in shallow groundwater are present across the south and east sides of the Site and VOC impacts in deeper groundwater are present across the entire Site. Deeper VOC impacts are part of the regional TCE plume north/northwest of the Site that was identified in the early 2000s. The concentration of TCE in the deeper groundwater ranged from 5.4 µg/L (BH402, north side of the property) to 29.7 µg/L (BH401, northeast side of the property); however, the concentration of associated breakdown products were much higher in BH402 on the north side of the property.

The lateral distribution of VOC impacts is shown on Figure 16. The vertical extent of VOC impacts is shown on Figure 17 and Figure 18.

The concentrations of barium, cobalt, and vanadium exceeded the Table 8 SCS in one sample collected in 2016 (THEM) from BH2. However, Cambium resampled BH2 two times in 2019 and the concentrations of all metals parameters met the Table 8 SCS.

## 6.10 Human Health and Ecological CSM

Based on the site characterization, contaminants of concern exceeding the applicable Table 8 SCS were identified in groundwater. The VOC impacts in groundwater extend across the south and east sides of the Site and up to the south, east and west property boundaries. The impacts appear to be the result of former off-site activities south of the Site.

Based on a review of site characteristics (e.g., soil profile, depth to groundwater, contaminant type and distribution, etc.), Cambium identified potential exposure pathways and receptors for human health and ecological receptors. These exposure pathways and receptors are discussed in the following sections.

### 6.10.1 Human Health Exposure Model

The human health CSM describes the potential exposure pathways that are likely to be present for various human receptors at the Site. The human health CSM provides a basis for examining potential health risks in a human health risk assessment. The human health CSM, without and with risk management measures (RMMs), are presented as Figure 23 and Figure 24, respectively, and discussed below.

In the absence of RMM, the following exposure pathways are considered applicable for one or more of the current and future on-site receptors:

- Direct contact with groundwater;
- Incidental ingestion of groundwater;
- Inhalation of volatiles from groundwater in outdoor air; and
- Inhalation of volatiles from groundwater in indoor air (future use only).

Based on the future residential land use for the Site, possible receptors at the Site are:

- Resident (all age groups)
- Site visitor/trespasser (all age groups)
- Subsurface worker (adult/teen construction worker)
- Maintenance worker (short-term adult/teen)

### 6.10.2 Ecological Exposure Model

The ecological CSM describes the potential exposure pathways that are likely to be present for various ecological receptors at the Site. The ecological CSM provides a basis for examining potential risks in an ecological risk assessment. The ecological CSM, without and with RMMs, are presented as Figure 25 and Figure 26, respectively, and discussed below.

Ecological receptors at the Site are assumed to have direct contact with surface soil and shallow groundwater. In the absence of RMM, the following exposure pathways are considered applicable for one or more of the potential on-site ecological receptors:

- Direct contact with groundwater
- Uptake of groundwater

- Ingestion of impacted food

Based on the future residential land use for the Site, possible ecological receptors at the Site are:

- Terrestrial soil invertebrates and plants
- Birds, mammals, and reptiles

## 7.0 Conclusions

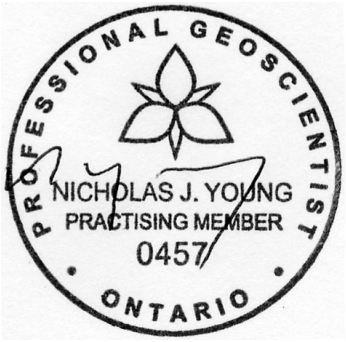
The subsurface investigation program was conducted from August 22, 2019 to February 12, 2020. Based on results, PHC F4 is present in soil and VOCs are present in groundwater at concentrations greater than the applicable standard.

### 7.1 Signatures

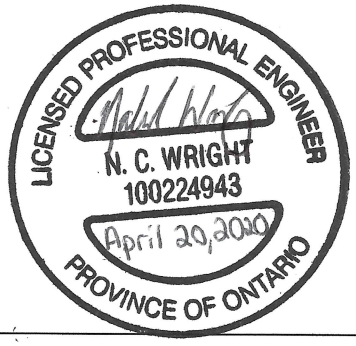
This Phase Two ESA was completed by Mr. Nick Young, M.Eng., P.Geo., $QP_{ESA}$ and Ms. Natalie Wright, P.Eng., as per O.Reg. 153/04. Information presented in this report is true and accurate to the best of the assessors' knowledge.

Respectfully submitted,

**Cambium Inc.**




Nick Young, M.Eng., P.Geo.
Senior Project Manager




Natalie Wright, P.Eng., PMP
Project Coordinator

*NJY/ncw*

*P:\9300 to 9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\Deliverables\REPORT - Phase Two ESA\Final\2020-04-20 RPT Phase Two ESA - 220 Bradford Street, Barrie.docx*

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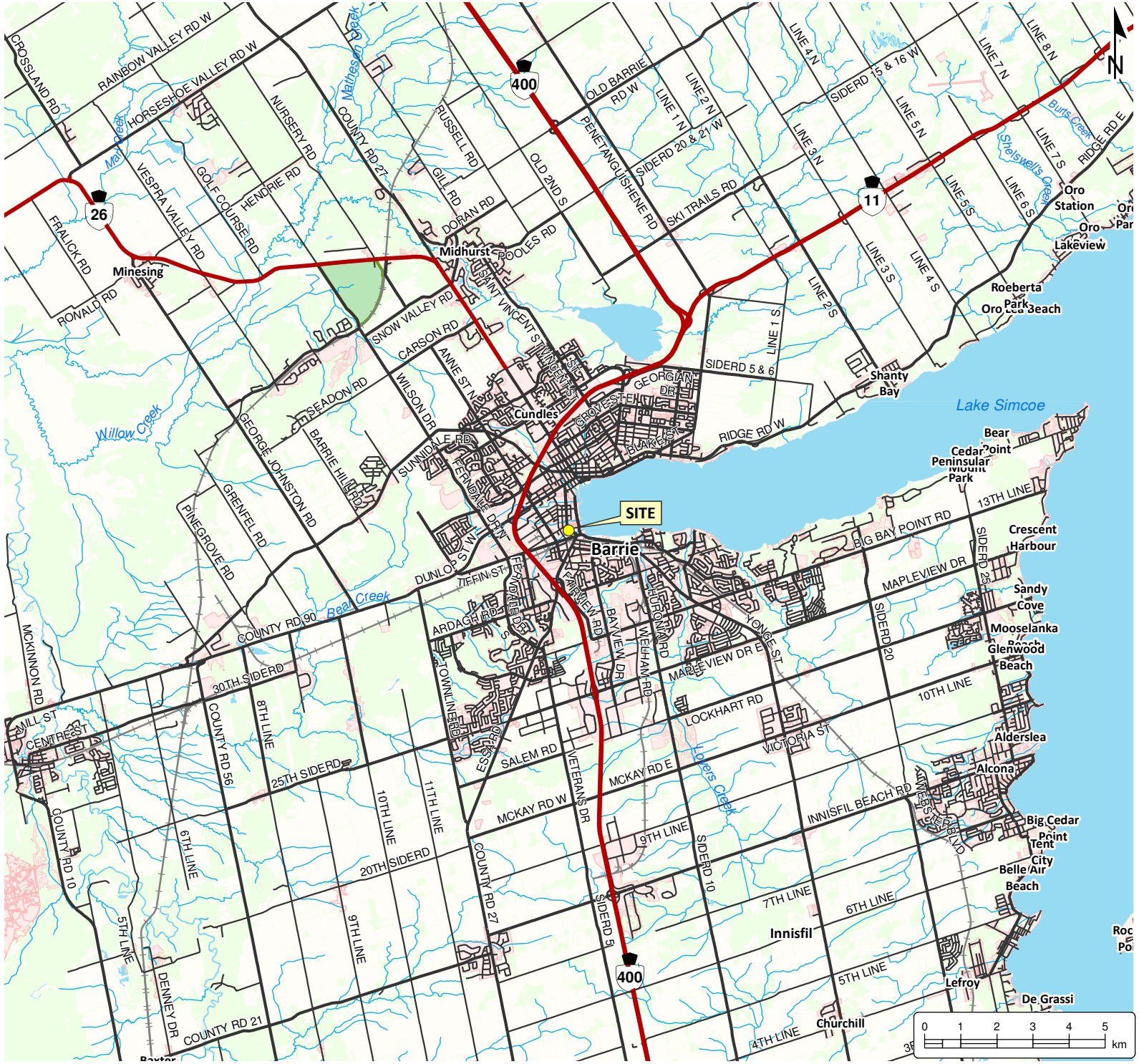
# Figures




# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario

**LEGEND**

- Highway
- Major Road
- Minor Road
- Railroad
- Watercourse
- Water Area
- Provincial Park
- Built-Up Area
- Wooded Area

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## SITE LOCATION MAP

| | | | |
|---|---|---|---|
| Project No.: 9326-001 | | Date: March 2020<br>Rev.: | |
| Scale: 1:150,000 | | Projection: NAD 1983 UTM Zone 17N | |
| Created by: MAT | Checked by: NJY | Figure: | 1 |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2019-09-26 P2 FIG 1 Site Location Plan.mxd

# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario


**LEGEND**

Site (approximate)

**Notes:**
- Proposed Land Use was obtained from mataj Architects Inc. Drawing A.101.
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## PROPOSED LAND USE

| | | | |
|---|---|---|---|
| Project No.: 9326-001 | | Date: March 2020<br>Rev.: | |
| Scale: 1:600 | | Projection: NAD 1983 UTM Zone 17N | |
| Created by: MAT | Checked by: NJY | Figure: | **2** |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2019-09-26 P2 FIG 2 Proposed Land Use.mxd


# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario

## LEGEND

- Study Area
- Location of Off-Site Activity
- Location of PCA 22 (projected extent of TCE plume >10ug/L)
- Site (approximate)

**Onsite PCA**

- PCA 1
- PCA 2
- PCA 3

**Potentially Contaminating Activity:**

- Resulting in APEC
- Not Resulting in APEC

LAND USE

**Notes:**
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## CONCEPTUAL SITE MODEL - PHASE ONE STUDY AREA

| | | | |
|---|---|---|---|
| Project No.: | 9326-001 | Date: / Rev.: | March 2020 / April 2020 |
| Scale: | 1:3,500 | Projection: | NAD 1983 UTM Zone 17N |
| Created by: | MAT | Checked by: | NJY |
| Figure: | 3 | | |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2019-09-26 P2 FIG 3 Conceptual Site Model - Phase One Study Area.mxd


# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario

## LEGEND

- Potentially Contaminating Activity
- Location of Off-Site Activity
- Location of PCA 22 (projected extent of TCE plume >10ug/L)
- Former Building Footprint
- Site (approximate)

**Area of Potential Environmental Concern:**

- APEC 1
- APEC 2
- APEC 3
- APEC 4
- APEC 5

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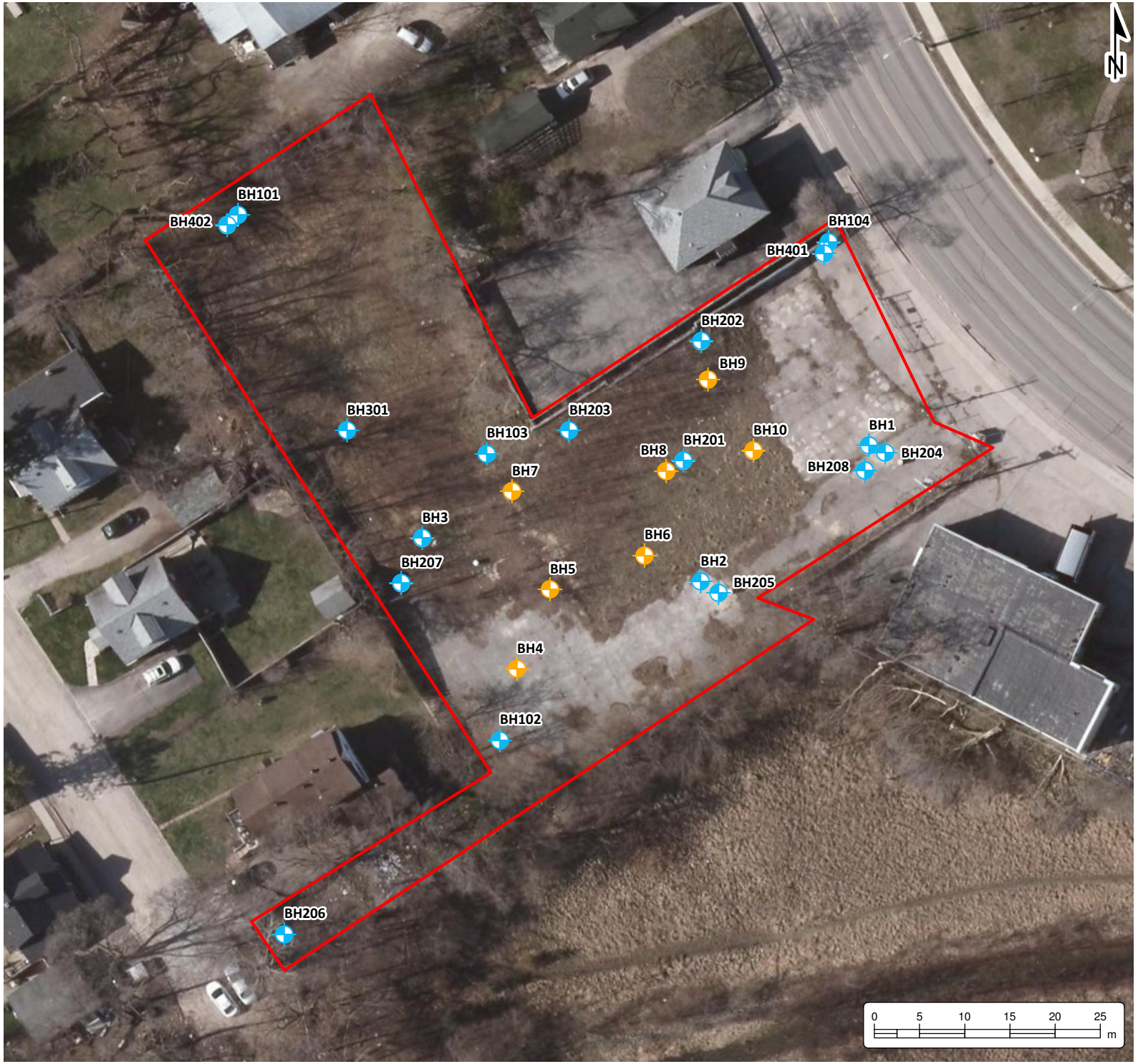
## CONCEPTUAL SITE MODEL - PHASE ONE PROPERTY

| | | | |
|---|---|---|---|
| Project No.: | 9326-001 | Date: / Rev.: | March 2020 / April 2020 |
| Scale: | 1:1,000 | Projection: | NAD 1983 UTM Zone 17N |
| Created by: | MAT | Checked by: | NJY |
| Figure: | 4 | | |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2019-09-26 P2 FIG 4 Conceptual Site Model - Phase One Property.mxd




# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario

**LEGEND**

- Borehole
- Borehole with Monitoring Well
- Site (approximate)

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## SAMPLE LOCATION PLAN

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|---|---|---|---|
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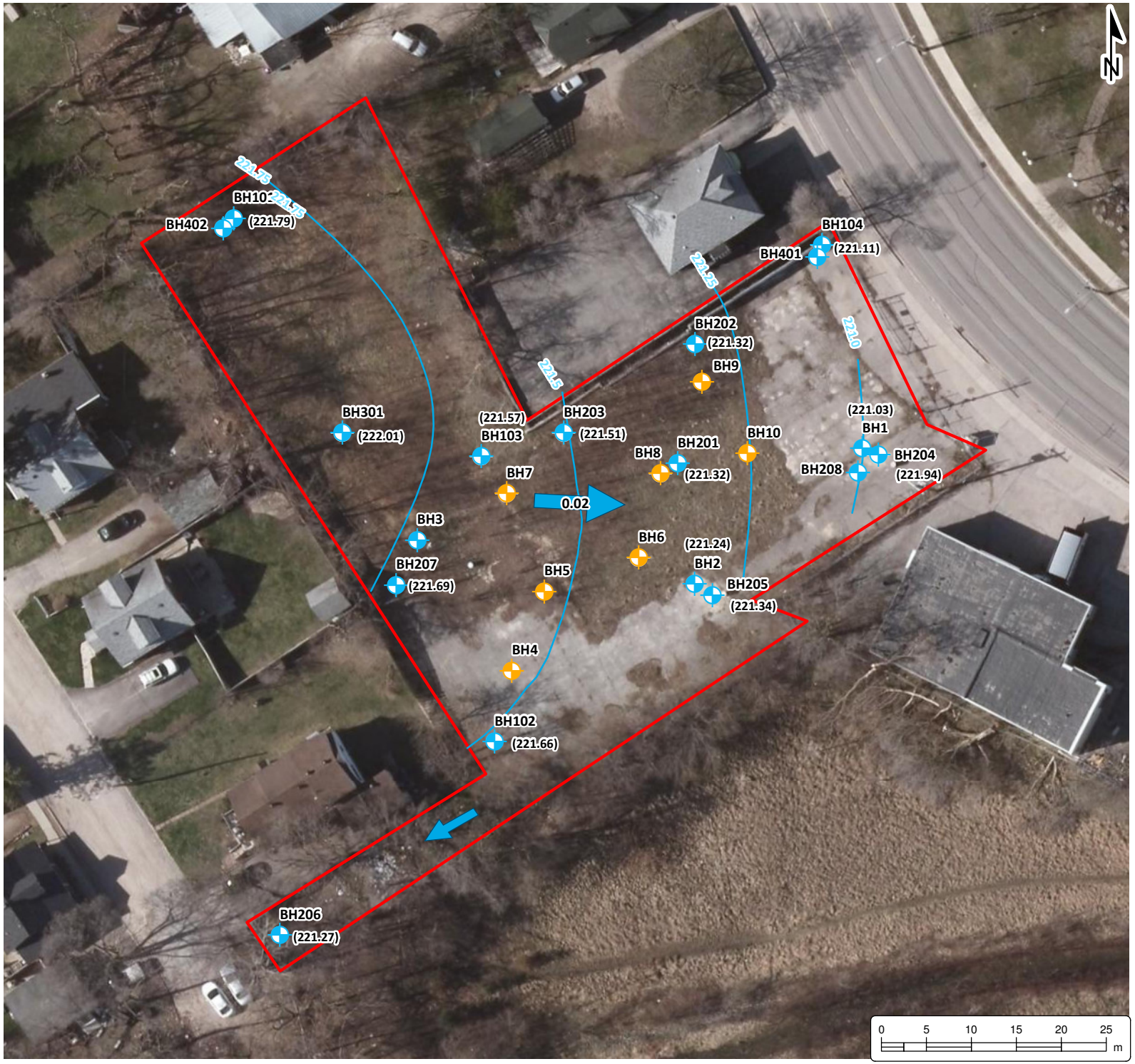
| Scale: | 1:600 | Projection: | NAD 1983 UTM Zone 17N |
| Created by: | MAT | Checked by: | NJY |
| Figure: | 5 | | |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-03-17 P2 FIG 5 - Sample Location Plan.mxd




# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario

## LEGEND

- Borehole
- Borehole with Monitoring Well
- Groundwater Contours (shallow) (April 8, 2020)
- Site (approximate)
- (220.75) Groundwater Elevation (April 8, 2020)
- Groundwater Flow Direction (October 3, 2019)

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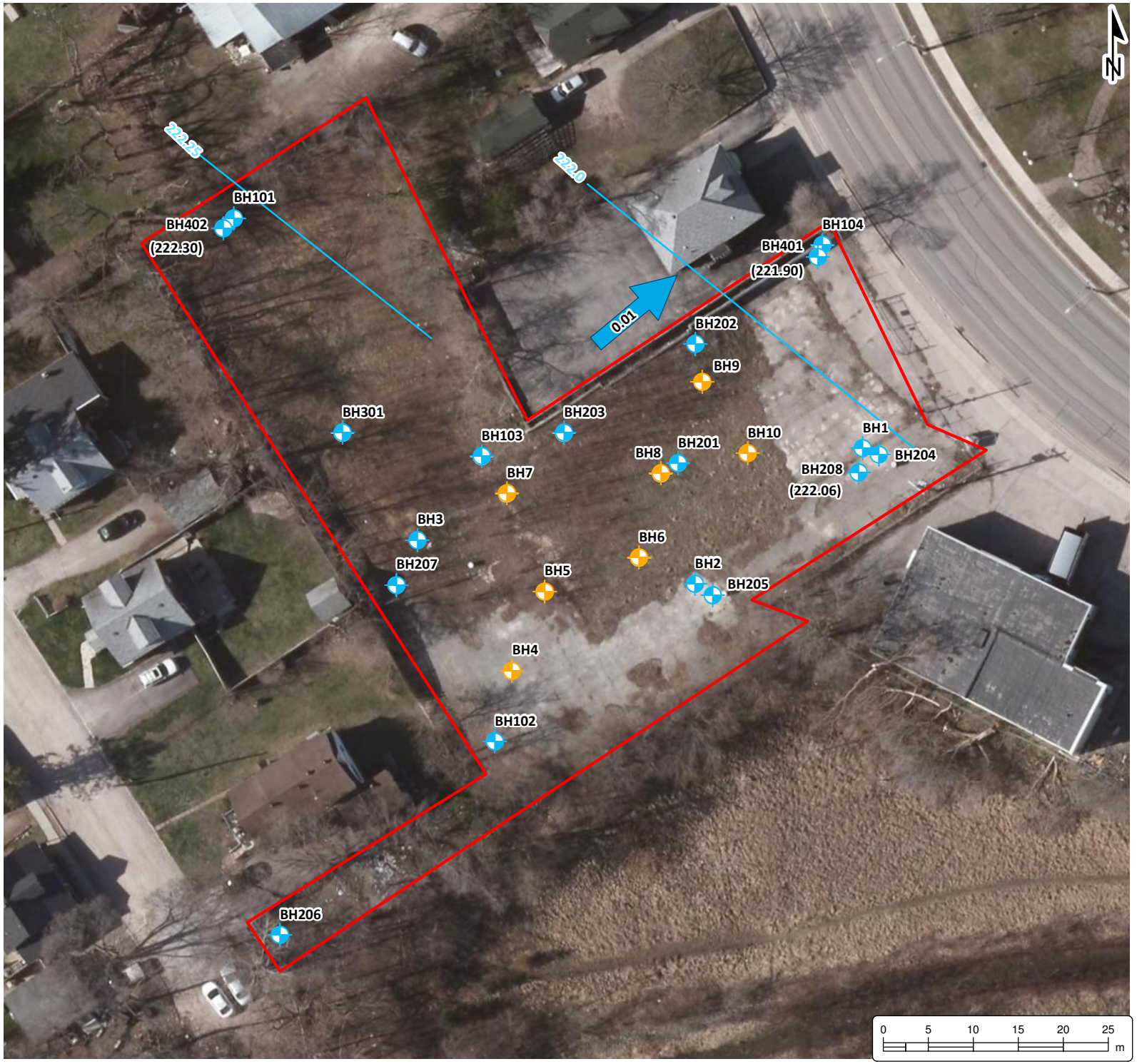
## GROUNDWATER ELEVATIONS - SHALLOW WELLS - APRIL 8, 2020

| | | | |
|---|---|---|---|
| Project No.: | 9326-001 | Date: | March 2020 |
| | | Rev.: | April 2020 |
| Scale: | 1:600 | Projection: | NAD 1983 UTM Zone 17N |
| Created by: | MAT | Checked by: | NJY |
| Figure: | 6 | | |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-04-15 P2 FIG 6C - Groundwater Elevations - Shallow Wells.mxd




# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario

**LEGEND**

- Borehole
- Borehole with Monitoring Well
- Groundwater Contour (Deep) (April 8, 2020)
- Site (approximate)
- (222.30) Groundwater Elevation (April 8, 2020)

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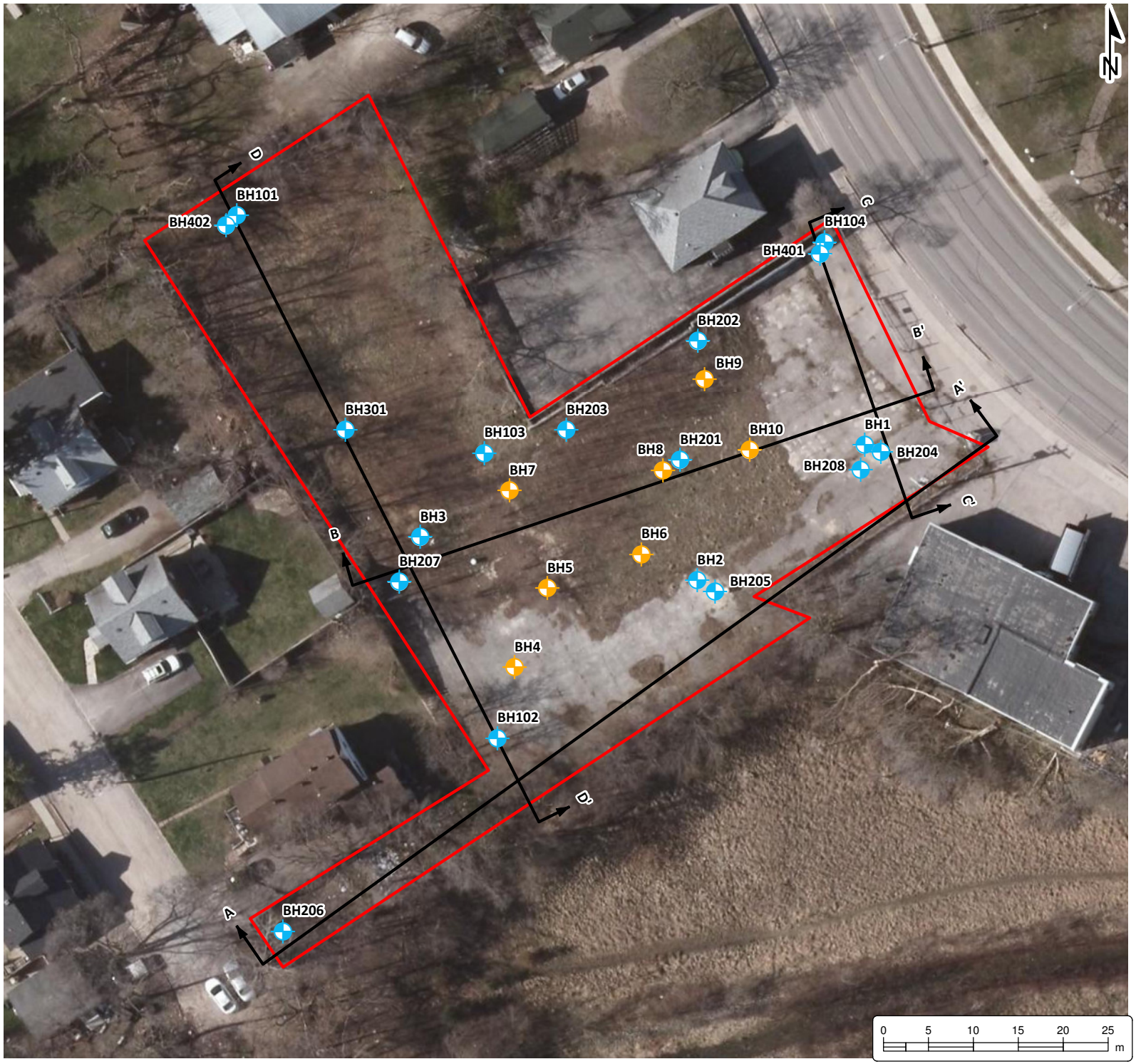
## GROUNDWATER ELEVATIONS - DEEP WELLS - APRIL 8, 2020

| | | | |
|---|---|---|---|
| Project No.: | 9326-001 | Date: | April 2020 |
| | | Rev.: | |
| Scale: | 1:600 | Projection: | NAD 1983 UTM Zone 17N |
| Created by: | MAT | Checked by: | NJY |
| Figure: | 7 | | |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2020-04-15 P2 FIG 7 - Groundwater Elevations - Deep Wells April 8 2020.mxd




# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario

**LEGEND**

- Borehole
- Borehole With Monitoring Well
- Cross Section
- Site (approximate)

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## CROSS SECTION LOCATIONS

| | | | |
|---|---|---|---|
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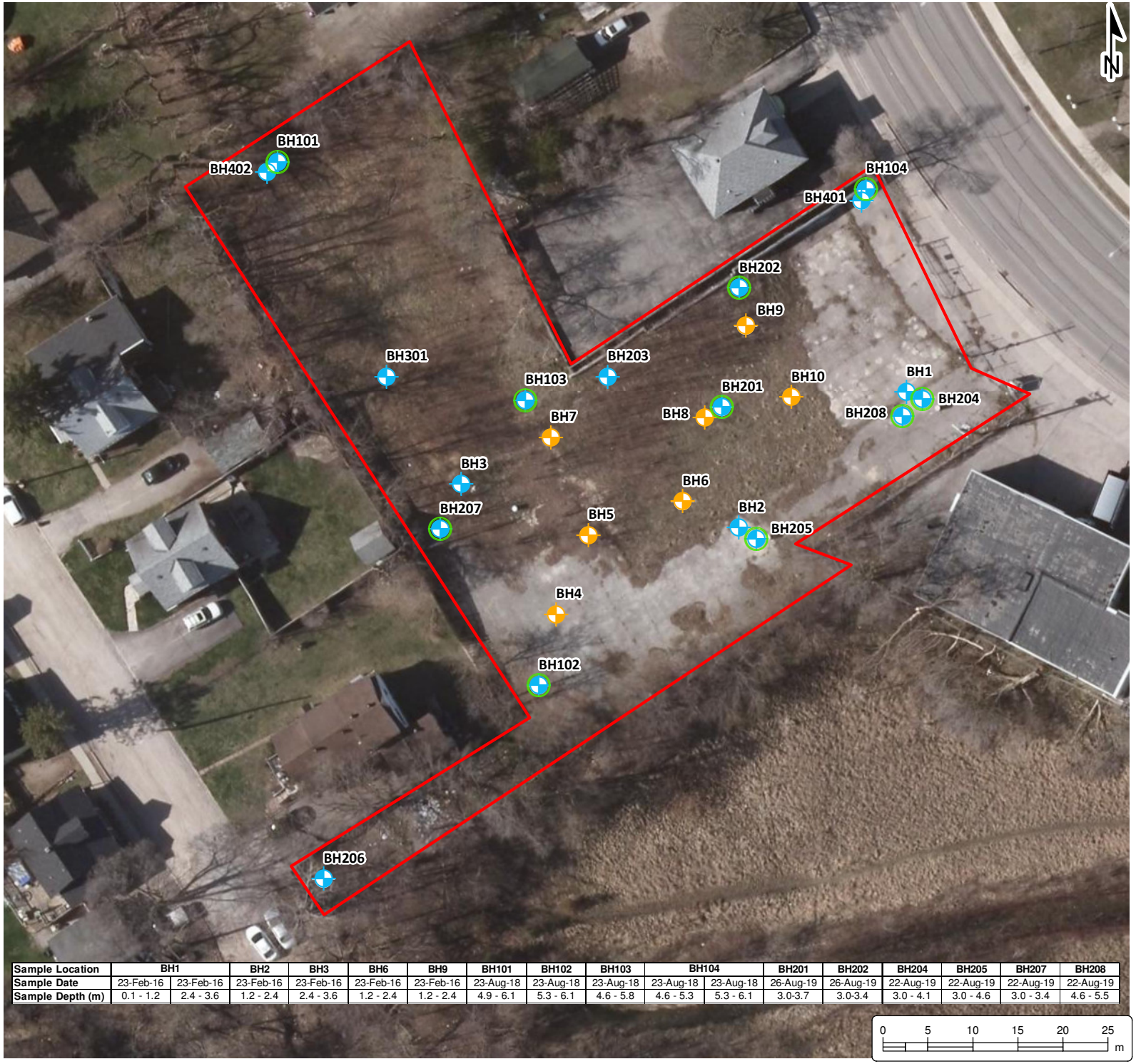
| Scale: 1:600 | | Projection: NAD 1983 UTM Zone 17N | |
| Created by: MAT | Checked by: NJY | Figure: | 8 |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-03-17 P2 FIG 8 - Cross Section Locations.mxd

# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario




| Sample Location | BH1 | | BH2 | BH3 | BH6 | BH9 | BH101 | BH102 | BH103 | BH104 | | BH201 | BH202 | BH204 | BH205 | BH207 | BH208 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 23-Feb-16 | 23-Feb-16 | 23-Feb-16 | 23-Feb-16 | 23-Feb-16 | 23-Feb-16 | 23-Aug-18 | 23-Aug-18 | 23-Aug-18 | 23-Aug-18 | 23-Aug-18 | 26-Aug-19 | 26-Aug-19 | 22-Aug-19 | 22-Aug-19 | 22-Aug-19 | 22-Aug-19 |
| Sample Depth (m) | 0.1 - 1.2 | 2.4 - 3.6 | 1.2 - 2.4 | 2.4 - 3.6 | 1.2 - 2.4 | 1.2 - 2.4 | 4.9 - 6.1 | 5.3 - 6.1 | 4.6 - 5.8 | 4.6 - 5.3 | 5.3 - 6.1 | 3.0-3.7 | 3.0-3.4 | 3.0 - 4.1 | 3.0 - 4.6 | 3.0 - 3.4 | 4.6 - 5.5 |

**LEGEND**

- Borehole
- Borehole With Monitoring Well
- Meets Table 8 SCS
- Site (approximate)

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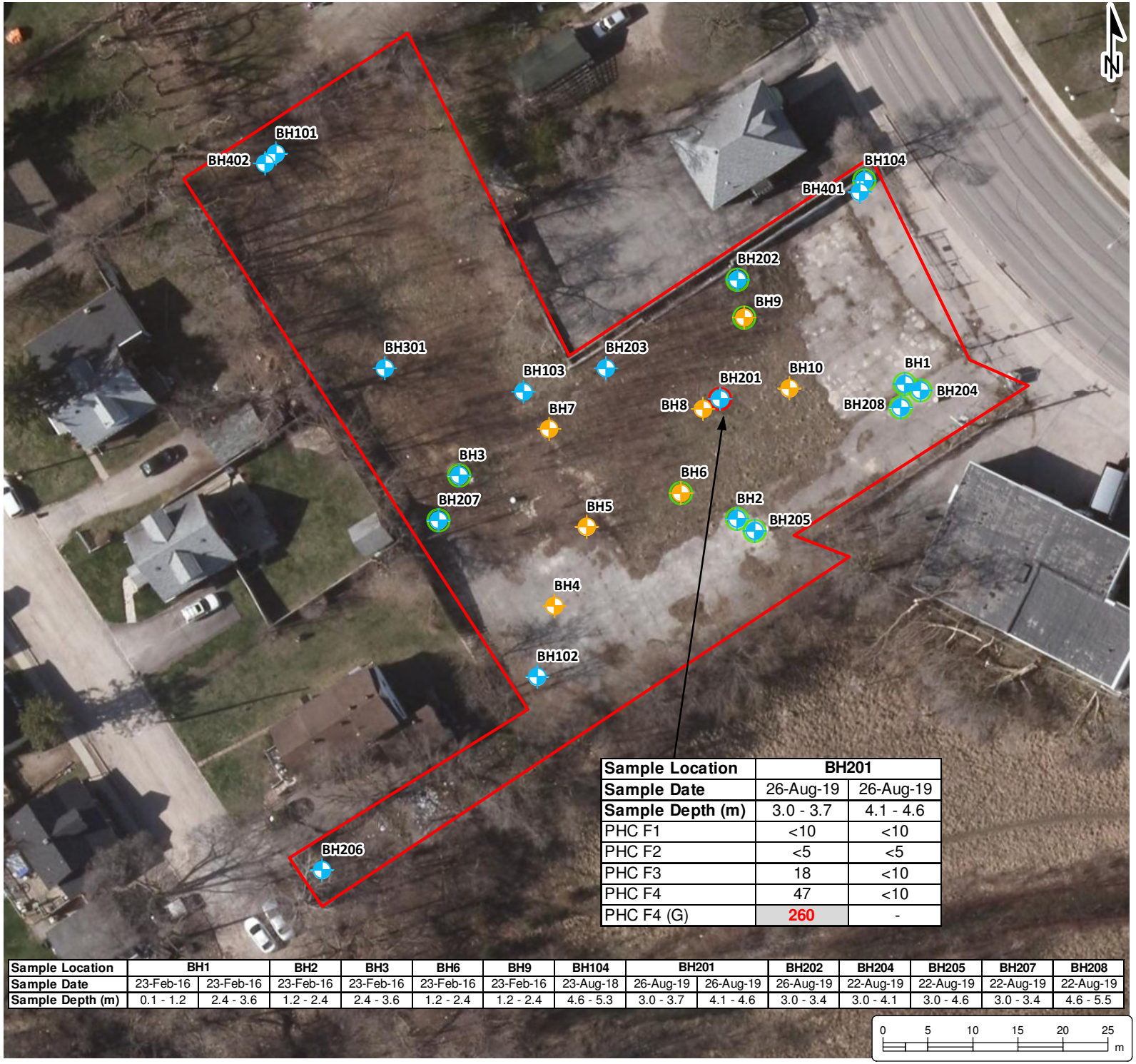
## SOIL RESULTS - VOCs

| | | | |
|---|---|---|---|
| Project No.: 9326-001 | | Date: March 2020 | Rev.: |
| Scale: 1:600 | | Projection: NAD 1983 UTM Zone 17N | |
| Created by: MAT | Checked by: NJY | Figure: 9 | |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-03-17 P2 FIG 9 - Soil Results - VOCs.mxd

# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario




**LEGEND**

- Borehole
- Borehole With Monitoring Well
- Exceeds Table 8 SCS
- Meets Table 8 SCS
- Site (approximate)

| Table 8 SCS | |
|---|---|
| PHC F1 | 25 |
| PHC F2 | 10 |
| PHC F3 | 240 |
| PHC F4 | 120 |
| PHC F4 (G) | 120 |

Notes:
Table 8 (R/P/I/I/C/C Property Uses)
Bold and shaded values exceed the standard

| Sample Location | BH201 | |
|---|---|---|
| Sample Date | 26-Aug-19 | 26-Aug-19 |
| Sample Depth (m) | 3.0 - 3.7 | 4.1 - 4.6 |
| PHC F1 | <10 | <10 |
| PHC F2 | <5 | <5 |
| PHC F3 | 18 | <10 |
| PHC F4 | 47 | <10 |
| PHC F4 (G) | 260 | - |

| Sample Location | BH1 | | BH2 | BH3 | BH6 | BH9 | BH104 | BH201 | | BH202 | BH204 | BH205 | BH207 | BH208 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 23-Feb-16 | 23-Feb-16 | 23-Feb-16 | 23-Feb-16 | 23-Feb-16 | 23-Feb-16 | 23-Aug-18 | 26-Aug-19 | 26-Aug-19 | 26-Aug-19 | 22-Aug-19 | 22-Aug-19 | 22-Aug-19 | 22-Aug-19 |
| Sample Depth (m) | 0.1 - 1.2 | 2.4 - 3.6 | 1.2 - 2.4 | 2.4 - 3.6 | 1.2 - 2.4 | 1.2 - 2.4 | 4.6 - 5.3 | 3.0 - 3.7 | 4.1 - 4.6 | 3.0 - 3.4 | 3.0 - 4.1 | 3.0 - 4.6 | 3.0 - 3.4 | 4.6 - 5.5 |

**Notes:**
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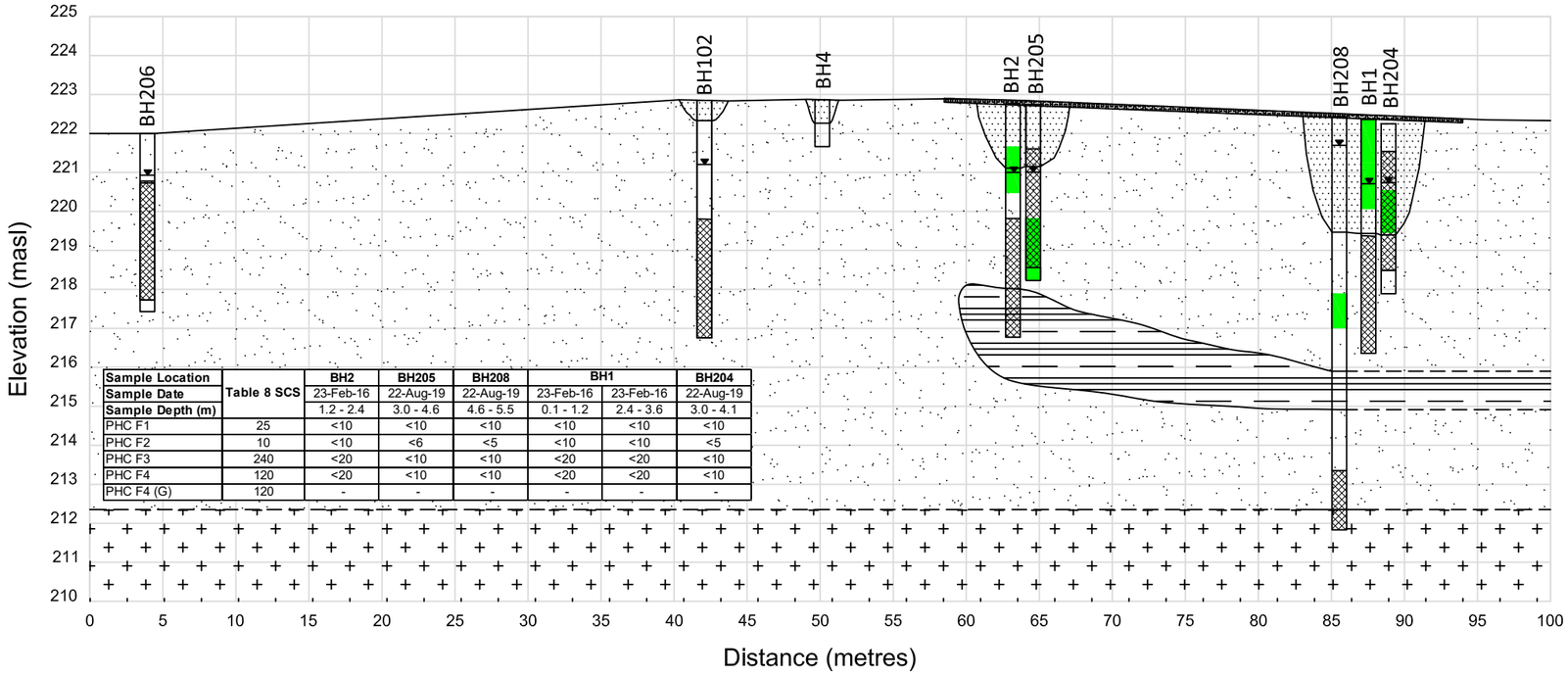
## SOIL RESULTS - PHCs

| | | | |
|---|---|---|---|
| Project No.: 9326-001 | | Date: March 2020 | Rev.: |
| Scale: 1:600 | | Projection: NAD 1983 UTM Zone 17N | |
| Created by: MAT | Checked by: NJY | Figure: **10A** | |

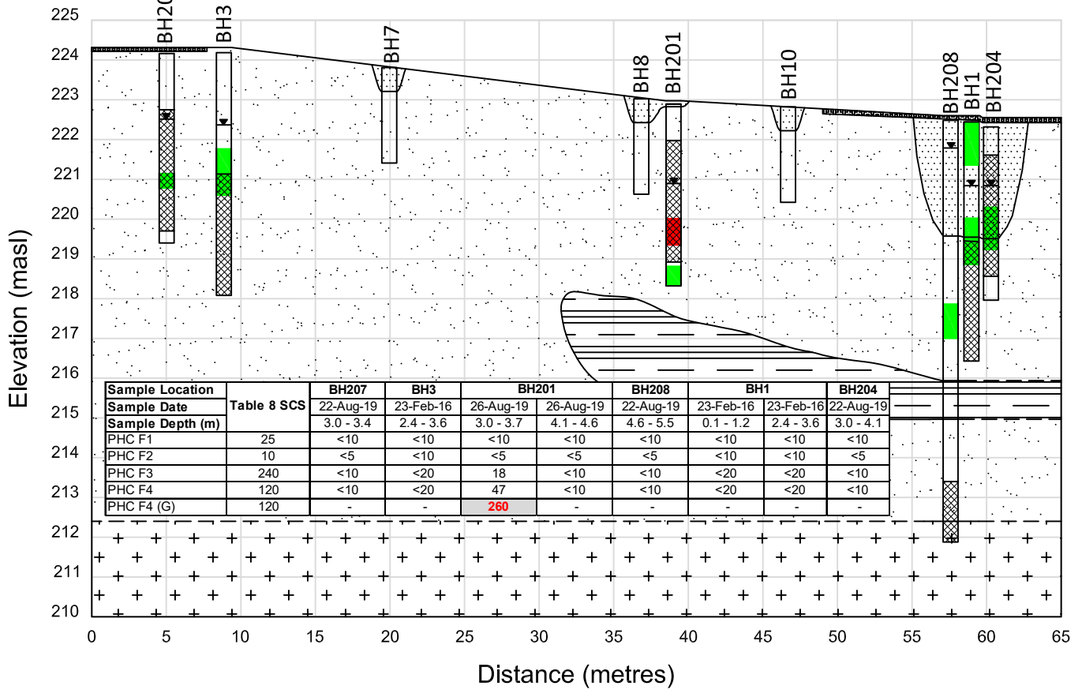
O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-03-17 P2 FIG 10 - Soil Results - PHCs.mxd

# Cross Section A-A'




| Sample Location | Table 8 SCS | BH2 | BH205 | BH208 | BH1 | | BH204 |
|---|---|---|---|---|---|---|---|
| Sample Date | | 23-Feb-16 | 22-Aug-19 | 22-Aug-19 | 23-Feb-16 | 23-Feb-16 | 22-Aug-19 |
| Sample Depth (m) | | 1.2 - 2.4 | 3.0 - 4.6 | 4.6 - 5.5 | 0.1 - 1.2 | 2.4 - 3.6 | 3.0 - 4.1 |
| PHC F1 | 25 | <10 | <10 | <10 | <10 | <10 | <10 |
| PHC F2 | 10 | <10 | <6 | <5 | <10 | <10 | <5 |
| PHC F3 | 240 | <20 | <10 | <10 | <20 | <20 | <10 |
| PHC F4 | 120 | <20 | <10 | <10 | <20 | <20 | <10 |
| PHC F4 (G) | 120 | - | - | - | - | - | - |

# Cross Section B-B'



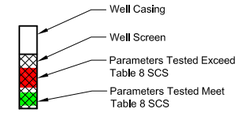

| Sample Location | Table 8 SCS | BH207 | BH3 | BH201 | | BH208 | BH1 | | BH204 |
|---|---|---|---|---|---|---|---|---|---|
| Sample Date | | 22-Aug-19 | 23-Feb-16 | 26-Aug-19 | 26-Aug-19 | 22-Aug-19 | 23-Feb-16 | 23-Feb-16 | 22-Aug-19 |
| Sample Depth (m) | | 3.0 - 3.4 | 2.4 - 3.6 | 3.0 - 3.7 | 4.1 - 4.6 | 4.6 - 5.5 | 0.1 - 1.2 | 2.4 - 3.6 | 3.0 - 4.1 |
| PHC F1 | 25 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 |
| PHC F2 | 10 | <5 | <10 | <5 | <5 | <5 | <10 | <10 | <5 |
| PHC F3 | 240 | <10 | <20 | 18 | <10 | <10 | <20 | <20 | <10 |
| PHC F4 | 120 | <10 | <20 | 47 | <10 | <10 | <20 | <20 | <10 |
| PHC F4 (G) | 120 | - | - | 260 | - | - | - | - | - |

**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**
CHAYELL HOTELS LTD.

220Bradford Street
Barrie, Ontario

LEGEND

- Groundwater Level
- Asphalt
- Fill, Topsoil
- Sandy Silt
- Clay
- Silt




| Table 8 Standards | |
|---|---|
| PHC F1 (C6-C10) | 25 |
| PHC F2 (>C10-C16) | 10 |
| PHC F3 (>C16-C34) | 240 |
| PHC F4 (>C34-C50) | 120 |
| PHC F4 (Gravimetric) | 120 |

Table 8 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A POTABLE GROUNDWATER CONDITION (MOE, 2011).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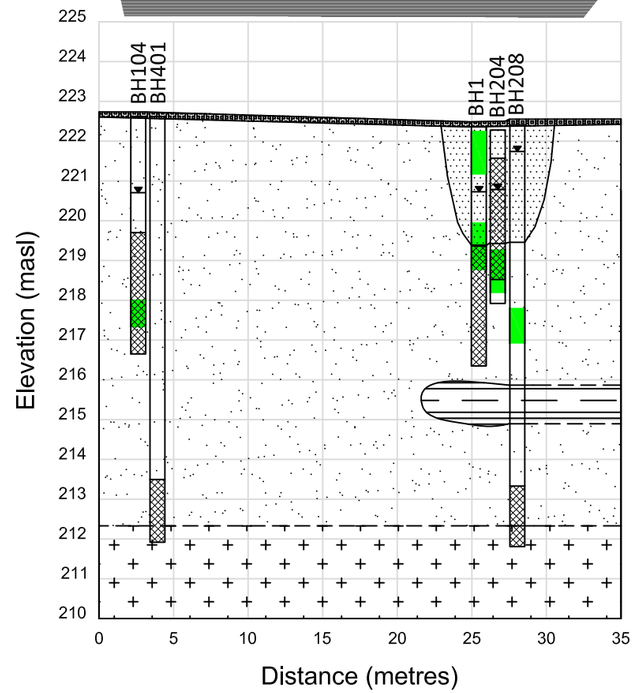
CROSS SECTION A-A' & B-B'
ALONG GRADIENT PHCs IN SOIL

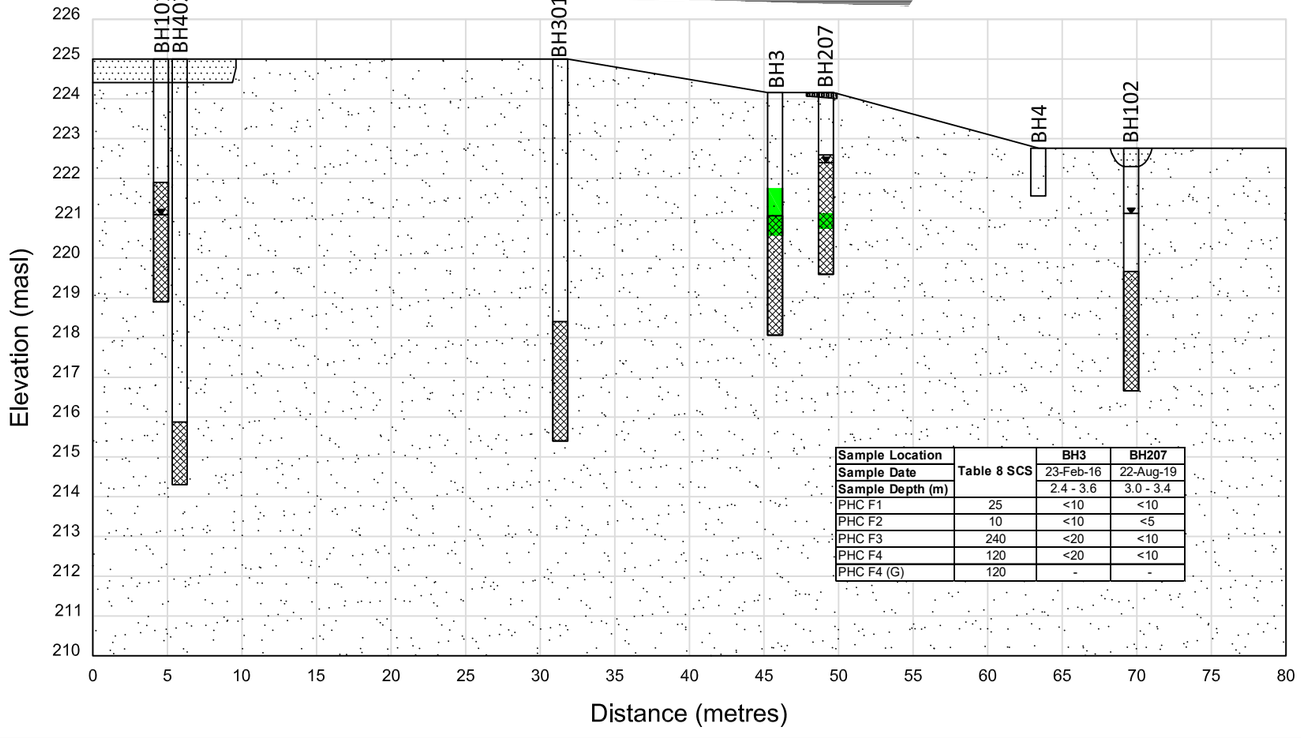
| Project No.: | Date: |
|---|---|
| 9326-001 | March 2020 |
| | Rev.: |
| Horizontal Scale: | Vertical Scale: |
| 1:400 | 1:150 |
| Drawn By: MAT | Checked By: NJY |
| | Figure: 10B |

# Cross Section C-C'




| Sample Location | | BH104 | BH1 | | BH204 | BH208 |
|---|---|---|---|---|---|---|
| Sample Date | Table 8 SCS | 23-Aug-18 | 23-Feb-16 | 23-Feb-16 | 22-Aug-19 | 22-Aug-19 |
| Sample Depth (m) | | 4.6 - 5.3 | 0.1 - 1.2 | 2.4 - 3.6 | 3.0 - 4.1 | 4.6 - 5.5 |
| PHC F1 | 25 | <10 | <10 | <10 | <10 | <10 |
| PHC F2 | 10 | <10 | <10 | <10 | <5 | <5 |
| PHC F3 | 240 | <50 | <20 | <20 | <10 | <10 |
| PHC F4 | 120 | <50 | <20 | <20 | <10 | <10 |
| PHC F4 (G) | 120 | - | - | - | - | - |

# Cross Section D-D'



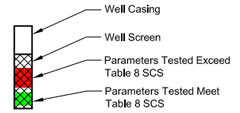

| Sample Location | | BH3 | BH207 |
|---|---|---|---|
| Sample Date | Table 8 SCS | 23-Feb-16 | 22-Aug-19 |
| Sample Depth (m) | | 2.4 - 3.6 | 3.0 - 3.4 |
| PHC F1 | 25 | <10 | <10 |
| PHC F2 | 10 | <10 | <5 |
| PHC F3 | 240 | <20 | <10 |
| PHC F4 | 120 | <20 | <10 |
| PHC F4 (G) | 120 | - | - |

**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**
CHAYELL HOTELS LTD.

220Bradford Street
Barrie, Ontario

LEGEND

- Groundwater Level
- Asphalt
- Fill, Topsoil
- Sandy Silt
- Clay
- Silt




| Table 8 Standards | |
|---|---|
| PHC F1 (C6-C10) | 25 |
| PHC F2 (>C10-C16) | 10 |
| PHC F3 (>C16-C34) | 240 |
| PHC F4 (>C34-C50) | 120 |
| PHC F4 (Gravimetric) | 120 |

Table 8 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A POTABLE GROUNDWATER CONDITION (MOE, 2011).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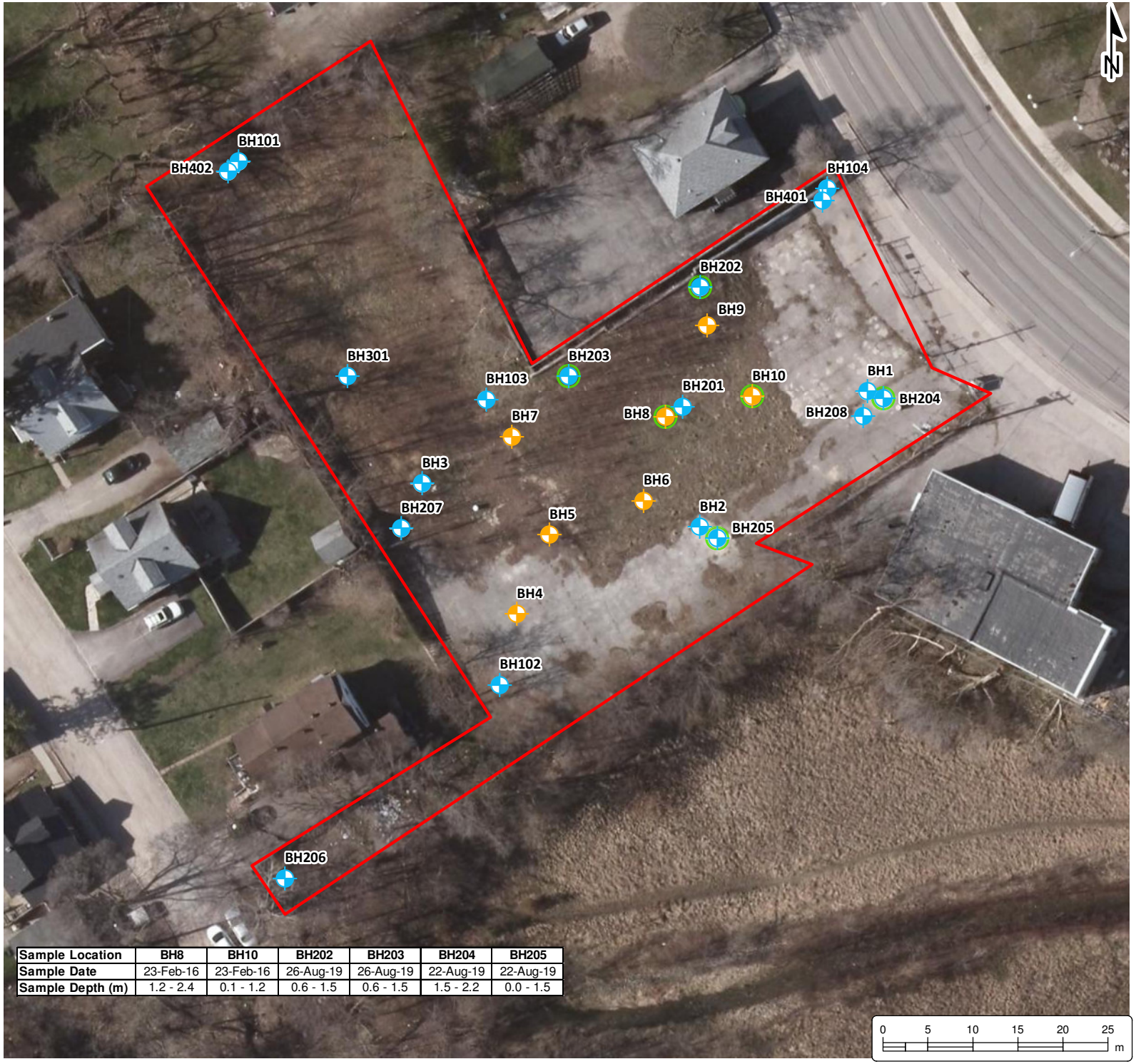
CROSS SECTION C-C' & D-D' PERPENDICULAR TO GRADIENT PHCs IN SOIL

| Project No.: | Date: |
|---|---|
| 9326-001 | October 2019 |
| Horizontal Scale: | Vertical Scale: |
| 1:400 | 1:150 |
| Drawn By: MAT | Checked By: NJY |
| Figure: 10C | |

# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario




| Sample Location | BH8 | BH10 | BH202 | BH203 | BH204 | BH205 |
|---|---|---|---|---|---|---|
| Sample Date | 23-Feb-16 | 23-Feb-16 | 26-Aug-19 | 26-Aug-19 | 22-Aug-19 | 22-Aug-19 |
| Sample Depth (m) | 1.2 - 2.4 | 0.1 - 1.2 | 0.6 - 1.5 | 0.6 - 1.5 | 1.5 - 2.2 | 0.0 - 1.5 |

**LEGEND**

- Borehole
- Borehole With Monitoring Well
- Meets Table 8 SCS
- Site (approximate)

**Notes:**
- Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
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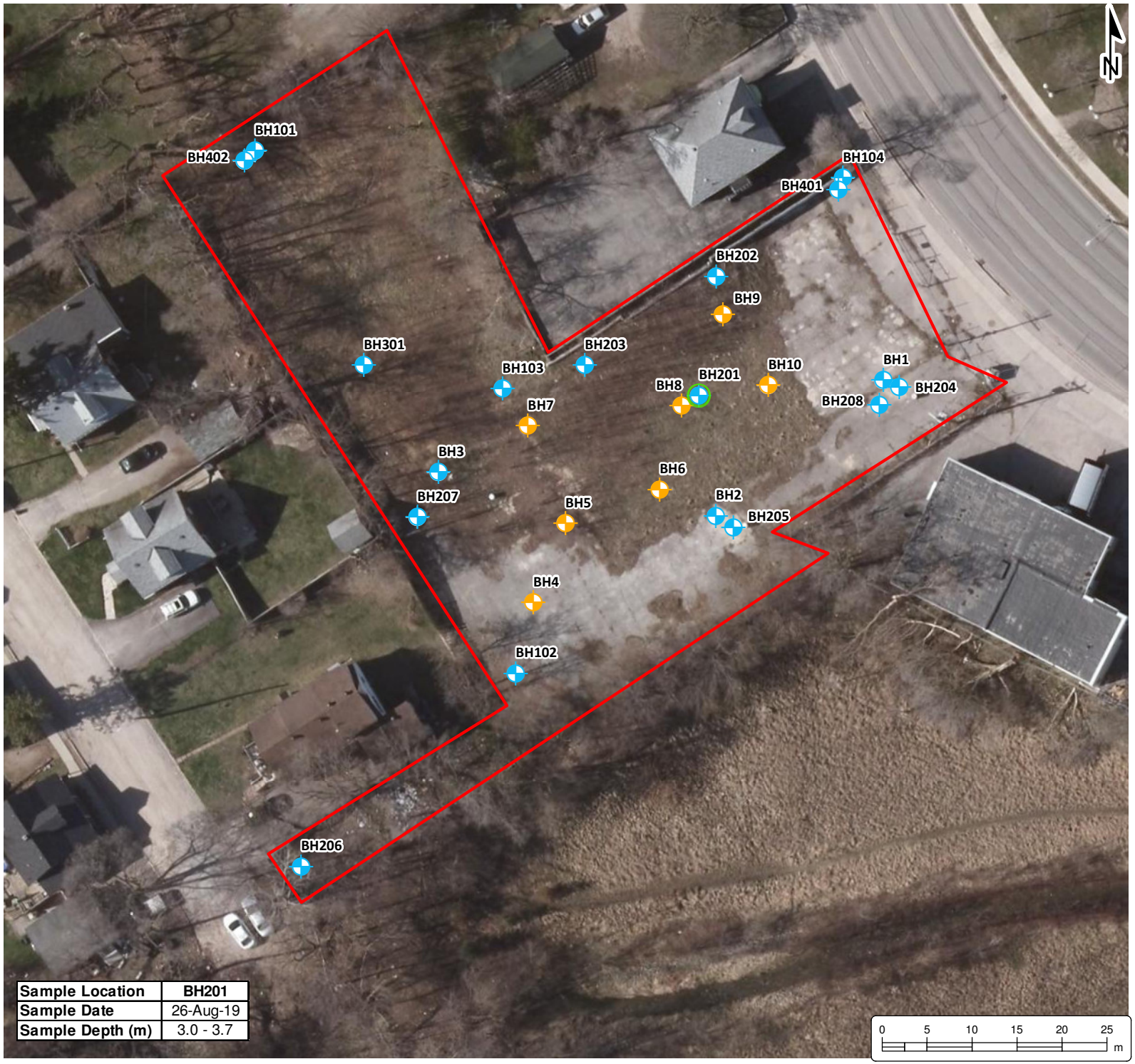
## SOIL RESULTS - PAHs

| | | | |
|---|---|---|---|
| Project No.: 9326-001 | | Date: March 2020 | Rev.: |
| Scale: 1:600 | | Projection: NAD 1983 UTM Zone 17N | |
| Created by: MAT | Checked by: NJY | Figure: 11 | |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-03-17 P2 FIG 11 - Soil Results - PAHs.mxd




| Sample Location | BH201 |
|---|---|
| Sample Date | 26-Aug-19 |
| Sample Depth (m) | 3.0 - 3.7 |

# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario

**LEGEND**

- Borehole
- Borehole With Monitoring Well
- Meets Table 8 SCS
- Site (approximate)

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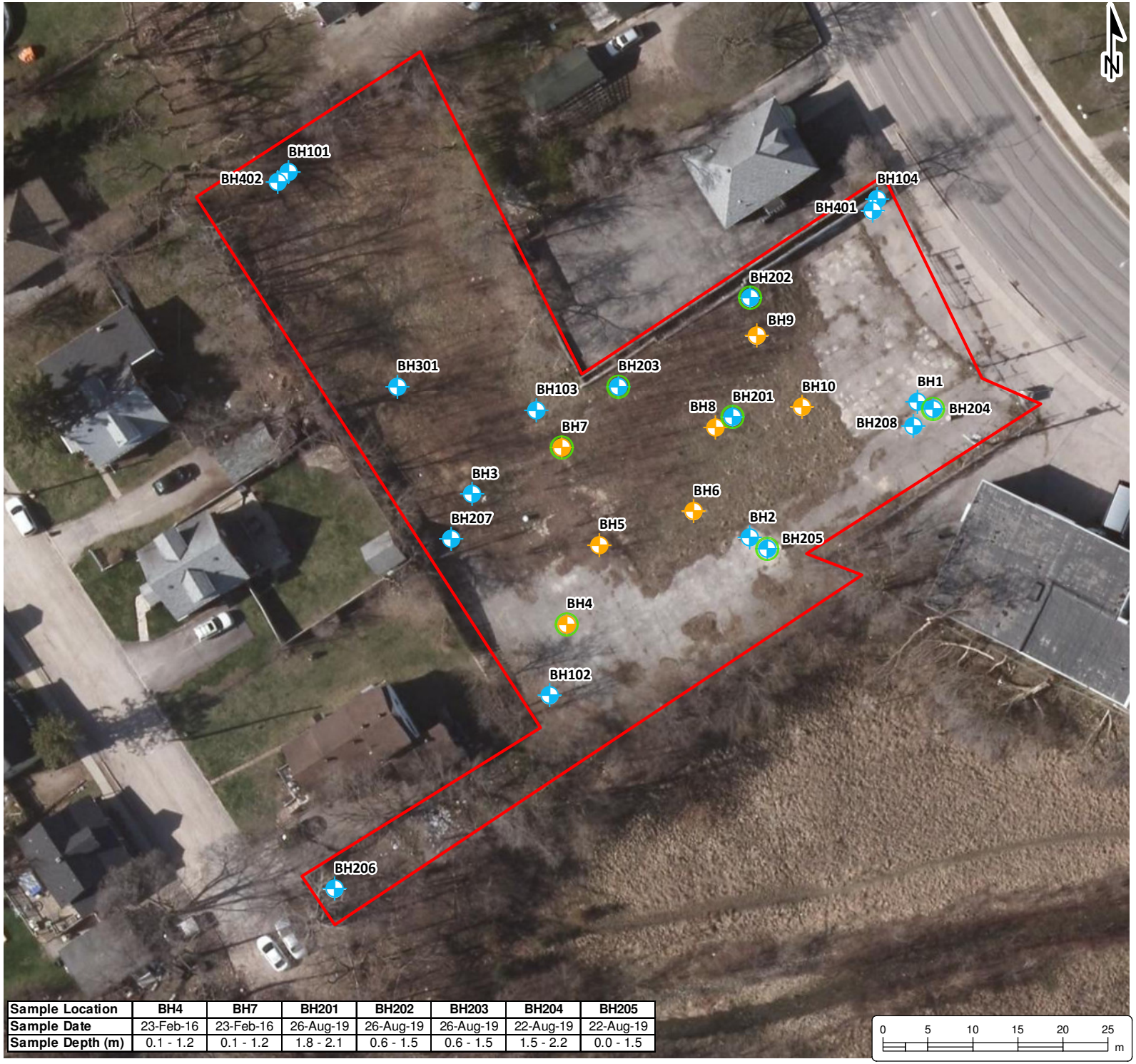
## SOIL RESULTS - PCBs

| | | | |
|---|---|---|---|
| Project No.: 9326-001 | | Date: March 2020<br>Rev.: | |
| Scale: 1:600 | | Projection: NAD 1983 UTM Zone 17N | |
| Created by: MAT | Checked by: NJY | Figure: | 12 |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-03-17 P2 FIG 12 - Soil Results - PCBs.mxd

# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario




| Sample Location | BH4 | BH7 | BH201 | BH202 | BH203 | BH204 | BH205 |
|---|---|---|---|---|---|---|---|
| Sample Date | 23-Feb-16 | 23-Feb-16 | 26-Aug-19 | 26-Aug-19 | 26-Aug-19 | 22-Aug-19 | 22-Aug-19 |
| Sample Depth (m) | 0.1 - 1.2 | 0.1 - 1.2 | 1.8 - 2.1 | 0.6 - 1.5 | 0.6 - 1.5 | 1.5 - 2.2 | 0.0 - 1.5 |

**LEGEND**

- Borehole
- Borehole With Monitoring Well
- Meets Table 8 SCS
- Site (approximate)

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## SOIL RESULTS - METALS

| | | | |
|---|---|---|---|
| Project No.: 9326-001 | | Date: March 2020 | Rev.: |
| Scale: 1:600 | | Projection: NAD 1983 UTM Zone 17N | |
| Created by: MAT | Checked by: NJY | Figure: 13 | |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-03-17 P2 FIG 13 - Soil Results - METALS.mxd

# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
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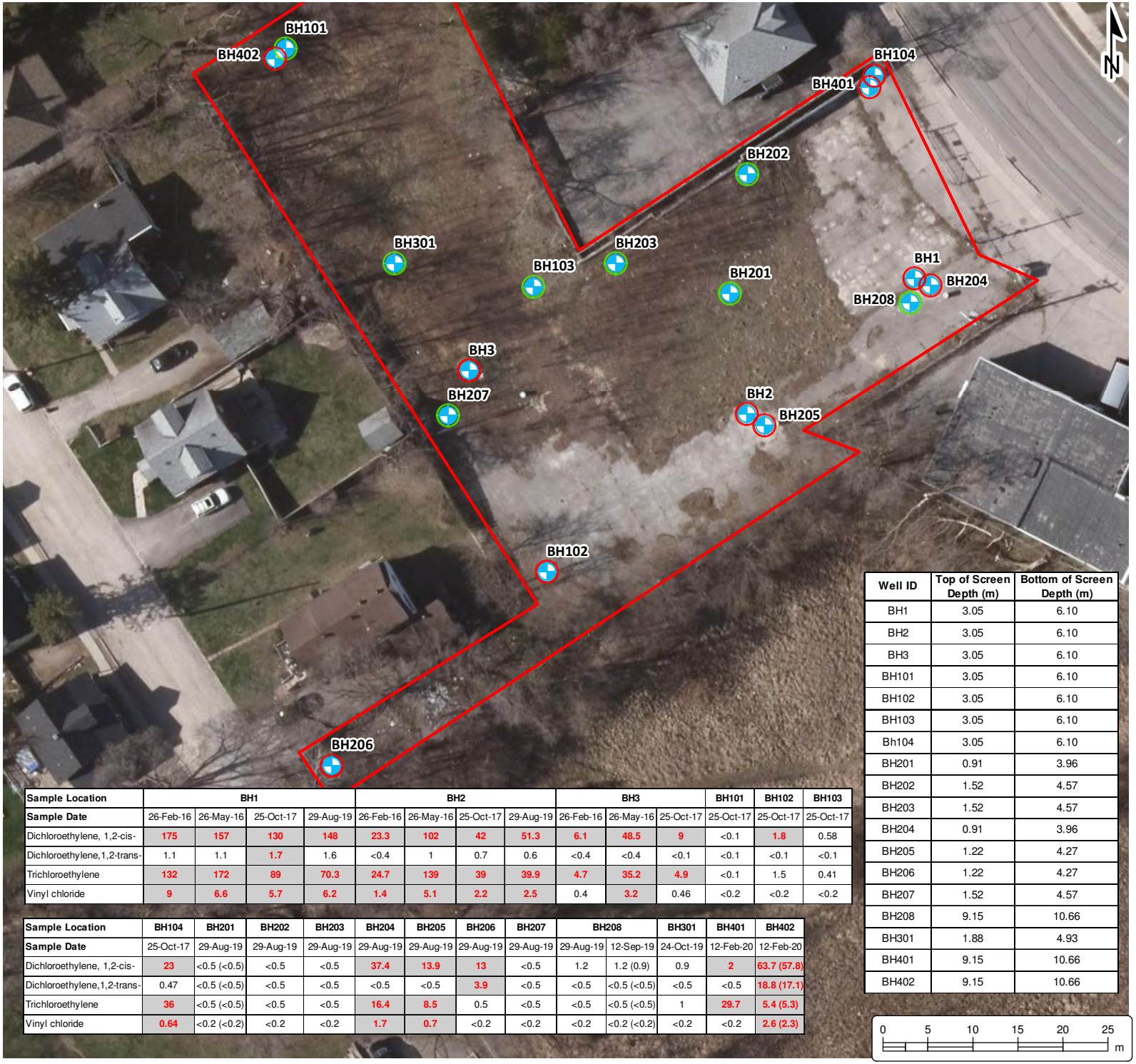
Barrie, Ontario




**LEGEND**

- Borehole With Monitoring Well
- Exceeds Table 8 SCS
- Meets Table 8 SCS
- Site (approximate)

| Table 8 SCS | |
|---|---|
| Dichloroethylene, 1,2-cis- | 1.6 |
| Dichloroethylene,1,2-trans- | 1.6 |
| Trichloroethylene | 1.6 |
| Vinyl chloride | 0.5 |

Notes:
Table 8 (All Types of Property Use)
Bold and shaded values exceed the standard
(#) - Duplicate result

| Well ID | Top of Screen Depth (m) | Bottom of Screen Depth (m) |
|---|---|---|
| BH1 | 3.05 | 6.10 |
| BH2 | 3.05 | 6.10 |
| BH3 | 3.05 | 6.10 |
| BH101 | 3.05 | 6.10 |
| BH102 | 3.05 | 6.10 |
| BH103 | 3.05 | 6.10 |
| Bh104 | 3.05 | 6.10 |
| BH201 | 0.91 | 3.96 |
| BH202 | 1.52 | 4.57 |
| BH203 | 1.52 | 4.57 |
| BH204 | 0.91 | 3.96 |
| BH205 | 1.22 | 4.27 |
| BH206 | 1.22 | 4.27 |
| BH207 | 1.52 | 4.57 |
| BH208 | 9.15 | 10.66 |
| BH301 | 1.88 | 4.93 |
| BH401 | 9.15 | 10.66 |
| BH402 | 9.15 | 10.66 |

| Sample Location | BH1 | | | | BH2 | | | | BH3 | | | BH101 | BH102 | BH103 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 26-Feb-16 | 26-May-16 | 25-Oct-17 | 29-Aug-19 | 26-Feb-16 | 26-May-16 | 25-Oct-17 | 29-Aug-19 | 26-Feb-16 | 26-May-16 | 25-Oct-17 | 25-Oct-17 | 25-Oct-17 | 25-Oct-17 |
| Dichloroethylene, 1,2-cis- | **175** | **157** | **130** | **148** | **23.3** | **102** | **42** | **51.3** | **6.1** | **48.5** | **9** | <0.1 | **1.8** | 0.58 |
| Dichloroethylene,1,2-trans- | 1.1 | 1.1 | **1.7** | 1.6 | <0.4 | 1 | 0.7 | 0.6 | <0.4 | <0.4 | <0.1 | <0.1 | <0.1 | <0.1 |
| Trichloroethylene | **132** | **172** | **89** | **70.3** | **24.7** | **139** | **39** | **39.9** | **4.7** | **35.2** | **4.9** | <0.1 | 1.5 | 0.41 |
| Vinyl chloride | **9** | **6.6** | **5.7** | **6.2** | **1.4** | **5.1** | **2.2** | **2.5** | 0.4 | **3.2** | 0.46 | <0.2 | <0.2 | <0.2 |

| Sample Location | BH104 | BH201 | BH202 | BH203 | BH204 | BH205 | BH206 | BH207 | BH208 | | BH301 | BH401 | BH402 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 25-Oct-17 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 12-Sep-19 | 24-Oct-19 | 12-Feb-20 | 12-Feb-20 |
| Dichloroethylene, 1,2-cis- | **23** | <0.5 (<0.5) | <0.5 | <0.5 | **37.4** | **13.9** | **13** | <0.5 | 1.2 | 1.2 (0.9) | 0.9 | **2** | **63.7 (57.8)** |
| Dichloroethylene,1,2-trans- | 0.47 | <0.5 (<0.5) | <0.5 | <0.5 | <0.5 | <0.5 | **3.9** | <0.5 | <0.5 | <0.5 (<0.5) | <0.5 | <0.5 | **18.8 (17.1)** |
| Trichloroethylene | **36** | <0.5 (<0.5) | <0.5 | <0.5 | **16.4** | **8.5** | 0.5 | <0.5 | <0.5 | <0.5 (<0.5) | 1 | **29.7** | **5.4 (5.3)** |
| Vinyl chloride | **0.64** | <0.2 (<0.2) | <0.2 | <0.2 | **1.7** | **0.7** | <0.2 | <0.2 | <0.2 | <0.2 (<0.2) | <0.2 | <0.2 | **2.6 (2.3)** |

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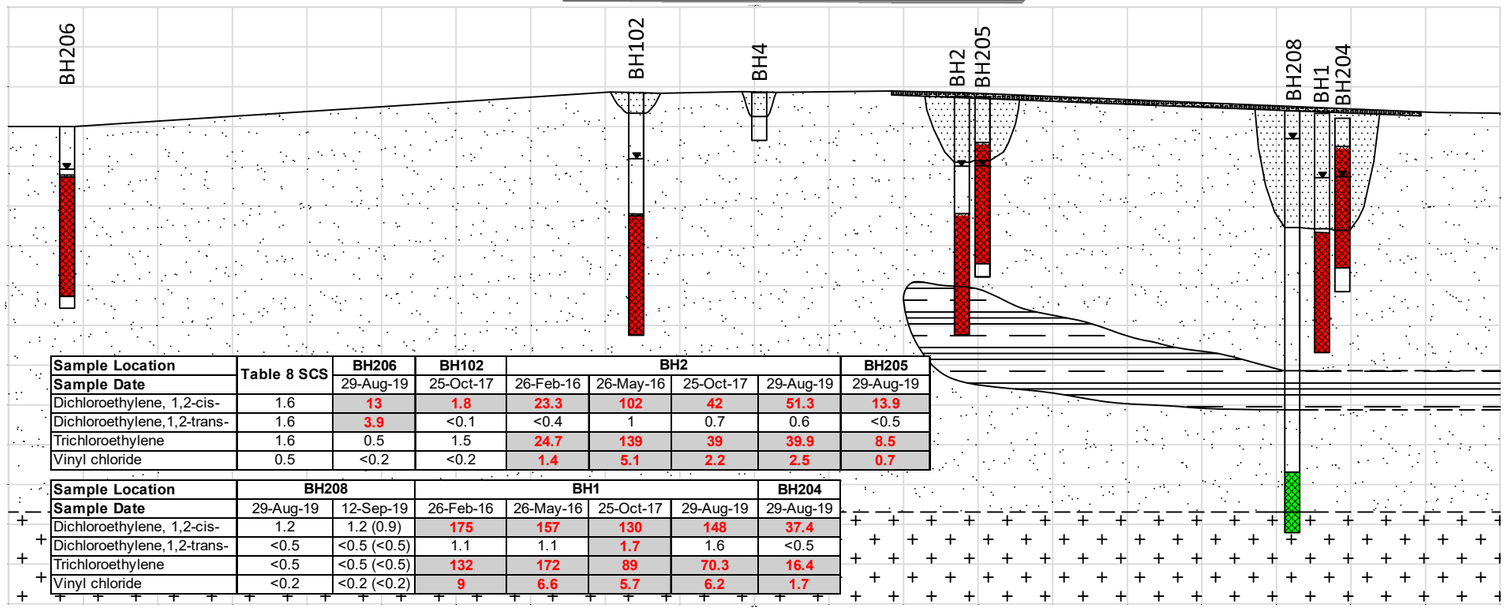
## GROUNDWATER RESULTS - VOCs

| | | | |
|---|---|---|---|
| Project No.: | 9326-001 | Date: | March 2020 |
| | | Rev.: | April 2020 |
| Scale: | 1:600 | Projection: | NAD 1983 UTM Zone 17N |
| Created by: | MAT | Checked by: | NJY |
| Figure: | **14A** | | |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-03-17 P2 FIG 14A - Groundwater Results - VOCs.mxd

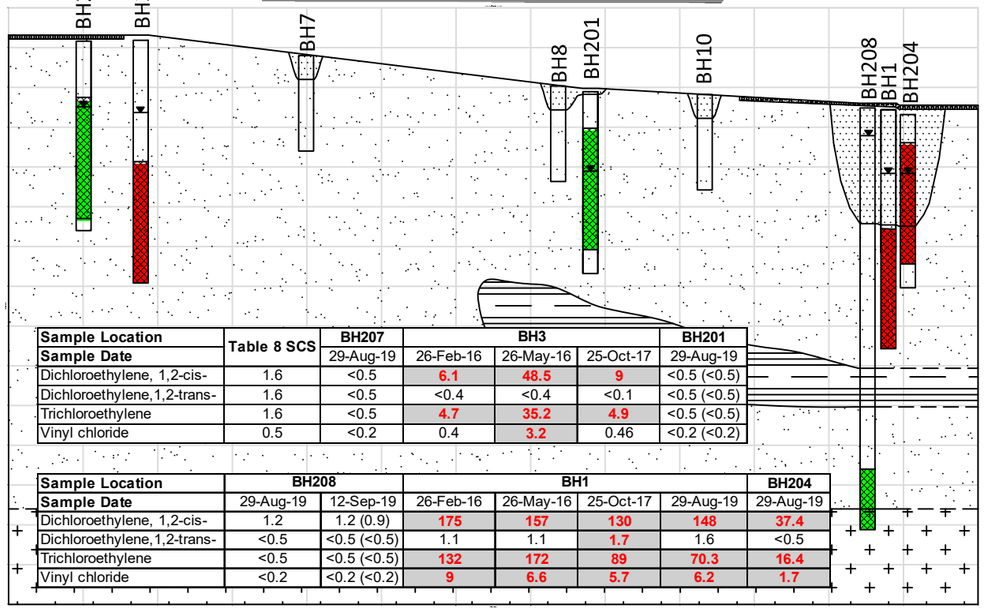
# Cross Section A-A'




| Sample Location | Table 8 SCS | BH206 | BH102 | BH2 | | | | BH205 |
|---|---|---|---|---|---|---|---|---|
| Sample Date | | 29-Aug-19 | 25-Oct-17 | 26-Feb-16 | 26-May-16 | 25-Oct-17 | 29-Aug-19 | 29-Aug-19 |
| Dichloroethylene, 1,2-cis- | 1.6 | 13 | 1.8 | 23.3 | 102 | 42 | 51.3 | 13.9 |
| Dichloroethylene,1,2-trans- | 1.6 | 3.9 | <0.1 | <0.4 | 1 | 0.7 | 0.6 | <0.5 |
| Trichloroethylene | 1.6 | 0.5 | 1.5 | 24.7 | 139 | 39 | 39.9 | 8.5 |
| Vinyl chloride | 0.5 | <0.2 | <0.2 | 1.4 | 5.1 | 2.2 | 2.5 | 0.7 |

| Sample Location | BH208 | | BH1 | | | | BH204 |
|---|---|---|---|---|---|---|---|
| Sample Date | 29-Aug-19 | 12-Sep-19 | 26-Feb-16 | 26-May-16 | 25-Oct-17 | 29-Aug-19 | 29-Aug-19 |
| Dichloroethylene, 1,2-cis- | 1.2 | 1.2 (0.9) | 175 | 157 | 130 | 148 | 37.4 |
| Dichloroethylene,1,2-trans- | <0.5 | <0.5 (<0.5) | 1.1 | 1.1 | 1.7 | 1.6 | <0.5 |
| Trichloroethylene | <0.5 | <0.5 (<0.5) | 132 | 172 | 89 | 70.3 | 16.4 |
| Vinyl chloride | <0.2 | <0.2 (<0.2) | 9 | 6.6 | 5.7 | 6.2 | 1.7 |

# Cross Section B-B'




| Sample Location | Table 8 SCS | BH207 | BH3 | | | BH201 |
|---|---|---|---|---|---|---|
| Sample Date | | 29-Aug-19 | 26-Feb-16 | 26-May-16 | 25-Oct-17 | 29-Aug-19 |
| Dichloroethylene, 1,2-cis- | 1.6 | <0.5 | 6.1 | 48.5 | 9 | <0.5 (<0.5) |
| Dichloroethylene,1,2-trans- | 1.6 | <0.5 | <0.4 | <0.4 | <0.1 | <0.5 (<0.5) |
| Trichloroethylene | 1.6 | <0.5 | 4.7 | 35.2 | 4.9 | <0.5 (<0.5) |
| Vinyl chloride | 0.5 | <0.2 | 0.4 | 3.2 | 0.46 | <0.2 (<0.2) |

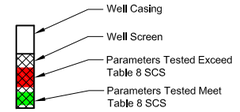
| Sample Location | BH208 | | BH1 | | | | BH204 |
|---|---|---|---|---|---|---|---|
| Sample Date | 29-Aug-19 | 12-Sep-19 | 26-Feb-16 | 26-May-16 | 25-Oct-17 | 29-Aug-19 | 29-Aug-19 |
| Dichloroethylene, 1,2-cis- | 1.2 | 1.2 (0.9) | 175 | 157 | 130 | 148 | 37.4 |
| Dichloroethylene,1,2-trans- | <0.5 | <0.5 (<0.5) | 1.1 | 1.1 | 1.7 | 1.6 | <0.5 |
| Trichloroethylene | <0.5 | <0.5 (<0.5) | 132 | 172 | 89 | 70.3 | 16.4 |
| Vinyl chloride | <0.2 | <0.2 (<0.2) | 9 | 6.6 | 5.7 | 6.2 | 1.7 |

**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**
CHAYELL HOTELS LTD.

220Bradford Street
Barrie, Ontario

LEGEND

- Groundwater Level
- Asphalt
- Fill, Topsoil
- Sandy Silt
- Clay
- Silt




| Table 8 Standards | |
|---|---|
| Dichloroethene, cis-1,2- | 1.6 |
| Dichloroethene, trans-1,2- | 1.6 |
| Trichloroethylene | 1.6 |
| Vinyl Chloride | 0.5 |

Table 8 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A POTABLE GROUNDWATER CONDITION (MOE, 2011).
(#) - INDICATES DUPLICATE RESULT.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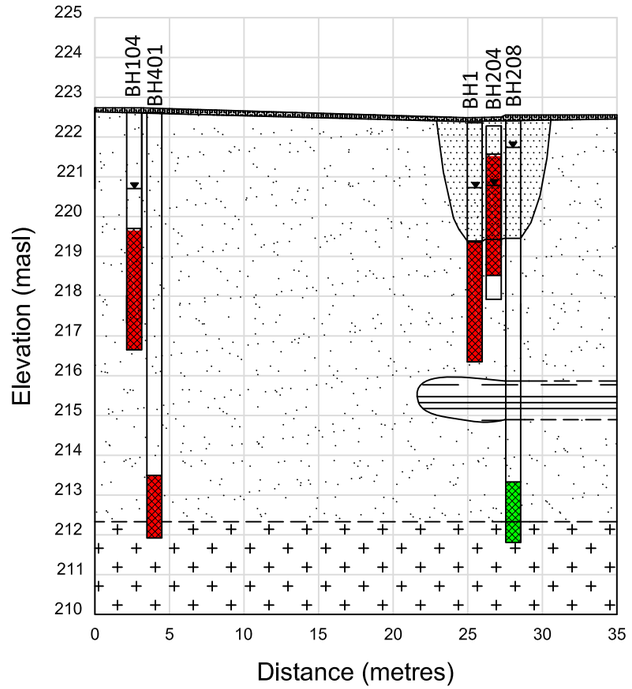
www.cambium-inc.com


CROSS SECTION A-A' & B-B' ALONG GRADIENT VOCs IN GROUNDWATER

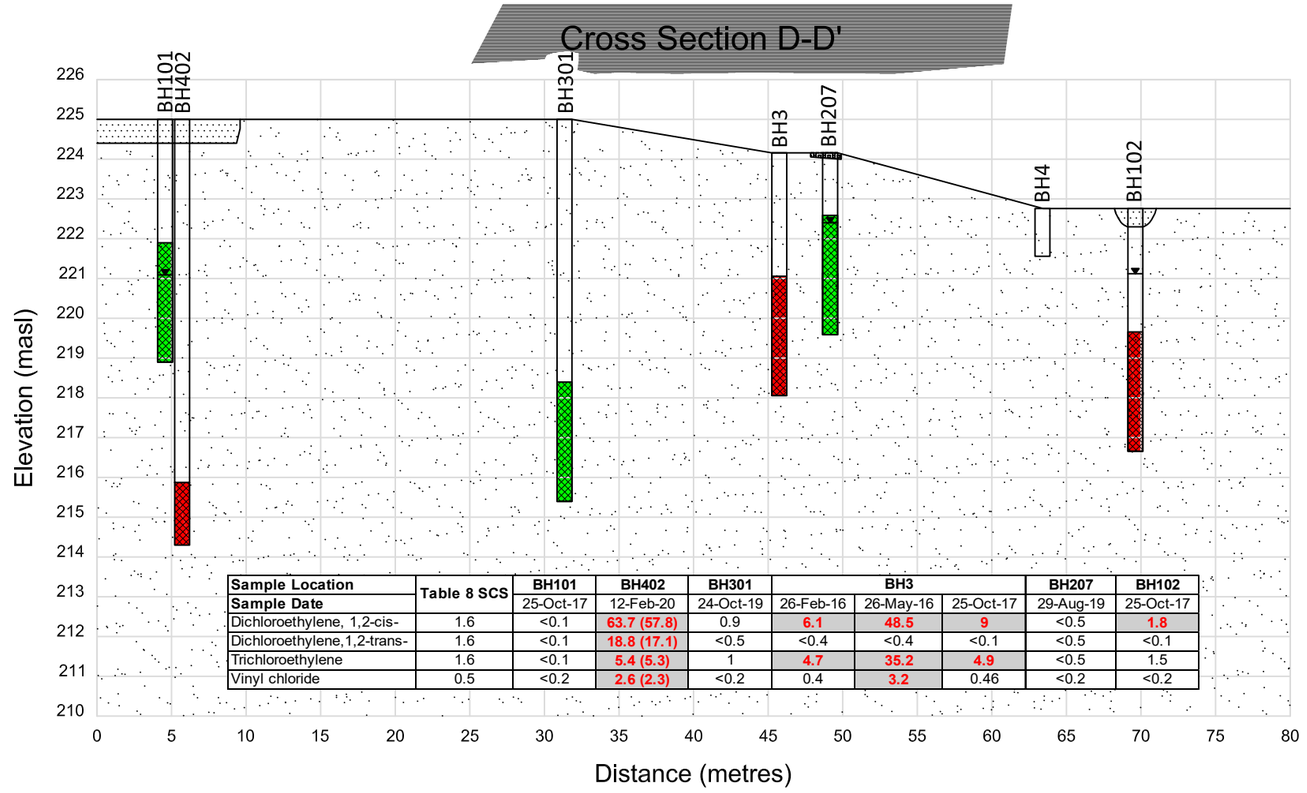
| Project No.: | Date: |
|---|---|
| 9326-001 | March 2020 |
| | Rev.: April 2020 |
| Horizontal Scale: 1:400 | Vertical Scale: 1:150 |
| Drawn By: MAT | Checked By: NJY |
| | Figure: 14B |

# Cross Section C-C'




| Sample Location | Table 8 SCS | BH104 | BH401 | BH1 | | | | BH204 | BH208 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | | 25-Oct-17 | 12-Feb-20 | 26-Feb-16 | 26-May-16 | 25-Oct-17 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 12-Sep-19 |
| Dichloroethylene, 1,2-cis- | 1.6 | 23 | 2 | 175 | 157 | 130 | 148 | 37.4 | 1.2 | 1.2 (0.9) |
| Dichloroethylene,1,2-trans- | 1.6 | 0.47 | <0.5 | 1.1 | 1.1 | 1.7 | 1.6 | <0.5 | <0.5 | <0.5 (<0.5) |
| Trichloroethylene | 1.6 | 36 | 29.7 | 132 | 172 | 89 | 70.3 | 16.4 | <0.5 | <0.5 (<0.5) |
| Vinyl chloride | 0.5 | 0.64 | <0.2 | 9 | 6.6 | 5.7 | 6.2 | 1.7 | <0.2 | <0.2 (<0.2) |

# Cross Section D-D'



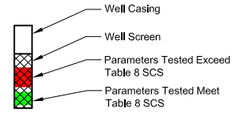

| Sample Location | Table 8 SCS | BH101 | BH402 | BH301 | BH3 | | | BH207 | BH102 |
|---|---|---|---|---|---|---|---|---|---|
| Sample Date | | 25-Oct-17 | 12-Feb-20 | 24-Oct-19 | 26-Feb-16 | 26-May-16 | 25-Oct-17 | 29-Aug-19 | 25-Oct-17 |
| Dichloroethylene, 1,2-cis- | 1.6 | <0.1 | 63.7 (57.8) | 0.9 | 6.1 | 48.5 | 9 | <0.5 | 1.8 |
| Dichloroethylene,1,2-trans- | 1.6 | <0.1 | 18.8 (17.1) | <0.5 | <0.4 | <0.4 | <0.1 | <0.5 | <0.1 |
| Trichloroethylene | 1.6 | <0.1 | 5.4 (5.3) | 1 | 4.7 | 35.2 | 4.9 | <0.5 | 1.5 |
| Vinyl chloride | 0.5 | <0.2 | 2.6 (2.3) | <0.2 | 0.4 | 3.2 | 0.46 | <0.2 | <0.2 |

**PHASE TWO ENVIRONMENTAL SITE ASSESSMENT**
CHAYELL HOTELS LTD.

220Bradford Street
Barrie, Ontario

LEGEND

- Groundwater Level
- Asphalt
- Fill, Topsoil
- Sandy Silt
- Clay
- Silt




| Table 8 Standards | |
|---|---|
| Dichloroethene, cis-1,2- | 1.6 |
| Dichloroethene, trans-1,2- | 1.6 |
| Trichloroethylene | 1.6 |
| Vinyl Chloride | 0.5 |

Table 8 - GENERIC SITE CONDITION STANDARDS FOR USE WITHIN 30 m OF A WATERBODY IN A POTABLE GROUNDWATER CONDITION (MOE, 2011).
(#) - INDICATES DUPLICATE RESULT.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CROSS SECTION C-C' & D-D' ALONG GRADIENT VOCs IN GROUNDWATER

| Project No.: | Date: |
|---|---|
| 9326-001 | March 2020<br>Rev.: April 2020 |
| Horizontal Scale: 1:400 | Vertical Scale: 1:150 |
| Drawn By: MAT | Checked By: NJY |

Figure: 14C

# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

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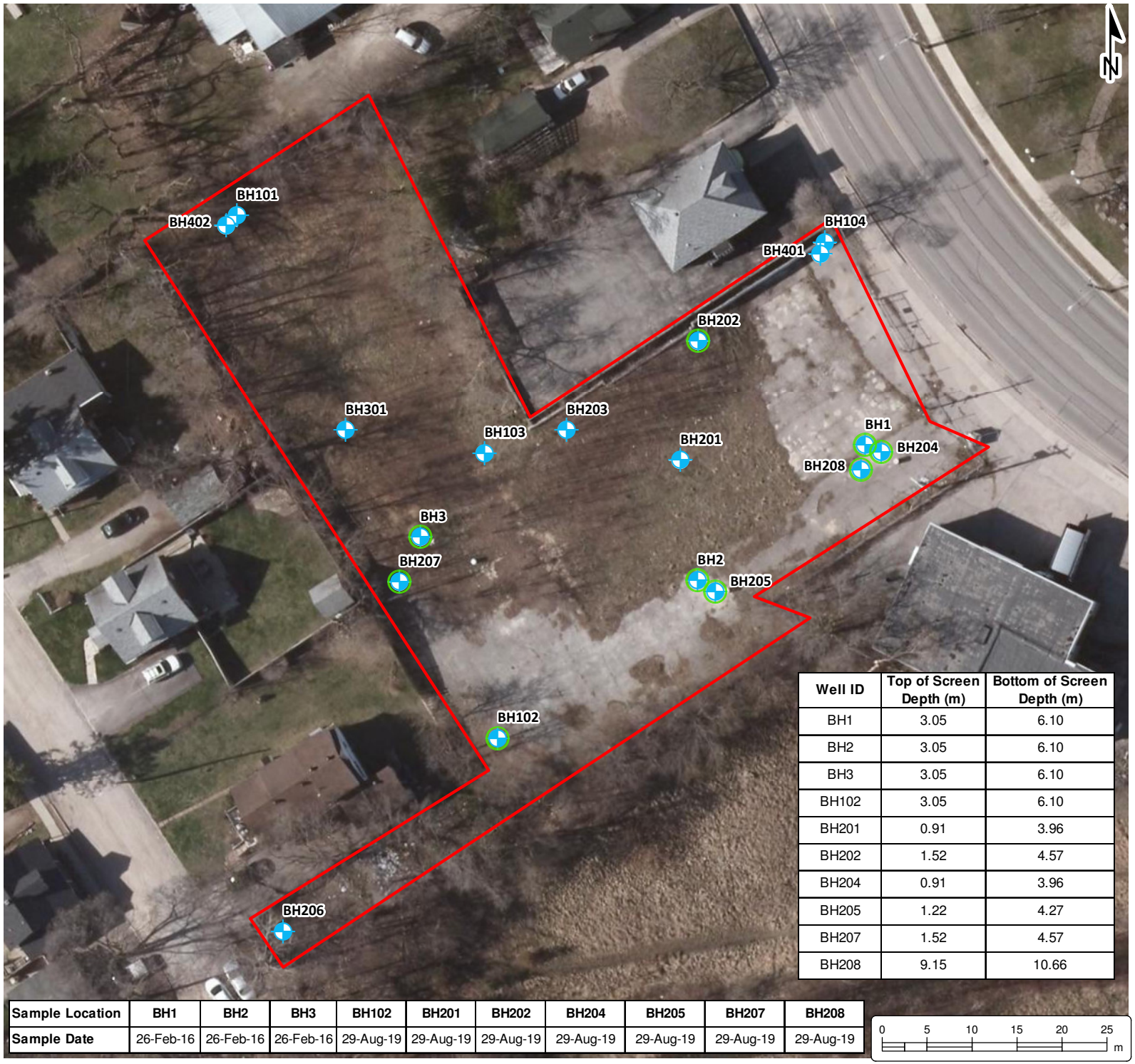
Barrie, Ontario




**LEGEND**

- Borehole With Monitoring Well
- Meets Table 8 SCS
- Site (approximate)

| Well ID | Top of Screen Depth (m) | Bottom of Screen Depth (m) |
|---|---|---|
| BH1 | 3.05 | 6.10 |
| BH2 | 3.05 | 6.10 |
| BH3 | 3.05 | 6.10 |
| BH102 | 3.05 | 6.10 |
| BH201 | 0.91 | 3.96 |
| BH202 | 1.52 | 4.57 |
| BH204 | 0.91 | 3.96 |
| BH205 | 1.22 | 4.27 |
| BH207 | 1.52 | 4.57 |
| BH208 | 9.15 | 10.66 |

| Sample Location | BH1 | BH2 | BH3 | BH102 | BH201 | BH202 | BH204 | BH205 | BH207 | BH208 |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Date | 26-Feb-16 | 26-Feb-16 | 26-Feb-16 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 |

0 5 10 15 20 25 m

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## GROUNDWATER RESULTS - PHCs

| | | | |
|---|---|---|---|
| Project No.: | 9326-001 | Date: | March 2020 |
| | | Rev.: | April 2020 |
| Scale: | 1:600 | Projection: | NAD 1983 UTM Zone 17N |
| Created by: | MAT | Checked by: | NJY |
| Figure: | 15 | | |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-03-17 P2 FIG 15 - Groundwater Results - PHCs.mxd

# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

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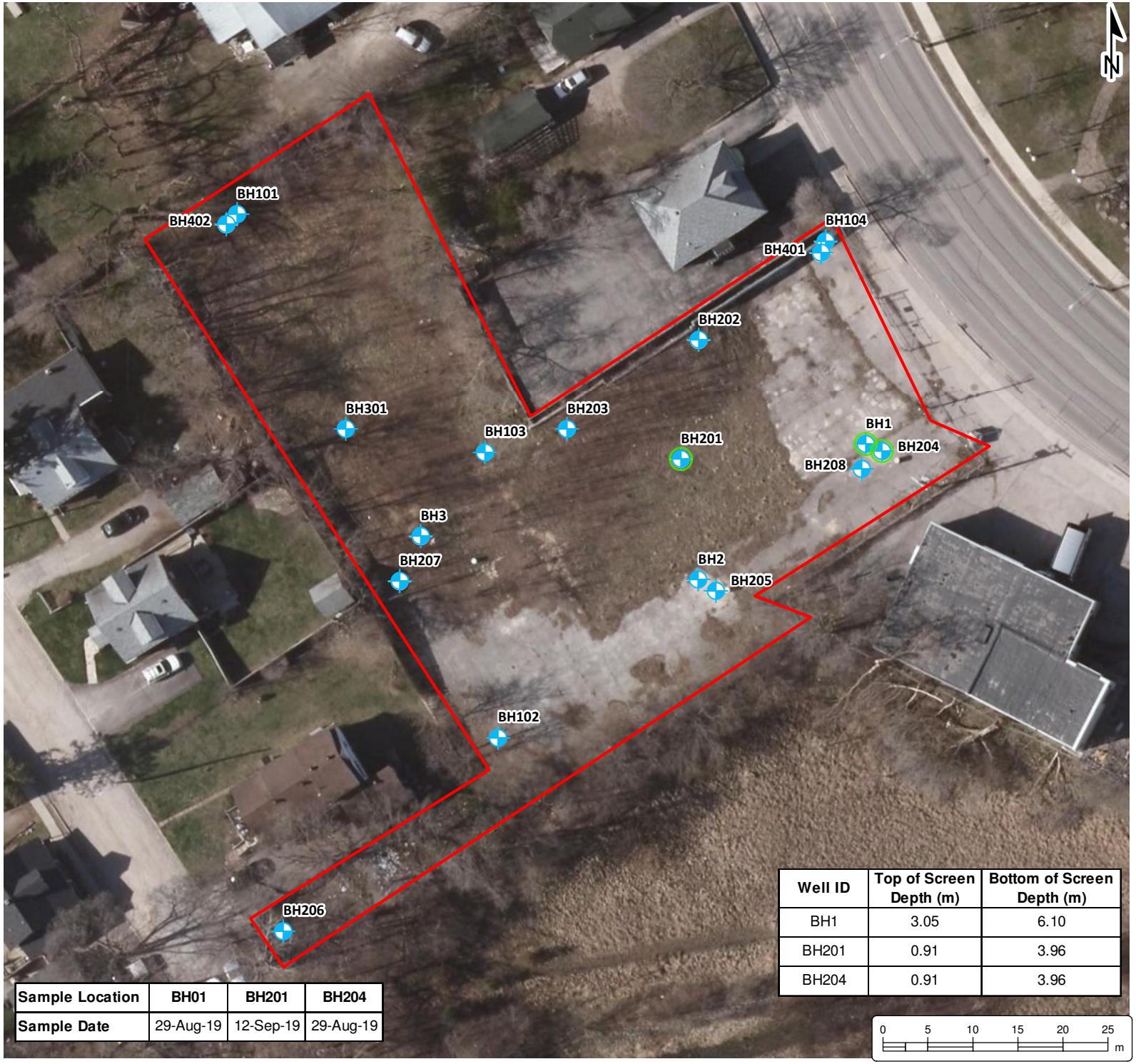
Barrie, Ontario




**LEGEND**

- Borehole With Monitoring Well
- Meets Table 8 SCS
- Site (approximate)

| Well ID | Top of Screen Depth (m) | Bottom of Screen Depth (m) |
|---|---|---|
| BH1 | 3.05 | 6.10 |
| BH201 | 0.91 | 3.96 |
| BH204 | 0.91 | 3.96 |

| Sample Location | BH01 | BH201 | BH204 |
|---|---|---|---|
| Sample Date | 29-Aug-19 | 12-Sep-19 | 29-Aug-19 |

0 5 10 15 20 25 m

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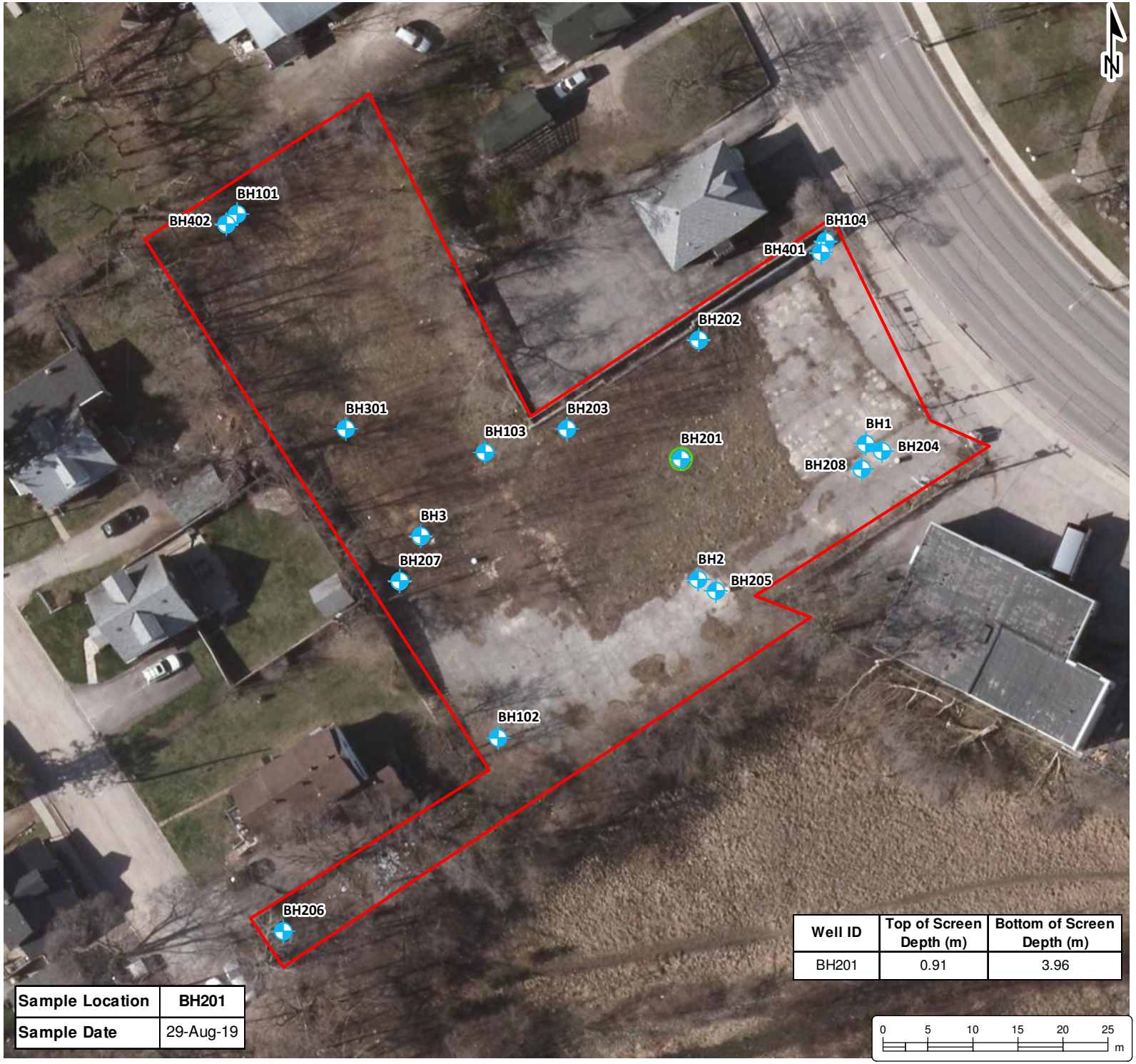
## GROUNDWATER RESULTS - PAHs

| | | | |
|---|---|---|---|
| Project No.: | 9326-001 | Date: | March 2020 |
| | | Rev.: | April 2020 |
| Scale: | 1:600 | Projection: | NAD 1983 UTM Zone 17N |
| Created by: | MAT | Checked by: | NJY |
| Figure: | 16 | | |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-03-17 P2 FIG 16 - Groundwater Results - PAHs.mxd

# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario




**LEGEND**

- Borehole With Monitoring Well
- Meets Table 8 SCS
- Site (approximate)

| Well ID | Top of Screen Depth (m) | Bottom of Screen Depth (m) |
|---|---|---|
| BH201 | 0.91 | 3.96 |

| Sample Location | BH201 |
|---|---|
| Sample Date | 29-Aug-19 |

0 5 10 15 20 25 m

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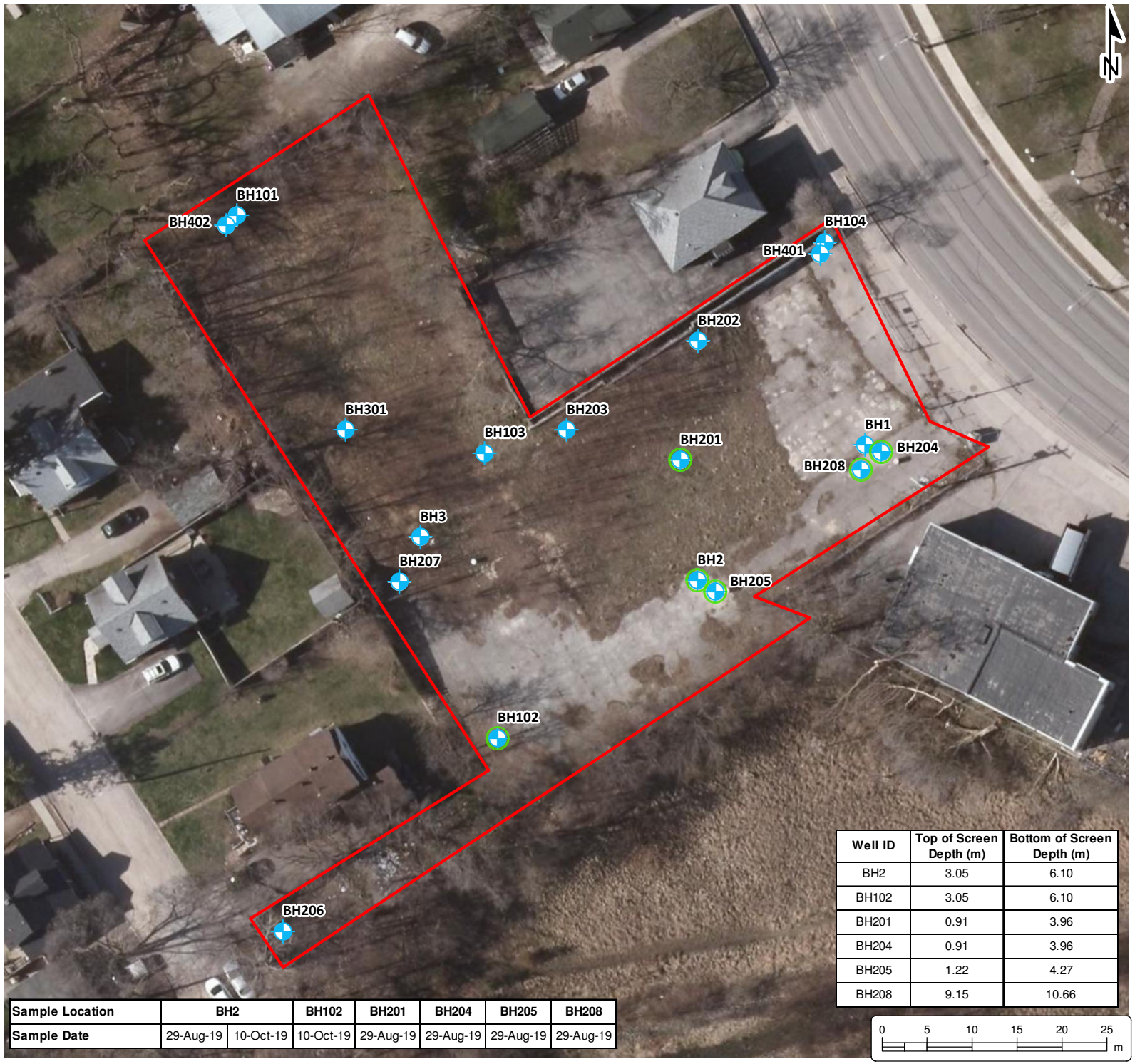
## GROUNDWATER RESULTS - PCBs

| | | | |
|---|---|---|---|
| Project No.: 9326-001 | | Date: March 2020<br>Rev.: April 2020 | |
| Scale: 1:600 | | Projection: NAD 1983 UTM Zone 17N | |
| Created by: MAT | Checked by: NJY | Figure: | 17 |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-03-17 P2 FIG 17 - Groundwater Results - PCBs.mxd




| Sample Location | BH2 | | BH102 | BH201 | BH204 | BH205 | BH208 |
|---|---|---|---|---|---|---|---|
| Sample Date | 29-Aug-19 | 10-Oct-19 | 10-Oct-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 |

| Well ID | Top of Screen Depth (m) | Bottom of Screen Depth (m) |
|---|---|---|
| BH2 | 3.05 | 6.10 |
| BH102 | 3.05 | 6.10 |
| BH201 | 0.91 | 3.96 |
| BH204 | 0.91 | 3.96 |
| BH205 | 1.22 | 4.27 |
| BH208 | 9.15 | 10.66 |

# PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

CHAYELL HOTELS LTD.
220 Bradford Street,
Barrie, Ontario

**LEGEND**

- Borehole With Monitoring Well
- Meets Table 8 SCS
- Site (approximate)

**Notes:**
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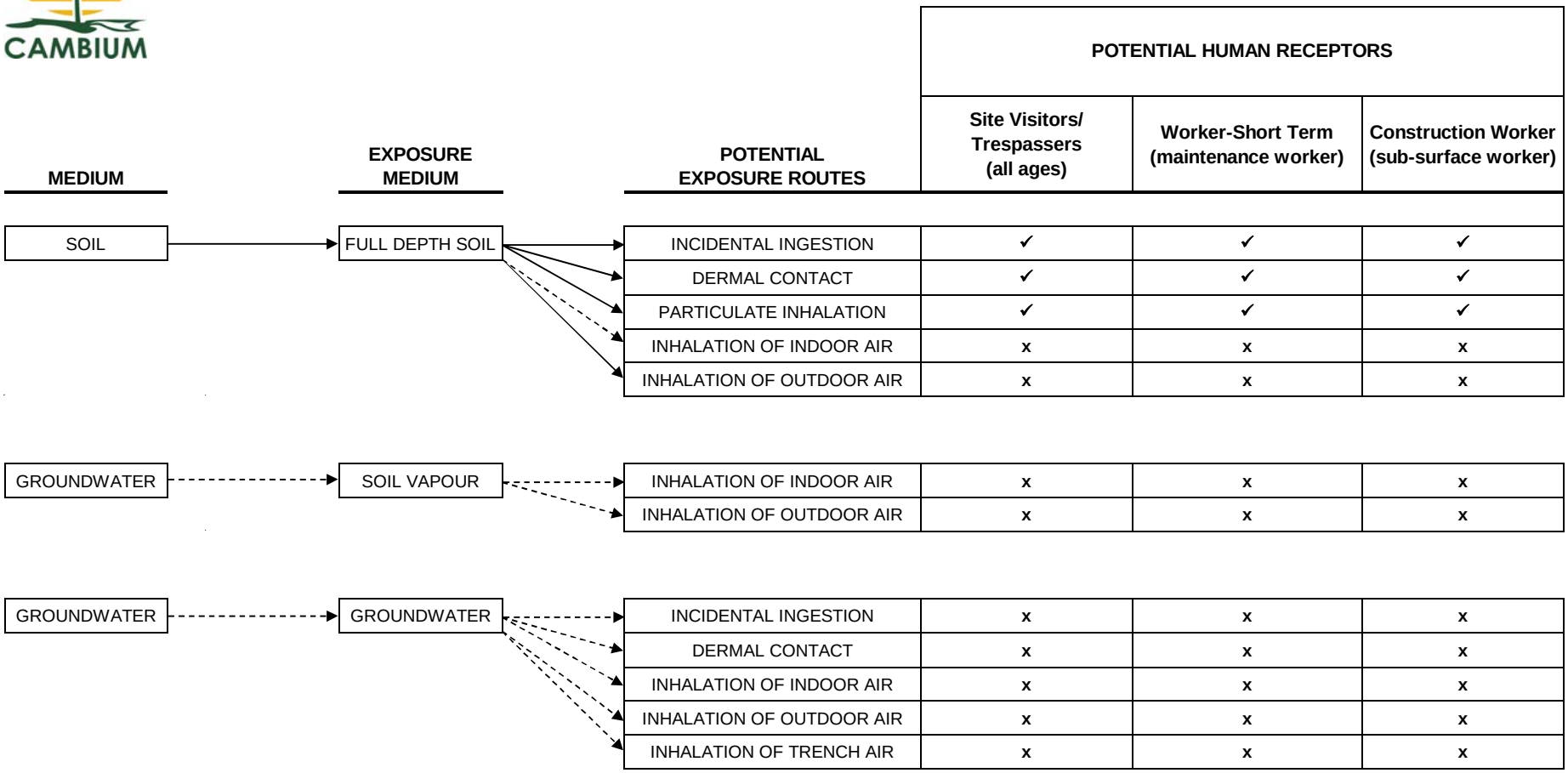
## GROUNDWATER RESULTS - METALS

| | | | |
|---|---|---|---|
| Project No.: | 9326-001 | Date: | March 2020 |
| | | Rev.: | April 2020 |
| Scale: | 1:600 | Projection: | NAD 1983 UTM Zone 17N |
| Created by: | MAT | Checked by: | NJY |
| Figure: | 18 | | |

O:\GIS\project_MXDs\9300-9399\9326-001 Chayell Hotels Ltd. - ENV - 220 Bradford Street\2021-03-17 P2 FIG 18 - Groundwater Results - METALS.mxd

# FIGURE 19
# HUMAN HEALTH CONCEPTUAL SITE MODEL - WITHOUT RISK MANAGEMENT



| MEDIUM | EXPOSURE MEDIUM | POTENTIAL EXPOSURE ROUTES | POTENTIAL HUMAN RECEPTORS | | |
|---|---|---|---|---|---|
| | | | Site Visitors/ Trespassers (all ages) | Worker-Short Term (maintenance worker) | Construction Worker (sub-surface worker) |
| SOIL | FULL DEPTH SOIL | INCIDENTAL INGESTION | ✓ | ✓ | ✓ |
| | | DERMAL CONTACT | ✓ | ✓ | ✓ |
| | | PARTICULATE INHALATION | ✓ | ✓ | ✓ |
| | | INHALATION OF INDOOR AIR | x | x | x |
| | | INHALATION OF OUTDOOR AIR | x | x | x |
| GROUNDWATER | SOIL VAPOUR | INHALATION OF INDOOR AIR | x | x | x |
| | | INHALATION OF OUTDOOR AIR | x | x | x |
| GROUNDWATER | GROUNDWATER | INCIDENTAL INGESTION | x | x | x |
| | | DERMAL CONTACT | x | x | x |
| | | INHALATION OF INDOOR AIR | x | x | x |
| | | INHALATION OF OUTDOOR AIR | x | x | x |
| | | INHALATION OF TRENCH AIR | x | x | x |

Notes:

✓ - Indicates a potential exposure of contaminant of concern to receptor.

**x** - Indicates no exposure of contaminant of concern to receptor.

——→ Indicates pathway potentially complete

- - - - - - - - → Indicates pathway incomplete

# FIGURE 20
# HUMAN HEALTH CONCEPTUAL SITE MODEL - WITH RISK MANAGEMENT

| MEDIUM | EXPOSURE MEDIUM | POTENTIAL EXPOSURE ROUTES | POTENTIAL HUMAN RECEPTORS | | |
|---|---|---|---|---|---|
| | | | Site Visitors/ Trespassers (all ages) | Worker-Short Term (maintenance worker) | Construction Worker (sub-surface worker) |
| SOIL | FULL DEPTH SOIL | INCIDENTAL INGESTION | x | x | ✓ |
| | | DERMAL CONTACT | x | x | ✓ |
| | | PARTICULATE INHALATION | x | x | ✓ |
| | | INHALATION OF INDOOR AIR | x | x | x |
| | | INHALATION OF OUTDOOR AIR | x | x | x |
| GROUNDWATER | SOIL VAPOUR | INHALATION OF INDOOR AIR | x | x | x |
| | | INHALATION OF OUTDOOR AIR | x | x | x |
| GROUNDWATER | GROUNDWATER | INCIDENTAL INGESTION | x | x | x |
| | | DERMAL CONTACT | x | x | x |
| | | INHALATION OF INDOOR AIR | x | x | x |
| | | INHALATION OF OUTDOOR AIR | x | x | x |
| | | INHALATION OF TRENCH AIR | x | x | x |

Notes:

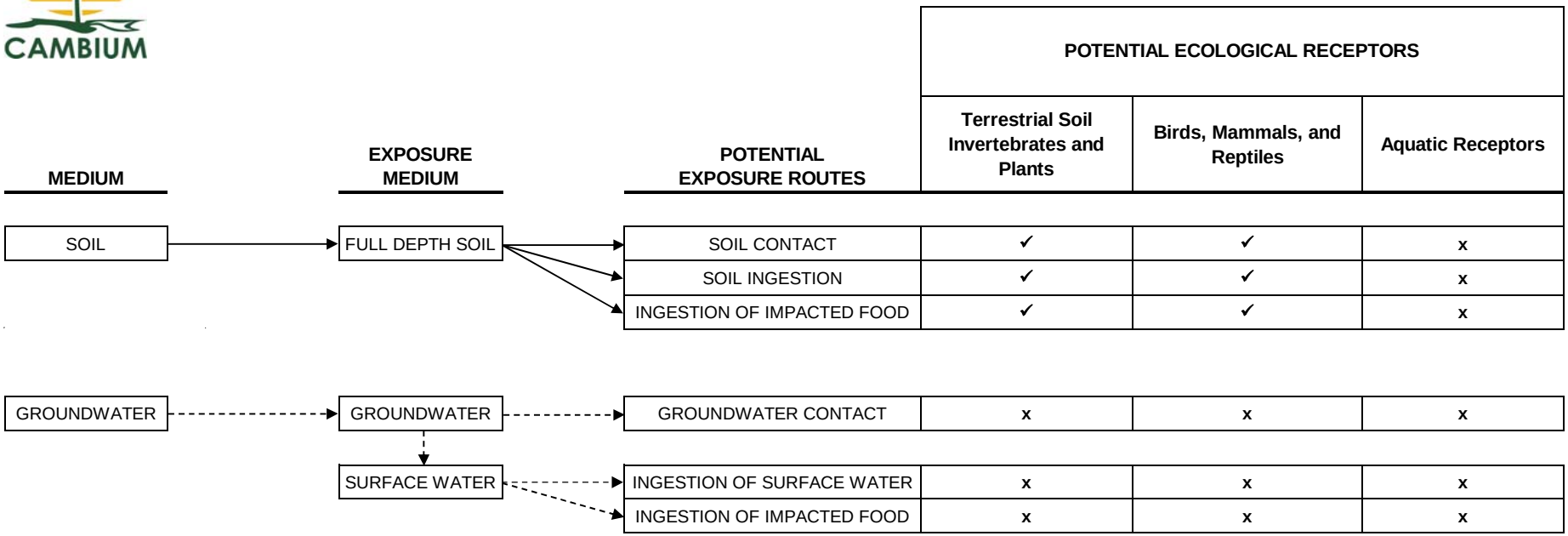
✓ - Indicates a potential exposure of contaminant of concern to receptor.

**x** - Indicates no exposure of contaminant of concern to receptor.

——→ Indicates pathway potentially complete

- - - - - - - - → Indicates pathway incomplete

## FIGURE 21
## ECOLOGICAL CONCEPTUAL SITE MODEL - WITHOUT RISK MANAGEMENT




| | | POTENTIAL ECOLOGICAL RECEPTORS | | |
|---|---|---|---|---|
| **MEDIUM** | **POTENTIAL EXPOSURE ROUTES** | **Terrestrial Soil Invertebrates and Plants** | **Birds, Mammals, and Reptiles** | **Aquatic Receptors** |
| SOIL | SOIL CONTACT | ✓ | ✓ | x |
| | SOIL INGESTION | ✓ | ✓ | x |
| | INGESTION OF IMPACTED FOOD | ✓ | ✓ | x |
| GROUNDWATER | GROUNDWATER CONTACT | x | x | x |
| | INGESTION OF SURFACE WATER | x | x | x |
| | INGESTION OF IMPACTED FOOD | x | x | x |

Notes:

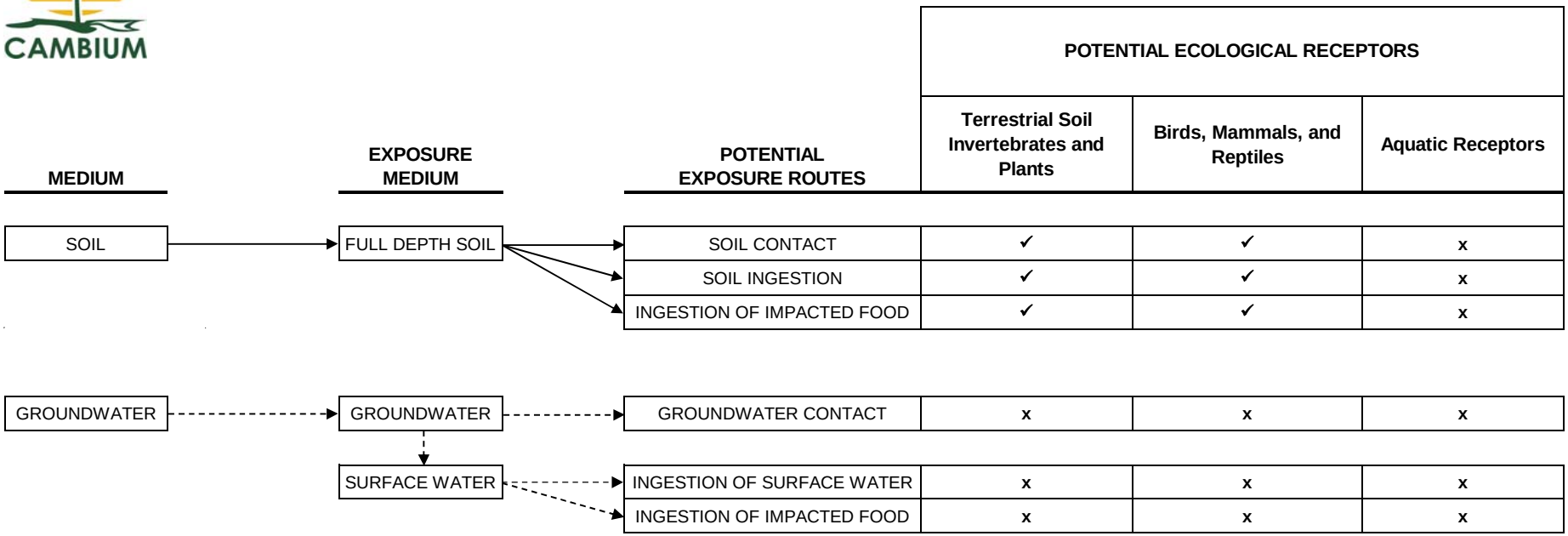
✓ - Indicates a potential exposure of contaminant of concern to receptor.

**x** - Indicates no exposure of contaminant of concern to receptor.

——→ Indicates pathway potentially complete

- - - - - - - - → Indicates pathway incomplete

## FIGURE 22
## ECOLOGICAL CONCEPTUAL SITE MODEL - WITH RISK MANAGEMENT



| MEDIUM | EXPOSURE MEDIUM | POTENTIAL EXPOSURE ROUTES | POTENTIAL ECOLOGICAL RECEPTORS | | |
|---|---|---|---|---|---|
| | | | Terrestrial Soil Invertebrates and Plants | Birds, Mammals, and Reptiles | Aquatic Receptors |
| SOIL | FULL DEPTH SOIL | SOIL CONTACT | ✓ | ✓ | x |
| | | SOIL INGESTION | ✓ | ✓ | x |
| | | INGESTION OF IMPACTED FOOD | ✓ | ✓ | x |
| GROUNDWATER | GROUNDWATER | GROUNDWATER CONTACT | x | x | x |
| | SURFACE WATER | INGESTION OF SURFACE WATER | x | x | x |
| | | INGESTION OF IMPACTED FOOD | x | x | x |

Notes:

✓ - Indicates a potential exposure of contaminant of concern to receptor.

**x** - Indicates no exposure of contaminant of concern to receptor.

——→ Indicates pathway potentially complete

- - - - - - - - → Indicates pathway incomplete

# Tables

**Table 1 - Potentially Contaminating Activities**

| | Potentially Contaminating Activity (PCA)[1] | Location of PCA | PCA Description | Contaminants of Potential Environmental Concern[2] | APEC[3] (Yes/No) |
|---|---|---|---|---|---|
| 1 | **PCA #10** - Commercial Autobody Shops | East side of the Site | Former on-site commercial autobody shop | VOCs, PHCs, PAHs, PCBs, metals | Yes |
| 2 | **PCA #30** - Importation of Fill Material of Unknown Quality | Along the retaining wall on the north side of the Site | On-site fill of unknown quality adjacent to the retaining wall | PHCs, BTEX, PAHs, metals | Yes |
| 3 | Unidentified PCA | South portion of the Site | On-site contaminants in groundwater | VOCs, metals | Yes |
| 4 | **PCA #28** - Gasoline and Associated Products Storage in Fixed Tanks | Off-site to the south | Former gasoline service station at 224 Bradford Street | PHCs, BTEX, metals | Yes |
| 5 | **PCA #27** - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles | Off-site to the south | Former automotive repair garage at 224 Bradford Street | VOCs, PHCs, PAHs, metals | Yes |
| 6 | **PCA #27** - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles | Off-site to the south | Former automotive repair garage at 240 Bradford Street | VOCs, PHCs, PAHs, metals | Yes |
| 7 | **PCA #28** - Gasoline and Associated Products Storage in Fixed Tanks | Off-site to the southeast | Former gasoline service station off-site to the southeast | PHCs, BTEX, metals | No |
| 8 | **PCA #28** - Gasoline and Associated Products Storage in Fixed Tanks | Off-site to the southeast | Former gasoline service station at 252 Bradford Street | PHCs, BTEX, metals | No |
| 9 | **PCA #28** - Gasoline and Associated Products Storage in Fixed Tanks | Off-site to the east | Gasoline UST at Dangerfield Motors formerly off-site to the east | PHCs, BTEX, metals | No |
| 10 | **PCA #10** - Commercial Autobody Shops | Off-site to the east | Dangerfield Motors formerly off-site to the east | VOCs, PHCs, PAHs, metals | No |
| 11 | **PCA #58** - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners | Off-site to the east | Barrie sewage treatment plant off-site to the east | VOCs, PHCs, metals and inorganics | No |
| 12 | **PCA #27** - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles | Off-site to the southwest | Automotive repair garage at 84 Tiffin Street | VOCs, PHCs, PAHs, metals | No |
| 13 | **PCA #27** - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles | Off-site to the southwest | Former automotive repair garage at 94 Tiffin Street | VOCs, PHCs, PAHs, metals | No |
| 14 | **PCA #28** - Gasoline and Associated Products Storage in Fixed Tanks | Off-site to the southwest | Former bulk fuel plant at 91 Tiffin Street | PHCs, BTEX, metals | No |
| 15 | **PCA #28** - Gasoline and Associated Products Storage in Fixed Tanks | Off-site to the south | Former gasoline service station at 254 Bradford Street | PHCs, BTEX, metals | No |
| 16 | **PCA #27** - Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles | Off-site adjacent to the north | Former automotive repair garage at 212 Bradford Street | VOCs, PHCs, PAHs, metals | No |
| 17 | Unidentified PCA | Off-site to the southeast | Motor oil spill on Bradford Street, north of Tiffin Street | PHCs, BTEX, metals | No |
| 18 | **PCA #18** - Electricity Generation, Transformation and Power Stations | Off-site to the northwest | Barrie Public Utilities Commission at 184 Innisfil Street | PHCs, PCBs, metals | No |
| 19 | **PCA #58** - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners | Off-site to the north | Historical landfill northeast of Brock and Sanford Street | VOCs, PHCs, PAHs, PCBs, metals | No |
| 20 | **PCA #58** - Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners | Off-site to the northwest | Historical landfill northwest of Brock and Sanford Street | VOCs, PHCs, PAHs, PCBs, metals | No |
| 21 | **PCA #28** - Gasoline and Associated Products Storage in Fixed Tanks | Off-site to the west | Former private service station at 85 Brock Street | PHCs, BTEX, metals | No |
| 22 | Unidentified PCA | Off-site to the north | Regional TCE plume in an unconfined aquifer around Brock Street, extending from Anne Street to the City of Barrie's Wastewater Treatment Plant. | VOCs | Yes |

Notes:

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

2. Method groups as defined in Protocol for in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 9, 2004, amended as of July 1, 2011

3. APEC means the area on, in or under a phase one property where one or more contaminants are potentially present,as determined through the phase one environmental site assessment

**Table 2 - Areas of Potential Environmental Concern**

| Area of Potential Environmental Concern[1] | Location of Area of Potential Environmental Concern on the Phase One Property | Potentially Contaminating Activity[2] | Location of PCA (on-site or off-site) | Contaminants of Potential Concern[3] | Media Potentially Impacted (Groundwater, soil, and/or sediment) |
|---|---|---|---|---|---|
| APEC 1 | Footprint of the former autobody shop | 10. Commercial Autobody Shops | on-site | VOCs, PHCs, PAHs, PCBs, metals | Soil & Groundwater |
| APEC 2 | Embankment along the northeast side of the Site | 30. Importation of Fill Material of Unknown Quality | on-site | PHCs, BTEX, PAHs, metals | Soil |
| APEC 3 | South portion of the Site | Unidentified PCA - Previously identified VOC and metal contaminants | on-site | VOCs, metals | Groundwater |
| APEC 4 | Southeast property boundary | 28. Gasoline and Associated Products Storage in Fixed Tanks<br>27. Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles | off-site | VOCs, PHCs, PAHs, metals | Groundwater |
| APEC 5 | Entire Site | Unidentified PCA - Regional TCE plume north of the Site | off-site | VOCs | Groundwater |

Notes:

1. Area of Potential Environmental Concern means the area on, in or under a phase one property where one or more contaminants are potentially present,as determined through the phase one environmental site assessment
2. Potentially Contaminating Activity means a use or activity set out in Column A of Table 2 of Schedule D that is occurring or has occurred in a phase one study area
3. Method groups as defined in Protocol for in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 9, 2004, amended as of July 1, 2011

**Table 3 - Summary of Analysis**

| SOIL | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sampled By** | **Sample Location** | **Depth (mbgs)** | **VOCs** | **BTEX** | **PHCs** | **PAHs** | **Metals** | **PCBs** | **Cyanide** | **SAR** | **EC** | **pH** |
| **THEM, 2016** | **BH1** | 0.1 - 1.2 | | x | x | | | | | | | |
| | **BH1** | 2.4 - 3.6 | | x | x | | | | | | | |
| | **BH2** | 1.2 - 2.4 | | x | x | | | | | | | |
| | **BH3** | 2.4 - 3.6 | | x | x | | | | | | | |
| | **BH4** | 0.1 - 1.2 | | | | | x | | x | x | x | x |
| | **BH6** | 1.2 - 2.4 | | x | x | | | | | | | |
| | **BH7** | 0.1 - 1.2 | | | | | x | | x | x | x | x |
| | **BH8** | 1.2 - 2.4 | | | | x | | | | | | |
| | **BH9** | 1.2 - 2.4 | | x | x | | | | | | | |
| | **BH10** | 0.1 - 1.2 | | | | x | | | | | | |
| **Pinchin, 2018** | **BH101** | 4.9 - 6.1 | x | | | | | | | | | |
| | **BH102** | 5.3 - 6.1 | x | | | | | | | | | |
| | **BH103** | 0.8 - 1.5 | | | | | | | | | | x |
| | **BH103** | 3.7 - 4.6 | | | | | | | | | | x |
| | **BH103** | 4.6 - 5.8 | x | | | | | | | | | |
| | **BH104** | 4.6 - 5.3 | | | x | | | | | | | |
| | **BH104** | 5.3 - 6.1 | x | | | | | | | | | |
| **Cambium, 2019** | **BH201** | 0.9 - 1.5 | | | | | x | | | | | x |
| | **BH201** | 3.0 - 3.7 | x | | x | | | x | | | | x |
| | **BH201** | 4.1 - 4.6 | | | x | | | | | | | |
| | **BH202** | 0.6 - 1.5 | | | | x | x | | | | | |
| | **BH202** | 3.0 - 3.4 | x | | x | | | | | | | |
| | **BH203** | 0.6 - 1.5 | | | | x | x | | | | | |
| | **BH204** | 1.5 - 2.2 | | | | x | x | | | | | |
| | **BH204** | 3.0 - 4.1 | x | | x | | | | | | | |
| | **BH205** | 0.0 - 1.5 | | | | x | x | | | | | |
| | **BH205** | 3.0 - 4.6 | x | | x | | | | | | | |
| | **BH207** | 3.0 - 3.4 | x | | x | | | | | | | |
| | **BH208** | 4.6 - 5.5 | x | | x | | | | | | | |

| GROUNDWATER | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sampled By** | **Sample Location** | **VOCs** | **BTEX** | **PHCs** | **PAHs** | **Metals** | **PCBs** | | | | |
| **THEM, 2016** | **BH1** | x | | x | x | | | | | | |
| **Pinchin, 2018** | | x | | | | | | | | | |
| **Cambium, 2019** | | x | | | x | | | | | | |
| **THEM, 2016** | **BH2** | x | | x | | x | | | | | |
| **Pinchin, 2018** | | x | | | | | | | | | |
| **Cambium, 2019** | | x | | | | x | | | | | |
| **THEM, 2016** | **BH3** | x | | x | | | | | | | |
| **Pinchin, 2018** | | x | | | | | | | | | |
| **Pinchin, 2018** | **BH101** | x | | | | | | | | | |
| **Pinchin, 2018** | **BH102** | x | | | | | | | | | |
| **Cambium, 2019** | | | x | x | | x | | | | | |
| **Pinchin, 2018** | **BH103** | x | | | | | | | | | |
| **Pinchin, 2018** | **BH104** | x | | | | | | | | | |
| **Cambium, 2019** | **BH201** | x | | x | x | x | x | | | | |
| **Cambium, 2019** | **BH202** | x | | x | | | | | | | |
| **Cambium, 2019** | **BH203** | x | | | | | | | | | |
| **Cambium, 2019** | **BH204** | x | | x | x | x | | | | | |
| **Cambium, 2019** | **BH205** | x | | x | | x | | | | | |
| **Cambium, 2019** | **BH206** | x | | | | | | | | | |
| **Cambium, 2019** | **BH207** | x | | x | | | | | | | |
| **Cambium, 2019** | **BH208** | x | | x | | x | | | | | |
| **Cambium, 2019** | **BH301** | x | | | | | | | | | |
| **Cambium, 2019** | **BH401** | x | | | | | | | | | |
| **Cambium, 2019** | **BH402** | x | | | | | | | | | |

## Table 4 - Monitoring Well Summary

| Installed By | Well ID | UTM | | Top of Casing Elevation | Ground Surface Elevation | Top of Screen Depth (mbgs) | Bottom of Screen Depth (mbgs) | Base Depth (mbgs) | 26-Feb-16 | | 26-May-16 | | 24-Aug-18 | | 27-Aug-18 | | 29-Aug-19 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Easting | Northing | | | | | | Depth | Elevation | Depth | Elevation | Depth | Elevation | Depth | Elevation | Depth | Elevation |
| T. Harris Environmental Management Inc. | BH1 | 604151.55 | 4914444.30 | 222.43 | 222.52 | 3.05 | 6.00 | 6.10 | 1.59 | 220.93 | 1.60 | 220.92 | 1.65 | 220.87 | 1.66 | 220.86 | 1.77 | 220.75 |
| | BH2 | 604132.93 | 4914429.22 | 222.73 | 222.83 | 3.05 | 6.00 | 6.10 | 1.66 | 221.17 | 1.75 | 221.08 | 1.77 | 221.06 | 1.76 | 221.07 | 1.88 | 220.95 |
| | BH3 | 604102.09 | 4914434.06 | 223.83 | 222.830 | 3.05 | 6.00 | 6.10 | 0.51 | 222.32 | 1.27 | 221.56 | 1.62 | 221.21 | 1.59 | 221.24 | - | - |
| Pinchin Ld. | BH101 | 604081.70 | 4914469.90 | 225.79 | 225.12 | 3.05 | 6.10 | 6.10 | - | - | - | - | 3.79 | 221.33 | 3.78 | 221.34 | - | - |
| | BH102 | 604110.72 | 4914411.67 | 222.85 | 222.87 | 3.05 | 6.10 | 6.10 | - | - | - | - | 1.52 | 221.35 | 1.50 | 221.37 | 1.63 | 221.24 |
| | BH103 | 604109.23 | 4914443.40 | 225.06 | 224.45 | 3.05 | 6.10 | 6.10 | - | - | - | - | 3.26 | 221.19 | 3.26 | 221.19 | - | - |
| | BH104 | 604147.08 | 4914466.90 | 222.62 | 222.76 | 3.05 | 6.10 | 6.10 | - | - | - | - | 1.90 | 220.85 | 1.89 | 220.86 | - | - |
| Cambium Inc. | BH201 | 604131.04 | 4914442.63 | 222.88 | 223.02 | 0.91 | 3.96 | 4.57 | - | - | - | - | - | - | - | - | 2.09 | 220.93 |
| | BH202 | 604132.98 | 4914455.88 | 223.82 | 223.95 | 1.52 | 4.57 | 4.57 | - | - | - | - | - | - | - | - | 2.05 | 221.90 |
| | BH203 | 604118.37 | 4914446.01 | 223.97 | 224.11 | 1.52 | 4.57 | 4.57 | - | - | - | - | - | - | - | - | 3.04 | 221.07 |
| | BH204 | 604153.32 | 4914443.54 | 222.26 | 222.46 | 0.91 | 3.96 | 4.57 | - | - | - | - | - | - | - | - | 1.72 | 220.74 |
| | BH205 | 604134.89 | 4914427.94 | 222.71 | 222.79 | 1.22 | 4.27 | 4.57 | - | - | - | - | - | - | - | - | 1.84 | 220.95 |
| | BH206 | 604085.30 | 4914392.40 | 221.91 | 222.05 | 1.22 | 4.27 | 4.57 | - | - | - | - | - | - | - | - | 1.17 | 220.88 |
| | BH207 | 604099.76 | 4914429.07 | 224.16 | 224.26 | 1.52 | 4.57 | 4.57 | - | - | - | - | - | - | - | - | 2.04 | 222.23 |
| | BH208 | 604151.10 | 4914441.60 | 222.44 | 222.51 | 9.15 | 10.66 | 10.66 | - | - | - | - | - | - | - | - | 1.89 | 220.62 |
| | BH301 | 604093.79 | 4914446.01 | 226.10 | 224.91 | 1.88 | 4.93 | 9.60 | - | - | - | - | - | - | - | - | - | - |
| | BH401 | 604146.00 | 4914466.90 | 222.65 | 222.75 | 9.15 | 10.66 | 10.66 | - | - | - | - | - | - | - | - | - | - |
| | BH402 | 604081.20 | 4914469.20 | 226.04 | 225.13 | 9.15 | 10.66 | 10.66 | - | - | - | - | - | - | - | - | - | - |

Notes:

Elevation in metres above sea level

mbgs - metres below ground surface

## Table 4 - Monitoring Well Summary

| Installed By | Well ID | UTM | | Top of Casing Elevation | Ground Surface Elevation | 3-Oct-19 | | 19-Nov-19 | | 10-Dec-19 | | 10-Jan-20 | | 13-Feb-20 | | 11-Mar-20 | | 8-Apr-20 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Easting | Northing | | | Depth | Elevation | Depth | Elevation | Depth | Elevation | Depth | Elevation | Depth | Elevation | Depth | Elevation | Depth | Elevation |
| T. Harris Environmental Management Inc. | BH1 | 604151.55 | 4914444.30 | 222.43 | 222.52 | 1.85 | 220.67 | 1.63 | 220.89 | 1.56 | 220.96 | 1.61 | 220.91 | - | - | 1.48 | 221.04 | 1.49 | 221.03 |
| | BH2 | 604132.93 | 4914429.22 | 222.73 | 222.83 | 1.95 | 220.88 | - | - | - | - | - | - | - | - | | | 1.59 | 221.24 |
| | BH3 | 604102.09 | 4914434.06 | 223.83 | 222.830 | - | - | - | - | - | - | - | - | - | - | | | | |
| Pinchin Ld. | BH101 | 604081.70 | 4914469.90 | 225.79 | 225.12 | 3.24 | 221.88 | 3.76 | 221.36 | 3.74 | 221.38 | 3.69 | 221.43 | 3.52 | 221.60 | 3.53 | 221.60 | 3.33 | 221.79 |
| | BH102 | 604110.72 | 4914411.67 | 222.85 | 222.87 | 1.65 | 221.22 | 1.45 | 221.42 | 1.38 | 221.49 | 1.37 | 221.50 | 1.39 | 221.48 | 1.11 | 221.76 | 1.21 | 221.66 |
| | BH103 | 604109.23 | 4914443.40 | 225.06 | 224.45 | 2.76 | 221.69 | 3.20 | 221.25 | 3.18 | 221.27 | 3.14 | 221.31 | - | - | 2.99 | 221.46 | 2.88 | 221.57 |
| | BH104 | 604147.08 | 4914466.90 | 222.62 | 222.76 | 2.15 | 220.61 | 1.98 | 220.77 | 1.84 | 220.91 | 1.93 | 220.82 | - | - | 1.64 | 221.11 | 1.64 | 221.11 |
| Cambium Inc. | BH201 | 604131.04 | 4914442.63 | 222.88 | 223.02 | 2.23 | 220.79 | 1.95 | 221.07 | 1.90 | 221.12 | 1.87 | 221.15 | - | - | 1.70 | 221.32 | 1.70 | 221.32 |
| | BH202 | 604132.98 | 4914455.88 | 223.82 | 223.95 | 3.20 | 220.75 | 2.91 | 221.04 | 2.87 | 221.08 | 2.85 | 221.10 | 2.47 | 221.48 | 3.66 | 220.29 | 2.63 | 221.32 |
| | BH203 | 604118.37 | 4914446.01 | 223.97 | 224.11 | 3.19 | 220.92 | 2.91 | 221.20 | 2.88 | 221.23 | 2.91 | 221.20 | 2.73 | 221.38 | 2.68 | 221.43 | 2.60 | 221.51 |
| | BH204 | 604153.32 | 4914443.54 | 222.26 | 222.46 | 1.91 | 220.55 | 1.58 | 220.88 | 1.52 | 220.94 | 1.54 | 220.92 | 1.55 | 220.91 | 1.53 | 220.93 | 1.52 | 220.94 |
| | BH205 | 604134.89 | 4914427.94 | 222.71 | 222.79 | 1.89 | 220.90 | 1.66 | 221.13 | 1.60 | 221.19 | 1.60 | 221.19 | 1.55 | 221.24 | 1.42 | 221.37 | 1.45 | 221.34 |
| | BH206 | 604085.30 | 4914392.40 | 221.91 | 222.05 | 1.21 | 220.84 | 1.01 | 221.04 | 0.80 | 221.25 | 0.95 | 221.10 | 0.86 | 221.19 | 0.73 | 221.32 | 0.78 | 221.27 |
| | BH207 | 604099.76 | 4914429.07 | 224.16 | 224.26 | 3.15 | 221.11 | 2.90 | 221.37 | 2.88 | 221.39 | 2.83 | 221.44 | 2.72 | 221.55 | 2.67 | 221.60 | 2.58 | 221.69 |
| | BH208 | 604151.10 | 4914441.60 | 222.44 | 222.51 | 0.88 | 221.63 | 1.33 | 221.18 | 0.66 | 221.85 | 0.70 | 221.81 | 0.85 | 221.66 | 0.46 | 222.05 | 0.45 | 222.06 |
| | BH301 | 604093.79 | 4914446.01 | 226.10 | 224.91 | - | - | 3.27 | 221.64 | 3.26 | 221.65 | 3.21 | 221.70 | 3.08 | 221.83 | 3.06 | 221.85 | 2.90 | 222.01 |
| | BH401 | 604146.00 | 4914466.90 | 222.65 | 222.75 | - | - | - | - | - | - | - | - | 0.98 | 221.77 | 0.95 | 221.80 | 0.85 | 221.90 |
| | BH402 | 604081.20 | 4914469.20 | 226.04 | 225.13 | - | - | - | - | - | - | - | - | 2.96 | 222.17 | 3.97 | 221.16 | 2.83 | 222.30 |

Notes:

Elevation in metres above sea level

mbgs - metres below ground surface

# Table 5 - Summary of Soil Quality

| Parameter | Unit | RDL | Table 8 - All Types of Property Use ≤1.5 m | >1.5 m | >0 m | BH01 | BH01 | BH02 | BH03 | BH04 | BH06 | BH07 | BH08 | BH09 | BH10 | BH101 | BH102 | BH103 | BH104 | BH104 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location** | | | | | | BH01 | BH01 | BH02 | BH03 | BH04 | BH06 | BH07 | BH08 | BH09 | BH10 | BH101 | BH102 | BH103 | BH104 | BH104 |
| **Date** | | | | | | 2/23/16 | 2/23/16 | 2/23/16 | 2/23/16 | 2/23/16 | 2/23/16 | 2/23/16 | 2/23/16 | 2/23/16 | 2/23/16 | 8/23/18 | 8/23/18 | 8/23/18 | 8/23/18 | 8/23/18 |
| **Field ID** | | | | | | BH01-1 | BH01-3 | BH02-2 | BH03-3 | BH04-1 | BH06-2 | BH07-1 | BH08-2 | BH09-2 | BH10-1 | BH101-8 | BH102-8 | BH103-7 | BH104-7 | BH104-8 |
| **Laboratory** | | | | | | Exova | Exova | Exova | Exova | Exova | Exova | Exova | Exova | Exova | Exova | Maxxam | Maxxam | Maxxam | Maxxam | Maxxam |
| **Lab Report Number** | | | | | | 1602777 | 1602777 | 1602777 | 1602777 | 1602777 | 1602777 | 1602777 | 1602777 | 1602777 | 1602777 | B8M2749 | B8M2749 | B8M2749 | B8M2749 | B8M2749 |
| **Type** | | | | | | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal |
| BTEX | | | | | | | | | | | | | | | | | | | | |
| Benzene | ug/g | 0.02 | | | **0.02** | <0.02 | <0.02 | <0.02 | <0.02 | - | <0.02 | - | - | <0.02 | - | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| Toluene | ug/g | 0.2 | | | **0.2** | <0.2 | <0.2 | <0.2 | <0.2 | - | <0.2 | - | - | <0.2 | - | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| Ethylbenzene | ug/g | 0.05 | | | **0.05** | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | <0.05 | - | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| Xylene Total | ug/g | 0.03 | | | **0.05**[#1] | <0.05 | <0.05 | <0.05 | <0.05 | - | <0.05 | - | - | <0.05 | - | <0.02 | <0.02 | <0.02 | <0.04 | <0.02 |
| PHCs | | | | | | | | | | | | | | | | | | | | |
| PHC F1 | ug/g | 10 | | | **10**[#2] | <10 | <10 | <10 | <10 | - | <10 | - | - | <10 | - | - | - | - | <10 | - |
| PHC F2 | µg/g | 5 | | | **10**[#3] | <10 | <10 | <10 | <10 | - | <10 | - | - | <10 | - | - | - | - | <10 | - |
| PHC F3 | µg/g | 10 | | | **50**[#4] | <20 | <20 | <20 | <20 | - | <20 | - | - | <20 | - | - | - | - | <50 | - |
| PHC F4 | µg/g | 10 | | | **50** | <20 | <20 | <20 | <20 | - | <20 | - | - | <20 | - | - | - | - | <50 | - |
| PHC F4g | ug/g | 50 | | | **50** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| VOCs | | | | | | | | | | | | | | | | | | | | |
| Acetone | ug/g | 0.5 | | | **0.5** | - | - | - | - | - | - | - | - | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Bromodichloromethane | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Bromoform | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Bromomethane | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Carbon tetrachloride | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Chlorobenzene | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Chloroform | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Dibromochloromethane | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Dichlorobenzene, 1,2- | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Dichlorobenzene, 1,3- | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Dichlorobenzene, 1,4- | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Dichlorodifluoromethane | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Dichloroethane, 1,1- | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Dichloroethane, 1,2- | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Dichloroethylene, 1,1- | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Dichloroethylene, 1,2-cis- | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Dichloroethylene,1,2-trans- | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Dichloropropane, 1,2- | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Dichloropropene, 1,3- | ug/g | 0.05 | | | **0.05**[#5] | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Ethylene dibromide | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Hexane | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Methyl Ethyl Ketone | ug/g | 0.5 | | | **0.5** | - | - | - | - | - | - | - | - | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Methyl Isobutyl Ketone | ug/g | 0.5 | | | **0.5** | - | - | - | - | - | - | - | - | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Methylene chloride | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Methyl tert-Butyl Ether | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Styrene | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Tetrachloroethane, 1,1,2,2- | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Tetrachloroethane, 1,1,1,2- | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Tetrachloroethylene | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Trichloroethane, 1,1,1- | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Trichloroethane, 1,1,2- | ug/g | 0.02 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Trichloroethylene | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Trichlorofluoromethane | ug/g | 0.02 | | | **0.25** | - | - | - | - | - | - | - | - | - | - | <0.05 | <0.05 | <0.05 | - | <0.05 |
| Vinyl chloride | ug/g | 0.02 | | | **0.02** | - | - | - | - | - | - | - | - | - | - | <0.02 | <0.02 | <0.02 | - | <0.02 |
| PAHs | | | | | | | | | | | | | | | | | | | | |
| Acenaphthene | ug/g | 0.05 | | | **0.072** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Acenaphthylene | ug/g | 0.05 | | | **0.093** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Anthracene | ug/g | 0.05 | | | **0.22** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Benz(a)anthracene | ug/g | 0.05 | | | **0.36** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Benzo(a)pyrene | ug/g | 0.05 | | | **0.3** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Benzo(b)fluoranthene | ug/g | 0.05 | | | **0.47**[#6] | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Benzo(g,h,i)perylene | ug/g | 0.05 | | | **0.68** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Benzo(k)fluoranthene | ug/g | 0.05 | | | **0.48** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Chrysene | ug/g | 0.05 | | | **2.8** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Dibenz(a,h)anthracene | ug/g | 0.05 | | | **0.1** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Fluoranthene | ug/g | 0.05 | | | **0.69** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Fluorene | ug/g | 0.05 | | | **0.19** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Indeno(1,2,3-c,d)pyrene | ug/g | 0.05 | | | **0.23** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Methylnaphthalene, 1- | ug/g | 0.05 | | | **0.59**[#7] | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Methylnaphthalene, 2- | ug/g | 0.05 | | | **0.59**[#7] | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Methylnaphthalene, 2-,1- | ug/g | 0.05 | | | **0.59**[#7] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Naphthalene | ug/g | 0.05 | | | **0.09** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Phenanthrene | ug/g | 0.05 | | | **0.69** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Pyrene | ug/g | 0.05 | | | **1** | - | - | - | - | - | - | - | <0.05 | - | <0.05 | - | - | - | - | - |
| Metals | | | | | | | | | | | | | | | | | | | | |
| Antimony | ug/g | 0.5 | | | **1.3** | - | - | - | - | <1 | - | <1 | - | - | - | - | - | - | - | - |
| Arsenic | ug/g | 0.5 | | | **18** | - | - | - | - | 1 | - | <1 | - | - | - | - | - | - | - | - |
| Barium | ug/g | 1 | | | **220** | - | - | - | - | 29 | - | 6 | - | - | - | - | - | - | - | - |
| Boron | ug/g | 0.5 | | **36**[#8] | | - | - | - | - | 10 | - | <10 | - | - | - | - | - | - | - | - |
| Boron (hot water soluble) | ug/g | 0.02 | **1.5**[#9] | | | - | - | - | - | <0.5 | - | <0.5 | - | - | - | - | - | - | - | - |
| Beryllium | ug/g | 0.2 | | | **2.5** | - | - | - | - | <1 | - | <1 | - | - | - | - | - | - | - | - |
| Cadmium | ug/g | 0.5 | | | **1.2** | - | - | - | - | <0.5 | - | <0.5 | - | - | - | - | - | - | - | - |
| Chromium (VI) | ug/g | 0.5 | | | **0.66** | - | - | - | - | <0.5 | - | <0.5 | - | - | - | - | - | - | - | - |
| Chromium (III+VI) | ug/g | | | | **70** | - | - | - | - | 20 | - | 6 | - | - | - | - | - | - | - | - |
| Cobalt | ug/g | 1 | | | **22** | - | - | - | - | 3 | - | 2 | - | - | - | - | - | - | - | - |
| Cyanide (Free) | ug/g | 0.03 | | | **0.051** | - | - | - | - | <0.03 | - | <0.03 | - | - | - | - | - | - | - | - |
| Copper | ug/g | 1 | | | **92** | - | - | - | - | 7 | - | 2 | - | - | - | - | - | - | - | - |
| Lead | ug/g | 5 | | | **120** | - | - | - | - | 15 | - | <1 | - | - | - | - | - | - | - | - |
| Mercury | ug/g | 0.1 | | | **0.27** | - | - | - | - | <0.1 | - | <0.1 | - | - | - | - | - | - | - | - |
| Molybdenum | ug/g | 1 | | | **2** | - | - | - | - | <1 | - | <1 | - | - | - | - | - | - | - | - |
| Nickel | ug/g | 1 | | | **82** | - | - | - | - | 11 | - | 3 | - | - | - | - | - | - | - | - |
| Selenium | ug/g | 0.5 | | | **1.5** | - | - | - | - | <1 | - | <1 | - | - | - | - | - | - | - | - |
| Silver | ug/g | 0.2 | | | **0.5** | - | - | - | - | <0.2 | - | <0.2 | - | - | - | - | - | - | - | - |
| Thallium | ug/g | 0.1 | | | **1** | - | - | - | - | <1 | - | <1 | - | - | - | - | - | - | - | - |
| Uranium | ug/g | 0.1 | | | **2.5** | - | - | - | - | <0.5 | - | <0.5 | - | - | - | - | - | - | - | - |
| Vanadium | ug/g | 1 | | | **86** | - | - | - | - | 23 | - | 23 | - | - | - | - | - | - | - | - |
| Zinc | ug/g | 3 | | | **290** | - | - | - | - | 27 | - | 6 | - | - | - | - | - | - | - | - |
| Polychlorinated Biphenyls | | | | | | | | | | | | | | | | | | | | |
| PCBs (Total) | ug/g | 0.3 | | | **0.3**[#10] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Inorganics | | | | | | | | | | | | | | | | | | | | |
| Electrical conductivity *(lab) | mS/cm | | | | **0.7** | - | - | - | - | 0.15 | - | 0.06 | - | - | - | - | - | - | - | - |
| Sodium Absorption Ratio | --- | | | | **5** | - | - | - | - | 0.24 | - | 0.12 | - | - | - | - | - | - | - | - |
| pH (Lab) | pH_Units | | **5-9** | **5-11** | | - | - | - | - | 7.3 | - | 7.1 | - | - | - | - | - | - | - | - |

**Env Stds Description**
Table 8 - All Types of Property Use:Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MOE 2011).

**Env Stds Comments**
#1:Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2:Standard is applicable to PHC in the F1 range minus BTEX.
#3:Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4:Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5:Standard is applicable to 1,3-Dichloropropene. Individual isomers (cis + trans) should be added for comparison.
#6:Standard is for benzo(b)fluoranthene; however, the laboratory can not distinguish between benzo(b)fluoranthene and benzo(j)fluoranthene.
#7:Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.
#8:Total Boron standard is for sub-surface soil (>1.5 m).
#9:HWS Boron standard is for surface soil (<1.5 m).
#10:Standard is applicable to total PCBs, Individual aroclors should be added for comparison.

# Table 5 - Summary of Soil Quality

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Location** | BH201 | BH201 | BH201 | BH201 | BH201 | BH201 | BH201 | BH202 | BH202 |
| | | | | | **Date** | 8/26/19 | 8/26/19 | 8/26/19 | 8/26/19 | 8/26/19 | 8/26/19 | 8/26/19 | 8/26/19 | 8/26/19 |
| | | | | | **Field ID** | BH 201 0.9-1.5m | QA/QC 8 | BH 201 1.8-2.1m | BH 201 3.0-3.7m | BH 201 3.0-3.7m | BH 201 4.1-4.6m | QA/QC 4 | BH 202 0.6-1.5m | BH 202 3.0-3.4m |
| | | | | | **Laboratory** | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon |
| | | | | | **Lab Report Number** | B19-27055 | B19-27055 | B19-27055 | B19-27055 | B19-28088 | B19-28084 | B19-28088 | B19-27055 | B19-27055 |
| | | | | | **Type** | Normal | Field D | Normal | Normal | Normal | Normal | Field D | Normal | Normal |
| | | | Table 8 - All Types of Property Use | | | | | | | | | | | |
| **Parameter** | **Unit** | **RDL** | **≤1.5 m** | **>1.5 m** | **>0 m** | | | | | | | | | |
| BTEX | | | | | | | | | | | | | | |
| Benzene | ug/g | 0.02 | | | **0.02** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Toluene | ug/g | 0.2 | | | **0.2** | - | - | - | <0.2 | - | - | - | - | <0.2 |
| Ethylbenzene | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | - | - | - | <0.05 |
| Xylene Total | ug/g | 0.03 | | | **0.05**[#1] | - | - | - | <0.03 | - | - | - | - | <0.03 |
| PHCs | | | | | | | | | | | | | | |
| PHC F1 | ug/g | 10 | | | **10**[#2] | - | - | - | <10 | - | <10 | - | - | <10 |
| PHC F2 | µg/g | 5 | | | **10**[#3] | - | - | - | <5 | - | <5 | - | - | <5 |
| PHC F3 | µg/g | 10 | | | **50**[#4] | - | - | - | 18 | - | <10 | - | - | <10 |
| PHC F4 | µg/g | 10 | | | **50** | - | - | - | 47 | - | <10 | - | - | <10 |
| PHC F4g | ug/g | 50 | | | **50** | - | - | - | **260** | - | - | - | - | - |
| VOCs | | | | | | | | | | | | | | |
| Acetone | ug/g | 0.5 | | | **0.5** | - | - | - | <0.5 | - | - | - | - | <0.5 |
| Bromodichloromethane | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Bromoform | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Bromomethane | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | - | - | - | <0.05 |
| Carbon tetrachloride | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | - | - | - | <0.05 |
| Chlorobenzene | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Chloroform | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Dibromochloromethane | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Dichlorobenzene, 1,2- | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | - | - | - | <0.05 |
| Dichlorobenzene, 1,3- | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | - | - | - | <0.05 |
| Dichlorobenzene, 1,4- | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | - | - | - | <0.05 |
| Dichlorodifluoromethane | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | - | - | - | <0.05 |
| Dichloroethane, 1,1- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Dichloroethane, 1,2- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Dichloroethylene, 1,1- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Dichloroethylene, 1,2-cis- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Dichloroethylene,1,2-trans- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Dichloropropane, 1,2- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Dichloropropene, 1,3- | ug/g | 0.05 | | | **0.05**[#5] | - | - | - | - | - | - | - | - | - |
| Ethylene dibromide | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Hexane | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Methyl Ethyl Ketone | ug/g | 0.5 | | | **0.5** | - | - | - | <0.5 | - | - | - | - | <0.5 |
| Methyl Isobutyl Ketone | ug/g | 0.5 | | | **0.5** | - | - | - | <0.5 | - | - | - | - | <0.5 |
| Methylene chloride | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - |
| Methyl tert-Butyl Ether | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | - | - | - | <0.05 |
| Styrene | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | - | - | - | <0.05 |
| Tetrachloroethane, 1,1,2,2- | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | - | - | - | <0.05 |
| Tetrachloroethane, 1,1,1,2- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Tetrachloroethylene | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | - | - | - | <0.05 |
| Trichloroethane, 1,1,1- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Trichloroethane, 1,1,2- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Trichloroethylene | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | - | - | - | <0.05 |
| Trichlorofluoromethane | ug/g | 0.02 | | | **0.25** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| Vinyl chloride | ug/g | 0.02 | | | **0.02** | - | - | - | <0.02 | - | - | - | - | <0.02 |
| PAHs | | | | | | | | | | | | | | |
| Acenaphthene | ug/g | 0.05 | | | **0.072** | - | - | - | - | - | - | - | <0.05 | - |
| Acenaphthylene | ug/g | 0.05 | | | **0.093** | - | - | - | - | - | - | - | <0.05 | - |
| Anthracene | ug/g | 0.05 | | | **0.22** | - | - | - | - | - | - | - | <0.05 | - |
| Benz(a)anthracene | ug/g | 0.05 | | | **0.36** | - | - | - | - | - | - | - | <0.05 | - |
| Benzo(a)pyrene | ug/g | 0.05 | | | **0.3** | - | - | - | - | - | - | - | <0.05 | - |
| Benzo(b)fluoranthene | ug/g | 0.05 | | | **0.47**[#6] | - | - | - | - | - | - | - | <0.05 | - |
| Benzo(g,h,i)perylene | ug/g | 0.05 | | | **0.68** | - | - | - | - | - | - | - | <0.05 | - |
| Benzo(k)fluoranthene | ug/g | 0.05 | | | **0.48** | - | - | - | - | - | - | - | <0.05 | - |
| Chrysene | ug/g | 0.05 | | | **2.8** | - | - | - | - | - | - | - | <0.05 | - |
| Dibenz(a,h)anthracene | ug/g | 0.05 | | | **0.1** | - | - | - | - | - | - | - | <0.05 | - |
| Fluoranthene | ug/g | 0.05 | | | **0.69** | - | - | - | - | - | - | - | <0.05 | - |
| Fluorene | ug/g | 0.05 | | | **0.19** | - | - | - | - | - | - | - | <0.05 | - |
| Indeno(1,2,3-c,d)pyrene | ug/g | 0.05 | | | **0.23** | - | - | - | - | - | - | - | <0.05 | - |
| Methylnaphthalene, 1- | ug/g | 0.05 | | | **0.59**[#7] | - | - | - | - | - | - | - | <0.05 | - |
| Methylnaphthalene, 2- | ug/g | 0.05 | | | **0.59**[#7] | - | - | - | - | - | - | - | <0.05 | - |
| Methylnaphthalene, 2-,1- | ug/g | 0.05 | | | **0.59**[#7] | - | - | - | - | - | - | - | <0.05 | - |
| Naphthalene | ug/g | 0.05 | | | **0.09** | - | - | - | - | - | - | - | <0.05 | - |
| Phenanthrene | ug/g | 0.05 | | | **0.69** | - | - | - | - | - | - | - | <0.05 | - |
| Pyrene | ug/g | 0.05 | | | **1** | - | - | - | - | - | - | - | <0.05 | - |
| Metals | | | | | | | | | | | | | | |
| Antimony | ug/g | 0.5 | | | **1.3** | - | - | <0.5 | - | - | - | - | <0.5 | - |
| Arsenic | ug/g | 0.5 | | | **18** | - | - | 0.6 | - | - | - | - | 1 | - |
| Barium | ug/g | 1 | | | **220** | - | - | 8 | - | - | - | - | 31 | - |
| Boron | ug/g | 0.5 | | **36**[#8] | | - | - | 11.1 | - | - | - | - | 12.9 | - |
| Boron (hot water soluble) | ug/g | 0.02 | **1.5**[#9] | | | - | - | 0.25 | - | - | - | - | 0.19 | - |
| Beryllium | ug/g | 0.2 | | | **2.5** | - | - | <0.2 | - | - | - | - | 0.2 | - |
| Cadmium | ug/g | 0.5 | | | **1.2** | - | - | <0.5 | - | - | - | - | <0.5 | - |
| Chromium (VI) | ug/g | 0.5 | | | **0.66** | - | - | - | - | - | - | - | - | - |
| Chromium (III+VI) | ug/g | | | | **70** | - | - | - | - | - | - | - | - | - |
| Cobalt | ug/g | 1 | | | **22** | - | - | 2 | - | - | - | - | 3 | - |
| Cyanide (Free) | ug/g | 0.03 | | | **0.051** | - | - | - | - | - | - | - | - | - |
| Copper | ug/g | 1 | | | **92** | - | - | 2 | - | - | - | - | 5 | - |
| Lead | ug/g | 5 | | | **120** | - | - | <5 | - | - | - | - | <5 | - |
| Mercury | ug/g | 0.1 | | | **0.27** | - | - | - | - | - | - | - | - | - |
| Molybdenum | ug/g | 1 | | | **2** | - | - | - | - | - | - | - | - | - |
| Nickel | ug/g | 1 | | | **82** | - | - | 2 | - | - | - | - | 5 | - |
| Selenium | ug/g | 0.5 | | | **1.5** | - | - | <0.5 | - | - | - | - | <0.5 | - |
| Silver | ug/g | 0.2 | | | **0.5** | - | - | <0.2 | - | - | - | - | <0.2 | - |
| Thallium | ug/g | 0.1 | | | **1** | - | - | <0.1 | - | - | - | - | <0.1 | - |
| Uranium | ug/g | 0.1 | | | **2.5** | - | - | 0.4 | - | - | - | - | 0.4 | - |
| Vanadium | ug/g | 1 | | | **86** | - | - | 24 | - | - | - | - | 17 | - |
| Zinc | ug/g | 3 | | | **290** | - | - | 10 | - | - | - | - | 22 | - |
| Polychlorinated Biphenyls | | | | | | | | | | | | | | |
| PCBs (Total) | ug/g | 0.3 | | | **0.3**[#10] | - | - | - | - | <0.3 | - | <0.3 | - | - |
| Inorganics | | | | | | | | | | | | | | |
| Electrical conductivity *(lab) | mS/cm | | | | **0.7** | - | - | - | - | - | - | - | - | - |
| Sodium Absorption Ratio | --- | | | | **5** | - | - | - | - | - | - | - | - | - |
| pH (Lab) | pH_Units | | **5-9** | **5-11** | | 7.81 | 7.79 | - | 7.72 | - | - | - | - | - |

**Env Stds Description**
Table 8 - All Types of Property Use:Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MOE 2011).

**Env Stds Comments**
#1:Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2:Standard is applicable to PHC in the F1 range minus BTEX.
#3:Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4:Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5:Standard is applicable to 1,3-Dichloropropene. Individual isomers (cis + trans) should be added for comparison.
#6:Standard is for benzo(b)fluoranthene; however, the laboratory can not distinguish between benzo(b)fluoranthene and benzo(j)fluoranthene.
#7:Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.
#8:Total Boron standard is for sub-surface soil (>1.5 m).
#9:HWS Boron standard is for surface soil (<1.5 m).
#10:Standard is applicable to total PCBs, Individual aroclors should be added for comparison.

# Table 5 - Summary of Soil Quality

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Location** | BH203 | BH203 | BH204 | BH204 | BH204 | BH204 | BH205 | BH205 | BH207 |
| | | | | | **Date** | 8/26/19 | 8/26/19 | 8/22/19 | 8/22/19 | 8/22/19 | 8/22/19 | 8/22/19 | 8/22/19 | 8/22/19 |
| | | | | | **Field ID** | BH 203 0.6-1.5m | QA/QC 5 | BH 204 1.50-2.18m | BH 204 3.05-4.14m | QA/QC 2 | QA/QC 3 | BH 205 0.0-1.52m | BH 205 3.04-4.57m | BH 207 3.05-3.40m |
| | | | | | **Laboratory** | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon |
| | | | | | **Lab Report Number** | B19-27055 | B19-27055 | B19-27055 | B19-27055 | B19-27055 | B19-27055 | B19-27055 | B19-27055 | B19-27055 |
| | | | | | **Type** | Normal | Field D | Normal | Normal | Field D | Field D | Normal | Normal | Normal |
| | | | Table 8 - All Types of Property Use | | | | | | | | | | | |
| **Parameter** | **Unit** | **RDL** | **≤1.5 m** | **>1.5 m** | **>0 m** | | | | | | | | | |
| BTEX | | | | | | | | | | | | | | |
| Benzene | ug/g | 0.02 | | | **0.02** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Toluene | ug/g | 0.2 | | | **0.2** | - | - | - | <0.2 | - | <0.2 | - | <0.2 | <0.2 |
| Ethylbenzene | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | <0.05 | - | <0.05 | <0.05 |
| Xylene Total | ug/g | 0.03 | | | **0.05**[#1] | - | - | - | <0.03 | - | <0.03 | - | <0.03 | <0.03 |
| PHCs | | | | | | | | | | | | | | |
| PHC F1 | ug/g | 10 | | | **10**[#2] | - | - | - | <10 | - | <10 | - | <10 | <10 |
| PHC F2 | µg/g | 5 | | | **10**[#3] | - | - | - | <5 | - | <5 | - | <6 | <5 |
| PHC F3 | µg/g | 10 | | | **50**[#4] | - | - | - | <10 | - | <10 | - | <10 | <10 |
| PHC F4 | µg/g | 10 | | | **50** | - | - | - | <10 | - | <10 | - | <10 | <10 |
| PHC F4g | ug/g | 50 | | | **50** | - | - | - | - | - | - | - | - | - |
| VOCs | | | | | | | | | | | | | | |
| Acetone | ug/g | 0.5 | | | **0.5** | - | - | - | <0.5 | - | <0.5 | - | <0.5 | <0.5 |
| Bromodichloromethane | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Bromoform | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Bromomethane | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | <0.05 | - | <0.05 | <0.05 |
| Carbon tetrachloride | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | <0.05 | - | <0.05 | <0.05 |
| Chlorobenzene | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Chloroform | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Dibromochloromethane | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Dichlorobenzene, 1,2- | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | <0.05 | - | <0.05 | <0.05 |
| Dichlorobenzene, 1,3- | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | <0.05 | - | <0.05 | <0.05 |
| Dichlorobenzene, 1,4- | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | <0.05 | - | <0.05 | <0.05 |
| Dichlorodifluoromethane | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | <0.05 | - | <0.05 | <0.05 |
| Dichloroethane, 1,1- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Dichloroethane, 1,2- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Dichloroethylene, 1,1- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Dichloroethylene, 1,2-cis- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Dichloroethylene,1,2-trans- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Dichloropropane, 1,2- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Dichloropropene, 1,3- | ug/g | 0.05 | | | **0.05**[#5] | - | - | - | - | - | - | - | - | - |
| Ethylene dibromide | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Hexane | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Methyl Ethyl Ketone | ug/g | 0.5 | | | **0.5** | - | - | - | <0.5 | - | <0.5 | - | <0.5 | <0.5 |
| Methyl Isobutyl Ketone | ug/g | 0.5 | | | **0.5** | - | - | - | <0.5 | - | <0.5 | - | <0.5 | <0.5 |
| Methylene chloride | ug/g | 0.05 | | | **0.05** | - | - | - | - | - | - | - | - | - |
| Methyl tert-Butyl Ether | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | <0.05 | - | <0.05 | <0.05 |
| Styrene | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | <0.05 | - | <0.05 | <0.05 |
| Tetrachloroethane, 1,1,2,2- | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | <0.05 | - | <0.05 | <0.05 |
| Tetrachloroethane, 1,1,1,2- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Tetrachloroethylene | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | <0.05 | - | <0.05 | <0.05 |
| Trichloroethane, 1,1,1- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Trichloroethane, 1,1,2- | ug/g | 0.02 | | | **0.05** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Trichloroethylene | ug/g | 0.05 | | | **0.05** | - | - | - | <0.05 | - | <0.05 | - | <0.05 | <0.05 |
| Trichlorofluoromethane | ug/g | 0.02 | | | **0.25** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| Vinyl chloride | ug/g | 0.02 | | | **0.02** | - | - | - | <0.02 | - | <0.02 | - | <0.02 | <0.02 |
| PAHs | | | | | | | | | | | | | | |
| Acenaphthene | ug/g | 0.05 | | | **0.072** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Acenaphthylene | ug/g | 0.05 | | | **0.093** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Anthracene | ug/g | 0.05 | | | **0.22** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Benz(a)anthracene | ug/g | 0.05 | | | **0.36** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Benzo(a)pyrene | ug/g | 0.05 | | | **0.3** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Benzo(b)fluoranthene | ug/g | 0.05 | | | **0.47**[#6] | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Benzo(g,h,i)perylene | ug/g | 0.05 | | | **0.68** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Benzo(k)fluoranthene | ug/g | 0.05 | | | **0.48** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Chrysene | ug/g | 0.05 | | | **2.8** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Dibenz(a,h)anthracene | ug/g | 0.05 | | | **0.1** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Fluoranthene | ug/g | 0.05 | | | **0.69** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Fluorene | ug/g | 0.05 | | | **0.19** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Indeno(1,2,3-c,d)pyrene | ug/g | 0.05 | | | **0.23** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Methylnaphthalene, 1- | ug/g | 0.05 | | | **0.59**[#7] | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Methylnaphthalene, 2- | ug/g | 0.05 | | | **0.59**[#7] | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Methylnaphthalene, 2-,1- | ug/g | 0.05 | | | **0.59**[#7] | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Naphthalene | ug/g | 0.05 | | | **0.09** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Phenanthrene | ug/g | 0.05 | | | **0.69** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Pyrene | ug/g | 0.05 | | | **1** | <0.05 | <0.05 | <0.05 | - | - | - | <0.05 | - | - |
| Metals | | | | | | | | | | | | | | |
| Antimony | ug/g | 0.5 | | | **1.3** | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 | - | - |
| Arsenic | ug/g | 0.5 | | | **18** | 1 | - | 0.7 | - | 0.7 | - | 0.9 | - | - |
| Barium | ug/g | 1 | | | **220** | 26 | - | 12 | - | 8 | - | 18 | - | - |
| Boron | ug/g | 0.5 | | **36**[#8] | | 12.6 | - | 10 | - | 10 | - | 11 | - | - |
| Boron (hot water soluble) | ug/g | 0.02 | **1.5**[#9] | | | 0.19 | - | 0.21 | - | 0.16 | - | 0.26 | - | - |
| Beryllium | ug/g | 0.2 | | | **2.5** | 0.2 | - | <0.2 | - | <0.2 | - | <0.2 | - | - |
| Cadmium | ug/g | 0.5 | | | **1.2** | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 | - | - |
| Chromium (VI) | ug/g | 0.5 | | | **0.66** | - | - | - | - | - | - | - | - | - |
| Chromium (III+VI) | ug/g | | | | **70** | - | - | - | - | - | - | - | - | - |
| Cobalt | ug/g | 1 | | | **22** | 3 | - | 2 | - | 2 | - | 2 | - | - |
| Cyanide (Free) | ug/g | 0.03 | | | **0.051** | - | - | - | - | - | - | - | - | - |
| Copper | ug/g | 1 | | | **92** | 6 | - | 2 | - | 1 | - | 2 | - | - |
| Lead | ug/g | 5 | | | **120** | <5 | - | <5 | - | <5 | - | 13 | - | - |
| Mercury | ug/g | 0.1 | | | **0.27** | - | - | - | - | - | - | - | - | - |
| Molybdenum | ug/g | 1 | | | **2** | - | - | - | - | - | - | - | - | - |
| Nickel | ug/g | 1 | | | **82** | 5 | - | 3 | - | 2 | - | 4 | - | - |
| Selenium | ug/g | 0.5 | | | **1.5** | <0.5 | - | <0.5 | - | <0.5 | - | <0.5 | - | - |
| Silver | ug/g | 0.2 | | | **0.5** | <0.2 | - | <0.2 | - | <0.2 | - | <0.2 | - | - |
| Thallium | ug/g | 0.1 | | | **1** | <0.1 | - | <0.1 | - | <0.1 | - | <0.1 | - | - |
| Uranium | ug/g | 0.1 | | | **2.5** | 0.4 | - | 0.4 | - | 0.3 | - | 0.3 | - | - |
| Vanadium | ug/g | 1 | | | **86** | 18 | - | 31 | - | 28 | - | 27 | - | - |
| Zinc | ug/g | 3 | | | **290** | 18 | - | 13 | - | 9 | - | 18 | - | - |
| Polychlorinated Biphenyls | | | | | | | | | | | | | | |
| PCBs (Total) | ug/g | 0.3 | | | **0.3**[#10] | - | - | - | - | - | - | - | - | - |
| Inorganics | | | | | | | | | | | | | | |
| Electrical conductivity *(lab) | mS/cm | | | | **0.7** | - | - | - | - | - | - | - | - | - |
| Sodium Absorption Ratio | --- | | | | **5** | - | - | - | - | - | - | - | - | - |
| pH (Lab) | pH_Units | | **5-9** | **5-11** | | - | - | - | - | - | - | - | - | - |

**Env Stds Description**
Table 8 - All Types of Property Use:Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MOE 2011).

**Env Stds Comments**
#1:Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2:Standard is applicable to PHC in the F1 range minus BTEX.
#3:Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4:Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5:Standard is applicable to 1,3-Dichloropropene. Individual isomers (cis + trans) should be added for comparison.
#6:Standard is for benzo(b)fluoranthene; however, the laboratory can not distinguish between benzo(b)fluoranthene and benzo(j)fluoranthene.
#7:Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.
#8:Total Boron standard is for sub-surface soil (>1.5 m).
#9:HWS Boron standard is for surface soil (<1.5 m).
#10:Standard is applicable to total PCBs, Individual aroclors should be added for comparison.

# Table 5 - Summary of Soil Quality

| | | | Location | BH208 |
|---|---|---|---|---|
| | | | Date | 8/22/19 |
| | | | Field ID | BH 208 4.57-5.47m |
| | | | Laboratory | Caduceon |
| | | | Lab Report Number | B19-27055 |
| | | | Type | Normal |
| | | | Table 8 - All Types of Property Use | |
| **Parameter** | **Unit** | **RDL** | **≤1.5 m >1.5 m >0 m** | |
| BTEX | | | | |
| Benzene | ug/g | 0.02 | **0.02** | <0.02 |
| Toluene | ug/g | 0.2 | **0.2** | <0.2 |
| Ethylbenzene | ug/g | 0.05 | **0.05** | <0.05 |
| Xylene Total | ug/g | 0.03 | **0.05**[#1] | <0.03 |
| PHCs | | | | |
| PHC F1 | ug/g | 10 | **10**[#2] | <10 |
| PHC F2 | µg/g | 5 | **10**[#3] | <5 |
| PHC F3 | µg/g | 10 | **50**[#4] | <10 |
| PHC F4 | µg/g | 10 | **50** | <10 |
| PHC F4g | ug/g | 50 | **50** | - |
| VOCs | | | | |
| Acetone | ug/g | 0.5 | **0.5** | <0.5 |
| Bromodichloromethane | ug/g | 0.02 | **0.05** | <0.02 |
| Bromoform | ug/g | 0.02 | **0.05** | <0.02 |
| Bromomethane | ug/g | 0.05 | **0.05** | <0.05 |
| Carbon tetrachloride | ug/g | 0.05 | **0.05** | <0.05 |
| Chlorobenzene | ug/g | 0.02 | **0.05** | <0.02 |
| Chloroform | ug/g | 0.02 | **0.05** | <0.02 |
| Dibromochloromethane | ug/g | 0.02 | **0.05** | <0.02 |
| Dichlorobenzene, 1,2- | ug/g | 0.05 | **0.05** | <0.05 |
| Dichlorobenzene, 1,3- | ug/g | 0.05 | **0.05** | <0.05 |
| Dichlorobenzene, 1,4- | ug/g | 0.05 | **0.05** | <0.05 |
| Dichlorodifluoromethane | ug/g | 0.05 | **0.05** | <0.05 |
| Dichloroethane, 1,1- | ug/g | 0.02 | **0.05** | <0.02 |
| Dichloroethane, 1,2- | ug/g | 0.02 | **0.05** | <0.02 |
| Dichloroethylene, 1,1- | ug/g | 0.02 | **0.05** | <0.02 |
| Dichloroethylene, 1,2-cis- | ug/g | 0.02 | **0.05** | <0.02 |
| Dichloroethylene,1,2-trans- | ug/g | 0.02 | **0.05** | <0.02 |
| Dichloropropane, 1,2- | ug/g | 0.02 | **0.05** | <0.02 |
| Dichloropropene, 1,3- | ug/g | 0.05 | **0.05**[#5] | - |
| Ethylene dibromide | ug/g | 0.02 | **0.05** | <0.02 |
| Hexane | ug/g | 0.02 | **0.05** | <0.02 |
| Methyl Ethyl Ketone | ug/g | 0.5 | **0.5** | <0.5 |
| Methyl Isobutyl Ketone | ug/g | 0.5 | **0.5** | <0.5 |
| Methylene chloride | ug/g | 0.05 | **0.05** | - |
| Methyl tert-Butyl Ether | ug/g | 0.05 | **0.05** | <0.05 |
| Styrene | ug/g | 0.05 | **0.05** | <0.05 |
| Tetrachloroethane, 1,1,2,2- | ug/g | 0.05 | **0.05** | <0.05 |
| Tetrachloroethane, 1,1,1,2- | ug/g | 0.02 | **0.05** | <0.02 |
| Tetrachloroethylene | ug/g | 0.05 | **0.05** | <0.05 |
| Trichloroethane, 1,1,1- | ug/g | 0.02 | **0.05** | <0.02 |
| Trichloroethane, 1,1,2- | ug/g | 0.02 | **0.05** | <0.02 |
| Trichloroethylene | ug/g | 0.05 | **0.05** | <0.05 |
| Trichlorofluoromethane | ug/g | 0.02 | **0.25** | <0.02 |
| Vinyl chloride | ug/g | 0.02 | **0.02** | <0.02 |
| PAHs | | | | |
| Acenaphthene | ug/g | 0.05 | **0.072** | - |
| Acenaphthylene | ug/g | 0.05 | **0.093** | - |
| Anthracene | ug/g | 0.05 | **0.22** | - |
| Benz(a)anthracene | ug/g | 0.05 | **0.36** | - |
| Benzo(a)pyrene | ug/g | 0.05 | **0.3** | - |
| Benzo(b)fluoranthene | ug/g | 0.05 | **0.47**[#6] | - |
| Benzo(g,h,i)perylene | ug/g | 0.05 | **0.68** | - |
| Benzo(k)fluoranthene | ug/g | 0.05 | **0.48** | - |
| Chrysene | ug/g | 0.05 | **2.8** | - |
| Dibenz(a,h)anthracene | ug/g | 0.05 | **0.1** | - |
| Fluoranthene | ug/g | 0.05 | **0.69** | - |
| Fluorene | ug/g | 0.05 | **0.19** | - |
| Indeno(1,2,3-c,d)pyrene | ug/g | 0.05 | **0.23** | - |
| Methylnaphthalene, 1- | ug/g | 0.05 | **0.59**[#7] | - |
| Methylnaphthalene, 2- | ug/g | 0.05 | **0.59**[#7] | - |
| Methylnaphthalene, 2-,1- | ug/g | 0.05 | **0.59**[#7] | - |
| Naphthalene | ug/g | 0.05 | **0.09** | - |
| Phenanthrene | ug/g | 0.05 | **0.69** | - |
| Pyrene | ug/g | 0.05 | **1** | - |
| Metals | | | | |
| Antimony | ug/g | 0.5 | **1.3** | - |
| Arsenic | ug/g | 0.5 | **18** | - |
| Barium | ug/g | 1 | **220** | - |
| Boron | ug/g | 0.5 | **36**[#8] | - |
| Boron (hot water soluble) | ug/g | 0.02 | **1.5**[#9] | - |
| Beryllium | ug/g | 0.2 | **2.5** | - |
| Cadmium | ug/g | 0.5 | **1.2** | - |
| Chromium (VI) | ug/g | 0.5 | **0.66** | - |
| Chromium (III+VI) | ug/g | | **70** | - |
| Cobalt | ug/g | 1 | **22** | - |
| Cyanide (Free) | ug/g | 0.03 | **0.051** | - |
| Copper | ug/g | 1 | **92** | - |
| Lead | ug/g | 5 | **120** | - |
| Mercury | ug/g | 0.1 | **0.27** | - |
| Molybdenum | ug/g | 1 | **2** | - |
| Nickel | ug/g | 1 | **82** | - |
| Selenium | ug/g | 0.5 | **1.5** | - |
| Silver | ug/g | 0.2 | **0.5** | - |
| Thallium | ug/g | 0.1 | **1** | - |
| Uranium | ug/g | 0.1 | **2.5** | - |
| Vanadium | ug/g | 1 | **86** | - |
| Zinc | ug/g | 3 | **290** | - |
| Polychlorinated Biphenyls | | | | |
| PCBs (Total) | ug/g | 0.3 | **0.3**[#10] | - |
| Inorganics | | | | |
| Electrical conductivity *(lab) | mS/cm | | **0.7** | - |
| Sodium Absorption Ratio | --- | | **5** | - |
| pH (Lab) | pH_Units | | **5-9** **5-11** | - |

**Env Stds Description**
Table 8 - All Types of Property Use:Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MOE 2011).

**Env Stds Comments**
#1:Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2:Standard is applicable to PHC in the F1 range minus BTEX.
#3:Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4:Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5:Standard is applicable to 1,3-Dichloropropene. Individual isomers (cis + trans) should be added for comparison.
#6:Standard is for benzo(b)fluoranthene; however, the laboratory can not distinguish between benzo(b)fluoranthene and benzo(j)fluoranthene.
#7:Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.
#8:Total Boron standard is for sub-surface soil (>1.5 m).
#9:HWS Boron standard is for surface soil (<1.5 m).
#10:Standard is applicable to total PCBs, Individual aroclors should be added for comparison.

# Table 6 - Summary of Groundwater Quality

| | | | Location | | | | | BH01 | BH01 | BH01 | BH01 | BH02 | BH02 | BH02 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Date | 8/29/19 | 9/12/19 | 10/24/19 | 2/12/20 | 2/26/16 | 5/26/16 | 10/25/17 | 8/29/19 | 2/26/16 | 5/26/16 | 10/25/17 |
| | | | Field ID | Trip Blank | Trip Blank | Trip Blank | Trip Blank | MW1 | MW1 | MW1/BH1 | MWBH 1 | MW/BH2 | MW2 | MW2/BH2 |
| | | | Laboratory | Caduceon | Caduceon | Caduceon | Caduceon | Exova | Exova | Maxxam | Caduceon | Exova | Exova | Maxxam |
| | | | Lab Report | B19-27446 | B19-29080 | B19-34508 | B20-04290 rev 1 | 1602890 | 1602890 | B8M2783 | B19-27446 | 1602890 | 1602890 | B8M2783 |
| | | | Sample Type | Trip_B | Trip_B | Trip_B | Trip_B | Normal | Normal | Normal | Normal | Normal | Normal | Normal |
| **Parameter** | **Unit** | **RDL** | Table 8 - within 30 m of a Water Body | | | | | | | | | | | |
| BTEX | | | | | | | | | | | | | | |
| Benzene | µg/L | 0.5 | **5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 |
| Toluene | µg/L | 0.5 | **22** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <1 | <0.5 | <0.5 | <0.5 | <0.4 |
| Ethylbenzene | µg/L | 0.5 | **2.4** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 |
| Xylene Total | µg/L | 1.1 | **300**[#1] | <1.1 | <1.1 | <1.1 | <1.1 | <0.5 | <0.5 | <0.5 | <1.1 | <0.5 | <0.5 | <0.2 |
| PHCs | | | | | | | | | | | | | | |
| PHC F1 | µg/L | 50 | **420**[#2] | <50 | - | - | - | 30 | - | - | - | <20 | - | - |
| PHC F2 | µg/L | 50 | **150**[#3] | - | - | - | - | <20 | - | - | - | <20 | - | - |
| PHC F3 | µg/L | 400 | **500**[#4] | - | - | - | - | <50 | - | - | - | <50 | - | - |
| PHC F4 | µg/L | 400 | **500** | - | - | - | - | <50 | - | - | - | <50 | - | - |
| VOCs | | | | | | | | | | | | | | |
| Acetone | µg/L | 30 | **2700** | <30 | <30 | <30 | <30 | <30 | <30 | <50 | <30 | <30 | <30 | <20 |
| Bromodichloromethane | µg/L | 2 | **16** | <2 | <2 | <2 | <2 | <0.3 | <0.3 | <0.5 | <2 | <0.3 | <0.3 | <0.2 |
| Bromoform | µg/L | 5 | **25** | <5 | <5 | <5 | <5 | <0.4 | <0.4 | <1 | <5 | <0.4 | <0.4 | <0.4 |
| Bromomethane | µg/L | 0.5 | **0.89** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | <0.5 | <0.5 | <0.5 | <1 |
| Carbon tetrachloride | µg/L | 0.2 | **0.79** | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.5 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.1 | **30** | - | - | - | - | <0.2 | <0.2 | <0.5 | - | <0.2 | <0.2 | <0.2 |
| Chloroform | µg/L | 1 | **2.4** | <1 | <1 | <1 | <1 | <0.5 | <0.5 | <0.5 | <1 | <0.5 | <0.5 | <0.2 |
| Dibromochloromethane | µg/L | 2 | **25** | <2 | <2 | <2 | <2 | <0.3 | <0.3 | <1 | <2 | <0.3 | <0.3 | <0.4 |
| Dichlorobenzene, 1,2- | µg/L | 0.5 | **3** | <0.5 | <0.5 | <0.5 | <0.5 | - | <0.4 | <1 | <0.5 | <0.4 | <0.4 | <0.4 |
| Dichlorobenzene, 1,3- | µg/L | 0.5 | **59** | <0.5 | <0.5 | <0.5 | <0.5 | - | <0.4 | <1 | <0.5 | <0.4 | <0.4 | <0.4 |
| Dichlorobenzene, 1,4- | µg/L | 0.5 | **1** | <0.5 | <0.5 | <0.5 | <0.5 | - | <0.4 | <1 | <0.5 | <0.4 | <0.4 | <0.4 |
| Dichlorodifluoromethane | µg/L | 2 | **590** | <2 | <2 | <2 | <2 | <0.5 | <0.5 | <2.5 | <2 | <0.5 | <0.5 | <1 |
| Dichloroethane, 1,1- | µg/L | 0.5 | **5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.4 | <0.4 | <0.5 | <0.5 | <0.4 | <0.4 | <0.2 |
| Dichloroethane, 1,2- | µg/L | 0.5 | **1.6** | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <0.5 | <0.2 | <0.2 | <0.4 |
| Dichloroethylene, 1,1- | µg/L | 0.5 | **1.6** | <0.5 | <0.5 | <0.5 | <0.5 | 1.2 | 1 | 1 | 0.9 | <0.5 | 0.8 | 0.42 |
| Dichloroethylene, 1,2-cis- | µg/L | 0.5 | **1.6** | <0.5 | <0.5 | <0.5 | <0.5 | **175** | **157** | **130** | **148** | **23.3** | **102** | **42** |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | **1.6** | <0.5 | <0.5 | <0.5 | <0.5 | 1.1 | 1.1 | **1.7** | 1.6 | <0.4 | 1 | 0.7 |
| Dichloropropane, 1,2- | µg/L | 0.5 | **5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 |
| Dichloropropene, 1,3- | µg/L | | **0.5** | - | - | - | - | <0.2 | <0.2 | <1.4 | <1 | <0.2 | <0.2 | <0.57 |
| Ethylene dibromide | µg/L | 0.2 | **0.2** | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 | <0.2 | <0.2 | <0.2 | <0.4 |
| Hexane | µg/L | 5 | **51** | <5 | <5 | <5 | <5 | <5 | <5 | <2.5 | <5 | <5 | <5 | <1 |
| Methyl Ethyl Ketone | µg/L | 20 | **1800** | <20 | <20 | <20 | <20 | <10 | <10 | <25 | <20 | <10 | <10 | <10 |
| Methyl Isobutyl Ketone | µg/L | 20 | **640** | <20 | <20 | <20 | <20 | <10 | <10 | <25 | <20 | <10 | <10 | <10 |
| Methylene chloride | µg/L | | **50** | - | - | - | - | <4 | <4 | <2.5 | - | <4 | <4 | <1 |
| Methyl tert-Butyl Ether | µg/L | 2 | **15** | <2 | <2 | <2 | <2 | <2 | <2 | <1 | <2 | <2 | <2 | <0.4 |
| Styrene | µg/L | 0.5 | **5.4** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <1 | <0.5 | <0.5 | <0.5 | <0.4 |
| Tetrachloroethane, 1,1,2,2- | µg/L | 0.5 | **1** | <0.5 | - | - | - | <0.5 | <0.5 | <1 | <0.5 | <0.5 | <0.5 | <0.4 |
| Tetrachloroethane, 1,1,1,2- | µg/L | 0.5 | **1.1** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <1 | <0.5 | <0.5 | <0.5 | <0.4 |
| Tetrachloroethylene | µg/L | 0.5 | **1.6** | <0.5 | <0.5 | <0.5 | <0.5 | <0.3 | <0.3 | <0.5 | <0.5 | <0.3 | <0.3 | <0.2 |
| Trichloroethane, 1,1,1- | µg/L | 0.5 | **200** | <0.5 | <0.5 | <0.5 | <0.5 | <0.4 | <0.4 | <0.5 | <0.5 | <0.4 | <0.4 | <0.2 |
| Trichloroethane, 1,1,2- | µg/L | 0.5 | **4.7** | <0.5 | <0.5 | <0.5 | <0.5 | <0.4 | <0.4 | <1 | <0.5 | <0.4 | <0.4 | <0.4 |
| Trichloroethylene | µg/L | 0.5 | **1.6** | <0.5 | <0.5 | <0.5 | <0.5 | **132** | **172** | **89** | **70.3** | **24.7** | **139** | **39** |
| Trichlorofluoromethane | µg/L | 5 | **150** | <5 | <5 | <5 | <5 | <0.5 | <0.5 | <1 | <5 | <0.5 | <0.5 | <0.4 |
| Vinyl chloride | µg/L | 0.2 | **0.5** | <0.2 | <0.2 | <0.2 | <0.2 | **9** | **6.6** | **5.7** | **6.2** | **1.4** | **5.1** | **2.2** |
| PAHs | | | | | | | | | | | | | | |
| Acenaphthene | µg/L | 0.05 | **4.1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Acenaphthylene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Anthracene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Benz(a)anthracene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Benzo(a)pyrene | µg/L | 0.01 | **0.01** | - | - | - | - | - | - | - | <0.01 | - | - | - |
| Benzo(b)fluoranthene | µg/L | 0.05 | **0.1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Benzo(g,h,i)perylene | µg/L | 0.05 | **0.2** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Benzo(k)fluoranthene | µg/L | 0.05 | **0.1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Chrysene | µg/L | 0.05 | **0.1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Dibenz(a,h)anthracene | µg/L | 0.05 | **0.2** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Fluoranthene | µg/L | 0.05 | **0.41** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Fluorene | µg/L | 0.05 | **120** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Indeno(1,2,3-c,d)pyrene | µg/L | 0.05 | **0.2** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Methylnaphthalene, 1- | µg/L | 0.05 | **3.2**[#5] | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Methylnaphthalene, 2- | µg/L | 0.08 | **3.2**[#5] | - | - | - | - | - | - | - | <0.08 | - | - | - |
| Methylnaphthalene, 2-,1- | µg/L | 1 | **3.2**[#5] | - | - | - | - | - | - | - | <1 | - | - | - |
| Naphthalene | µg/L | 0.05 | **11** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Phenanthrene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Pyrene | µg/L | 0.05 | **4.1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Metals | | | | | | | | | | | | | | |
| Antimony (Filtered) | µg/L | 0.1 | **6** | - | - | - | - | - | - | - | - | <0.5 | - | - |
| Arsenic (Filtered) | µg/L | 0.1 | **25** | - | - | - | - | - | - | - | - | 3 | - | - |
| Barium (Filtered) | µg/L | 1 | **1000** | - | - | - | - | - | - | - | - | **1100** | - | - |
| Boron (Filtered) | µg/L | 5 | **5000** | - | - | - | - | - | - | - | - | 40 | - | - |
| Beryllium (Filtered) | µg/L | 0.5 | **4** | - | - | - | - | - | - | - | - | 0.8 | - | - |
| Cadmium (Filtered) | µg/L | 0.015 | **2.1** | - | - | - | - | - | - | - | - | 0.4 | - | - |
| Chromium (VI) | µg/L | 10 | **25** | - | - | - | - | - | - | - | - | <10 | - | - |
| Chromium (III+VI) (Filtered) | µg/L | 2 | **50** | - | - | - | - | - | - | - | - | 2 | - | - |
| Cobalt (Filtered) | µg/L | 0.1 | **3.8** | - | - | - | - | - | - | - | - | **10.4** | - | - |
| Copper (Filtered) | µg/L | 2 | **69** | - | - | - | - | - | - | - | - | 17 | - | - |
| Lead (Filtered) | µg/L | 0.02 | **10** | - | - | - | - | - | - | - | - | 3 | - | - |
| Mercury (Filtered) | µg/L | 0.02 | **0.29** | - | - | - | - | - | - | - | - | <0.1 | - | - |
| Molybdenum (Filtered) | µg/L | 0.1 | **70** | - | - | - | - | - | - | - | - | <5 | - | - |
| Nickel (Filtered) | µg/L | 0.2 | **100** | - | - | - | - | - | - | - | - | 9 | - | - |
| Sodium (Filtered) | µg/L | 200 | **490000** | - | - | - | - | - | - | - | - | 211,000 | - | - |
| Selenium (Filtered) | µg/L | 1 | **10** | - | - | - | - | - | - | - | - | 3 | - | - |
| Silver (Filtered) | µg/L | 0.1 | **1.2** | - | - | - | - | - | - | - | - | <0.1 | - | - |
| Thallium (Filtered) | µg/L | 0.05 | **2** | - | - | - | - | - | - | - | - | <0.1 | - | - |
| Uranium (Filtered) | µg/L | 0.05 | **20** | - | - | - | - | - | - | - | - | <1 | - | - |
| Vanadium (Filtered) | µg/L | 0.1 | **6.2** | - | - | - | - | - | - | - | - | **12** | - | - |
| Zinc (Filtered) | µg/L | 5 | **890** | - | - | - | - | - | - | - | - | 20 | - | - |
| Polychlorinated Biphenyls | | | | | | | | | | | | | | |
| PCBs (Total) | µg/L | 0.05 | **0.2**[#6] | - | - | - | - | - | - | - | - | - | - | - |

**Env Stds Description**
Table 8 - within 30 m of a Water Body:Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MOE 2011).

**Env Stds Comments**
#1:Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2:Standard is applicable to PHC in the F1 range minus BTEX.
#3:Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4:Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5:Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.
#6:Standard is applicable to total PCBs, Individual aroclors should be added for comparison.

# Table 6 - Summary of Groundwater Quality

| Parameter | Unit | RDL | Table 8 - within 30 m of a Water Body | Location | BH02 | BH02 | BH03 | BH03 | BH03 | BH101 | BH102 | BH102 | BH102 | BH102 | BH103 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Date | 8/29/19 | 10/10/19 | 2/26/16 | 5/26/16 | 10/25/17 | 10/25/17 | 10/25/17 | 8/29/19 | 8/29/19 | 10/10/19 | 10/25/17 |
| | | | | Field ID | MWBH 2 | BH2 | MW3 | MW3 | MW3/BH3 | MW101 | MW102 | BH 102 | QA/QC #3 | BH102 | MW103 |
| | | | | Laboratory | Caduceon | Caduceon | Exova | Exova | Maxxam | Maxxam | Maxxam | Caduceon | Caduceon | Caduceon | Maxxam |
| | | | | Lab Report | B19-27446 | B19-32768 | 1602890 | 1602890 | B8M2783 | B8M2783 | B8M2783 | B19-27446 | B19-27446 | B19-32768 | B8M2783 |
| | | | | Sample Type | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Field_D | Normal | Normal |
| BTEX | | | | | | | | | | | | | | | |
| Benzene | µg/L | 0.5 | **5** | | <0.5 | - | <0.5 | <0.5 | <0.1 | <0.1 | 1.5 | 1.9 | 1.8 | - | <0.1 |
| Toluene | µg/L | 0.5 | **22** | | <0.5 | - | 0.6 | <0.5 | <0.2 | 0.23 | <0.2 | <0.5 | <0.5 | - | 0.37 |
| Ethylbenzene | µg/L | 0.5 | **2.4** | | <0.5 | - | <0.5 | <0.5 | <0.1 | <0.1 | <0.1 | <0.5 | <0.5 | - | 0.13 |
| Xylene Total | µg/L | 1.1 | **300**[#1] | | <1.1 | - | <0.5 | <0.5 | <0.1 | 0.11 | <0.1 | <1.1 | <1.1 | - | 0.21 |
| PHCs | | | | | | | | | | | | | | | |
| PHC F1 | µg/L | 50 | **420**[#2] | | - | - | <20 | - | - | - | - | <50 | - | - | - |
| PHC F2 | µg/L | 50 | **150**[#3] | | - | - | <20 | - | - | - | - | <50 | - | - | - |
| PHC F3 | µg/L | 400 | **500**[#4] | | - | - | <50 | - | - | - | - | <400 | - | - | - |
| PHC F4 | µg/L | 400 | **500** | | - | - | <50 | - | - | - | - | <400 | - | - | - |
| VOCs | | | | | | | | | | | | | | | |
| Acetone | µg/L | 30 | **2700** | | <30 | - | <30 | <30 | <10 | <10 | <10 | - | - | - | <10 |
| Bromodichloromethane | µg/L | 2 | **16** | | <2 | - | <0.3 | <0.3 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Bromoform | µg/L | 5 | **25** | | <5 | - | <0.4 | <0.4 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Bromomethane | µg/L | 0.5 | **0.89** | | <0.5 | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | <0.5 |
| Carbon tetrachloride | µg/L | 0.2 | **0.79** | | <0.2 | - | <0.2 | <0.2 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Chlorobenzene | µg/L | 0.1 | **30** | | - | - | <0.2 | <0.2 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Chloroform | µg/L | 1 | **2.4** | | <1 | - | <0.5 | <0.5 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Dibromochloromethane | µg/L | 2 | **25** | | <2 | - | <0.3 | <0.3 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Dichlorobenzene, 1,2- | µg/L | 0.5 | **3** | | <0.5 | - | <0.4 | <0.4 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Dichlorobenzene, 1,3- | µg/L | 0.5 | **59** | | <0.5 | - | <0.4 | <0.4 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Dichlorobenzene, 1,4- | µg/L | 0.5 | **1** | | <0.5 | - | <0.4 | <0.4 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Dichlorodifluoromethane | µg/L | 2 | **590** | | <2 | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | <0.5 |
| Dichloroethane, 1,1- | µg/L | 0.5 | **5** | | <0.5 | - | <0.4 | <0.4 | <0.1 | <0.1 | 1.7 | - | - | - | <0.1 |
| Dichloroethane, 1,2- | µg/L | 0.5 | **1.6** | | <0.5 | - | <0.2 | <0.2 | <0.2 | <0.2 | 0.27 | - | - | - | <0.2 |
| Dichloroethylene, 1,1- | µg/L | 0.5 | **1.6** | | <0.5 | - | <0.5 | <0.5 | <0.1 | <0.1 | 0.35 | - | - | - | <0.1 |
| Dichloroethylene, 1,2-cis- | µg/L | 0.5 | **1.6** | | 51.3 | - | 6.1 | 48.5 | 9 | <0.1 | 1.8 | - | - | - | 0.58 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | **1.6** | | 0.6 | - | <0.4 | <0.4 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Dichloropropane, 1,2- | µg/L | 0.5 | **5** | | <0.5 | - | <0.5 | <0.5 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Dichloropropene, 1,3- | µg/L | | **0.5** | | <1 | - | <0.2 | <0.2 | <0.28 | <0.28 | <0.28 | - | - | - | <0.28 |
| Ethylene dibromide | µg/L | 0.2 | **0.2** | | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Hexane | µg/L | 5 | **51** | | <5 | - | <5 | <5 | <0.5 | <0.5 | <0.5 | - | - | - | <0.5 |
| Methyl Ethyl Ketone | µg/L | 20 | **1800** | | <20 | - | <10 | <10 | <5 | <5 | <5 | - | - | - | <5 |
| Methyl Isobutyl Ketone | µg/L | 20 | **640** | | <20 | - | <10 | <10 | <5 | <5 | <5 | - | - | - | <5 |
| Methylene chloride | µg/L | | **50** | | - | - | <4 | <4 | <0.5 | <0.5 | <0.5 | - | - | - | <0.5 |
| Methyl tert-Butyl Ether | µg/L | 2 | **15** | | <2 | - | <2 | <2 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Styrene | µg/L | 0.5 | **5.4** | | <0.5 | - | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Tetrachloroethane, 1,1,2,2- | µg/L | 0.5 | **1** | | <0.5 | - | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Tetrachloroethane, 1,1,1,2- | µg/L | 0.5 | **1.1** | | <0.5 | - | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Tetrachloroethylene | µg/L | 0.5 | **1.6** | | <0.5 | - | <0.3 | <0.3 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Trichloroethane, 1,1,1- | µg/L | 0.5 | **200** | | <0.5 | - | <0.4 | <0.4 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Trichloroethane, 1,1,2- | µg/L | 0.5 | **4.7** | | <0.5 | - | <0.4 | <0.4 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Trichloroethylene | µg/L | 0.5 | **1.6** | | 39.9 | - | 4.7 | 35.2 | 4.9 | <0.1 | 1.5 | - | - | - | 0.41 |
| Trichlorofluoromethane | µg/L | 5 | **150** | | <5 | - | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Vinyl chloride | µg/L | 0.2 | **0.5** | | 2.5 | - | 0.4 | 3.2 | 0.46 | <0.2 | <0.2 | - | - | - | <0.2 |
| PAHs | | | | | | | | | | | | | | | |
| Acenaphthene | µg/L | 0.05 | **4.1** | | - | - | - | - | - | - | - | - | - | - | - |
| Acenaphthylene | µg/L | 0.05 | **1** | | - | - | - | - | - | - | - | - | - | - | - |
| Anthracene | µg/L | 0.05 | **1** | | - | - | - | - | - | - | - | - | - | - | - |
| Benz(a)anthracene | µg/L | 0.05 | **1** | | - | - | - | - | - | - | - | - | - | - | - |
| Benzo(a)pyrene | µg/L | 0.01 | **0.01** | | - | - | - | - | - | - | - | - | - | - | - |
| Benzo(b)fluoranthene | µg/L | 0.05 | **0.1** | | - | - | - | - | - | - | - | - | - | - | - |
| Benzo(g,h,i)perylene | µg/L | 0.05 | **0.2** | | - | - | - | - | - | - | - | - | - | - | - |
| Benzo(k)fluoranthene | µg/L | 0.05 | **0.1** | | - | - | - | - | - | - | - | - | - | - | - |
| Chrysene | µg/L | 0.05 | **0.1** | | - | - | - | - | - | - | - | - | - | - | - |
| Dibenz(a,h)anthracene | µg/L | 0.05 | **0.2** | | - | - | - | - | - | - | - | - | - | - | - |
| Fluoranthene | µg/L | 0.05 | **0.41** | | - | - | - | - | - | - | - | - | - | - | - |
| Fluorene | µg/L | 0.05 | **120** | | - | - | - | - | - | - | - | - | - | - | - |
| Indeno(1,2,3-c,d)pyrene | µg/L | 0.05 | **0.2** | | - | - | - | - | - | - | - | - | - | - | - |
| Methylnaphthalene, 1- | µg/L | 0.05 | **3.2**[#5] | | - | - | - | - | - | - | - | - | - | - | - |
| Methylnaphthalene, 2- | µg/L | 0.08 | **3.2**[#5] | | - | - | - | - | - | - | - | - | - | - | - |
| Methylnaphthalene, 2-,1- | µg/L | 1 | **3.2**[#5] | | - | - | - | - | - | - | - | - | - | - | - |
| Naphthalene | µg/L | 0.05 | **11** | | - | - | - | - | - | - | - | - | - | - | - |
| Phenanthrene | µg/L | 0.05 | **1** | | - | - | - | - | - | - | - | - | - | - | - |
| Pyrene | µg/L | 0.05 | **4.1** | | - | - | - | - | - | - | - | - | - | - | - |
| Metals | | | | | | | | | | | | | | | |
| Antimony (Filtered) | µg/L | 0.1 | **6** | | <0.1 | <0.1 | - | - | - | - | - | - | - | <0.1 | - |
| Arsenic (Filtered) | µg/L | 0.1 | **25** | | 0.4 | 0.5 | - | - | - | - | - | - | - | 0.3 | - |
| Barium (Filtered) | µg/L | 1 | **1000** | | 150 | 176 | - | - | - | - | - | - | - | 808 | - |
| Boron (Filtered) | µg/L | 5 | **5000** | | 16 | 15 | - | - | - | - | - | - | - | 30 | - |
| Beryllium (Filtered) | µg/L | 0.5 | **4** | | - | - | - | - | - | - | - | - | - | - | - |
| Cadmium (Filtered) | µg/L | 0.015 | **2.1** | | 0.022 | <0.015 | - | - | - | - | - | - | - | <0.015 | - |
| Chromium (VI) | µg/L | 10 | **25** | | - | - | - | - | - | - | - | - | - | - | - |
| Chromium (III+VI) (Filtered) | µg/L | 2 | **50** | | <2 | - | - | - | - | - | - | - | - | - | - |
| Cobalt (Filtered) | µg/L | 0.1 | **3.8** | | 0.2 | 0.2 | - | - | - | - | - | - | - | <0.1 | - |
| Copper (Filtered) | µg/L | 2 | **69** | | <2 | <2 | - | - | - | - | - | - | - | <2 | - |
| Lead (Filtered) | µg/L | 0.02 | **10** | | 0.1 | <0.02 | - | - | - | - | - | - | - | 0.03 | - |
| Mercury (Filtered) | µg/L | 0.02 | **0.29** | | <0.02 | <0.02 | - | - | - | - | - | - | - | <0.02 | - |
| Molybdenum (Filtered) | µg/L | 0.1 | **70** | | 0.8 | 0.8 | - | - | - | - | - | - | - | 0.3 | - |
| Nickel (Filtered) | µg/L | 0.2 | **100** | | 1.9 | 0.5 | - | - | - | - | - | - | - | 0.3 | - |
| Sodium (Filtered) | µg/L | 200 | **490000** | | - | 190,000 | - | - | - | - | - | - | - | 113,000 | - |
| Selenium (Filtered) | µg/L | 1 | **10** | | <1 | <1 | - | - | - | - | - | - | - | <1 | - |
| Silver (Filtered) | µg/L | 0.1 | **1.2** | | <0.1 | <0.1 | - | - | - | - | - | - | - | <0.1 | - |
| Thallium (Filtered) | µg/L | 0.05 | **2** | | <0.05 | <0.05 | - | - | - | - | - | - | - | <0.05 | - |
| Uranium (Filtered) | µg/L | 0.05 | **20** | | 0.17 | 0.17 | - | - | - | - | - | - | - | 0.08 | - |
| Vanadium (Filtered) | µg/L | 0.1 | **6.2** | | 0.6 | 0.6 | - | - | - | - | - | - | - | 0.1 | - |
| Zinc (Filtered) | µg/L | 5 | **890** | | <5 | <5 | - | - | - | - | - | - | - | <5 | - |
| Polychlorinated Biphenyls | | | | | | | | | | | | | | | |
| PCBs (Total) | µg/L | 0.05 | **0.2**[#6] | | - | - | - | - | - | - | - | - | - | - | - |

**Env Stds Description**
Table 8 - within 30 m of a Water Body:Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MOE 2011).

**Env Stds Comments**
#1:Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2:Standard is applicable to PHC in the F1 range minus BTEX.
#3:Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4:Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5:Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.
#6:Standard is applicable to total PCBs, Individual aroclors should be added for comparison.

# Table 6 - Summary of Groundwater Quality

| Parameter | Unit | RDL | Table 8 - within 30 m of a Water Body | Location | BH104 | BH201 | BH201 | BH201 | BH201 | BH201 | BH202 | BH203 | BH204 | BH204 | BH205 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Date | 10/25/17 | 8/29/19 | 8/29/19 | 8/29/19 | 8/29/19 | 9/12/19 | 8/29/19 | 8/29/19 | 8/29/19 | 8/29/19 | 8/29/19 |
| | | | | Field ID | MW104 | BH 201 | BH 201 | QA/QC #2 | QA/QC #2 | BH 201 | BH 202 | BH 203 | BH 204 | QA/QC #1 | BH 205 |
| | | | | Laboratory | Maxxam | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon |
| | | | | Lab Report | B8M2783 | B19-27446 | B19-27448 | B19-27446 | B19-27448 | B19-29080 | B19-27446 | B19-27446 | B19-27446 | B19-27446 | B19-27446 |
| | | | | Sample Type | Normal | Normal | Normal | Field_D | Field_D | Normal | Normal | Normal | Normal | Field_D | Normal |
| BTEX | | | | | | | | | | | | | | | |
| Benzene | µg/L | 0.5 | **5** | | <0.1 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Toluene | µg/L | 0.5 | **22** | | 0.63 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Ethylbenzene | µg/L | 0.5 | **2.4** | | 0.22 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Xylene Total | µg/L | 1.1 | **300**[#1] | | 0.48 | <1.1 | - | <1.1 | - | - | <1.1 | <1.1 | <1.1 | - | <1.1 |
| PHCs | | | | | | | | | | | | | | | |
| PHC F1 | µg/L | 50 | **420**[#2] | | - | <50 | - | <50 | - | - | <50 | - | <50 | - | <50 |
| PHC F2 | µg/L | 50 | **150**[#3] | | - | <50 | - | <50 | - | - | <50 | - | <50 | - | <50 |
| PHC F3 | µg/L | 400 | **500**[#4] | | - | <400 | - | <400 | - | - | <400 | - | <400 | - | <400 |
| PHC F4 | µg/L | 400 | **500** | | - | <400 | - | <400 | - | - | <400 | - | <400 | - | <400 |
| VOCs | | | | | | | | | | | | | | | |
| Acetone | µg/L | 30 | **2700** | | <10 | <30 | - | <30 | - | - | <30 | <30 | <30 | - | <30 |
| Bromodichloromethane | µg/L | 2 | **16** | | <0.1 | <2 | - | <2 | - | - | <2 | <2 | <2 | - | <2 |
| Bromoform | µg/L | 5 | **25** | | <0.2 | <5 | - | <5 | - | - | <5 | <5 | <5 | - | <5 |
| Bromomethane | µg/L | 0.5 | **0.89** | | <0.5 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Carbon tetrachloride | µg/L | 0.2 | **0.79** | | <0.1 | <0.2 | - | <0.2 | - | - | <0.2 | <0.2 | <0.2 | - | <0.2 |
| Chlorobenzene | µg/L | 0.1 | **30** | | <0.1 | - | - | - | - | - | - | - | - | - | - |
| Chloroform | µg/L | 1 | **2.4** | | 0.29 | <1 | - | <1 | - | - | <1 | <1 | <1 | - | <1 |
| Dibromochloromethane | µg/L | 2 | **25** | | <0.2 | <2 | - | <2 | - | - | <2 | <2 | <2 | - | <2 |
| Dichlorobenzene, 1,2- | µg/L | 0.5 | **3** | | <0.2 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Dichlorobenzene, 1,3- | µg/L | 0.5 | **59** | | <0.2 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Dichlorobenzene, 1,4- | µg/L | 0.5 | **1** | | <0.2 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Dichlorodifluoromethane | µg/L | 2 | **590** | | <0.5 | <2 | - | <2 | - | - | <2 | <2 | <2 | - | <2 |
| Dichloroethane, 1,1- | µg/L | 0.5 | **5** | | <0.1 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Dichloroethane, 1,2- | µg/L | 0.5 | **1.6** | | <0.2 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Dichloroethylene, 1,1- | µg/L | 0.5 | **1.6** | | 0.2 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Dichloroethylene, 1,2-cis- | µg/L | 0.5 | **1.6** | | **23** | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | **37.4** | - | **13.9** |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | **1.6** | | 0.47 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Dichloropropane, 1,2- | µg/L | 0.5 | **5** | | <0.1 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Dichloropropene, 1,3- | µg/L | | **0.5** | | <0.28 | <1 | - | <1 | - | - | <1 | <1 | <1 | - | <1 |
| Ethylene dibromide | µg/L | 0.2 | **0.2** | | <0.2 | <0.2 | - | <0.2 | - | - | <0.2 | <0.2 | <0.2 | - | <0.2 |
| Hexane | µg/L | 5 | **51** | | 0.59 | <5 | - | <5 | - | - | <5 | <5 | <5 | - | <5 |
| Methyl Ethyl Ketone | µg/L | 20 | **1800** | | <5 | <20 | - | <20 | - | - | <20 | <20 | <20 | - | <20 |
| Methyl Isobutyl Ketone | µg/L | 20 | **640** | | <5 | <20 | - | <20 | - | - | <20 | <20 | <20 | - | <20 |
| Methylene chloride | µg/L | | **50** | | <0.5 | - | - | - | - | - | - | - | - | - | - |
| Methyl tert-Butyl Ether | µg/L | 2 | **15** | | <0.2 | <2 | - | <2 | - | - | <2 | <2 | <2 | - | <2 |
| Styrene | µg/L | 0.5 | **5.4** | | <0.2 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Tetrachloroethane, 1,1,2,2- | µg/L | 0.5 | **1** | | <0.2 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Tetrachloroethane, 1,1,1,2- | µg/L | 0.5 | **1.1** | | <0.2 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | **1.6** | | <0.1 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Trichloroethane, 1,1,1- | µg/L | 0.5 | **200** | | <0.1 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Trichloroethane, 1,1,2- | µg/L | 0.5 | **4.7** | | <0.2 | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | <0.5 | - | <0.5 |
| Trichloroethylene | µg/L | 0.5 | **1.6** | | **36** | <0.5 | - | <0.5 | - | - | <0.5 | <0.5 | **16.4** | - | **8.5** |
| Trichlorofluoromethane | µg/L | 5 | **150** | | <0.2 | <5 | - | <5 | - | - | <5 | <5 | <5 | - | <5 |
| Vinyl chloride | µg/L | 0.2 | **0.5** | | **0.64** | <0.2 | - | <0.2 | - | - | <0.2 | <0.2 | **1.7** | - | **0.7** |
| PAHs | | | | | | | | | | | | | | | |
| Acenaphthene | µg/L | 0.05 | **4.1** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Acenaphthylene | µg/L | 0.05 | **1** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Anthracene | µg/L | 0.05 | **1** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Benz(a)anthracene | µg/L | 0.05 | **1** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Benzo(a)pyrene | µg/L | 0.01 | **0.01** | | - | - | - | - | - | <0.01 | - | - | <0.01 | <0.01 | - |
| Benzo(b)fluoranthene | µg/L | 0.05 | **0.1** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Benzo(g,h,i)perylene | µg/L | 0.05 | **0.2** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Benzo(k)fluoranthene | µg/L | 0.05 | **0.1** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Chrysene | µg/L | 0.05 | **0.1** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Dibenz(a,h)anthracene | µg/L | 0.05 | **0.2** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Fluoranthene | µg/L | 0.05 | **0.41** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Fluorene | µg/L | 0.05 | **120** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Indeno(1,2,3-c,d)pyrene | µg/L | 0.05 | **0.2** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Methylnaphthalene, 1- | µg/L | 0.05 | **3.2**[#5] | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Methylnaphthalene, 2- | µg/L | 0.08 | **3.2**[#5] | | - | - | - | - | - | <0.08 | - | - | <0.08 | <0.08 | - |
| Methylnaphthalene, 2-,1- | µg/L | 1 | **3.2**[#5] | | - | - | - | - | - | <1 | - | - | <1 | <1 | - |
| Naphthalene | µg/L | 0.05 | **11** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Phenanthrene | µg/L | 0.05 | **1** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Pyrene | µg/L | 0.05 | **4.1** | | - | - | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - |
| Metals | | | | | | | | | | | | | | | |
| Antimony (Filtered) | µg/L | 0.1 | **6** | | - | 0.2 | - | 0.2 | - | - | - | - | 0.2 | - | 0.4 |
| Arsenic (Filtered) | µg/L | 0.1 | **25** | | - | 0.2 | - | 0.2 | - | - | - | - | 0.3 | - | 0.2 |
| Barium (Filtered) | µg/L | 1 | **1000** | | - | 62 | - | 63 | - | - | - | - | 86 | - | 90 |
| Boron (Filtered) | µg/L | 5 | **5000** | | - | 29 | - | 30 | - | - | - | - | 31 | - | 25 |
| Beryllium (Filtered) | µg/L | 0.5 | **4** | | - | - | - | - | - | - | - | - | - | - | - |
| Cadmium (Filtered) | µg/L | 0.015 | **2.1** | | - | <0.015 | - | 0.015 | - | - | - | - | 0.038 | - | 0.042 |
| Chromium (VI) | µg/L | 10 | **25** | | - | - | - | - | - | - | - | - | - | - | - |
| Chromium (III+VI) (Filtered) | µg/L | 2 | **50** | | - | <2 | - | <2 | - | - | - | - | <2 | - | <2 |
| Cobalt (Filtered) | µg/L | 0.1 | **3.8** | | - | 0.7 | - | 0.7 | - | - | - | - | 0.5 | - | 0.4 |
| Copper (Filtered) | µg/L | 2 | **69** | | - | <2 | - | <2 | - | - | - | - | <2 | - | <2 |
| Lead (Filtered) | µg/L | 0.02 | **10** | | - | <0.02 | - | <0.02 | - | - | - | - | <0.02 | - | <0.02 |
| Mercury (Filtered) | µg/L | 0.02 | **0.29** | | - | <0.02 | - | <0.02 | - | - | - | - | <0.02 | - | <0.02 |
| Molybdenum (Filtered) | µg/L | 0.1 | **70** | | - | 4.8 | - | 4.7 | - | - | - | - | 2.2 | - | 4.7 |
| Nickel (Filtered) | µg/L | 0.2 | **100** | | - | 3.7 | - | 3.7 | - | - | - | - | 2.8 | - | 2.1 |
| Sodium (Filtered) | µg/L | 200 | **490000** | | - | - | - | - | - | - | - | - | - | - | - |
| Selenium (Filtered) | µg/L | 1 | **10** | | - | <1 | - | <1 | - | - | - | - | <1 | - | <1 |
| Silver (Filtered) | µg/L | 0.1 | **1.2** | | - | <0.1 | - | <0.1 | - | - | - | - | <0.1 | - | <0.1 |
| Thallium (Filtered) | µg/L | 0.05 | **2** | | - | <0.05 | - | <0.05 | - | - | - | - | <0.05 | - | <0.05 |
| Uranium (Filtered) | µg/L | 0.05 | **20** | | - | 0.22 | - | 0.22 | - | - | - | - | 0.24 | - | 0.22 |
| Vanadium (Filtered) | µg/L | 0.1 | **6.2** | | - | 0.3 | - | 0.3 | - | - | - | - | 0.3 | - | 0.6 |
| Zinc (Filtered) | µg/L | 5 | **890** | | - | <5 | - | <5 | - | - | - | - | <5 | - | <5 |
| Polychlorinated Biphenyls | | | | | | | | | | | | | | | |
| PCBs (Total) | µg/L | 0.05 | **0.2**[#6] | | - | - | <0.05 | - | <0.05 | - | - | - | - | - | - |

**Env Stds Description**
Table 8 - within 30 m of a Water Body:Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MOE 2011).

**Env Stds Comments**
#1:Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2:Standard is applicable to PHC in the F1 range minus BTEX.
#3:Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4:Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5:Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.
#6:Standard is applicable to total PCBs, Individual aroclors should be added for comparison.

# Table 6 - Summary of Groundwater Quality

| Parameter | Unit | RDL | Table 8 - within 30 m of a Water Body | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location** | | | | BH206 | BH207 | BH208 | BH208 | BH208 | BH301 | BH401 | BH402 | BH402 |
| **Date** | | | | 8/29/19 | 8/29/19 | 8/29/19 | 9/12/19 | 9/12/19 | 10/24/19 | 2/12/20 | 2/12/20 | 2/12/20 |
| **Field ID** | | | | BH 206 | BH 207 | BH 208 | BH 208 | QA/QC | BH 301 | BH401 | BH402 | QA/QC |
| **Laboratory** | | | | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon |
| **Lab Report** | | | | B19-27446 | B19-27446 | B19-27446 | B19-29080 | B19-29080 | B19-34508 | B20-04290 rev 1 | B20-04290 rev 1 | B20-04290 rev 1 |
| **Sample Type** | | | | Normal | Normal | Normal | Normal | Field_D | Normal | Normal | Normal | Field_D |
| BTEX | | | | | | | | | | | | |
| Benzene | µg/L | 0.5 | **5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 0.5 | **22** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | **2.4** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Xylene Total | µg/L | 1.1 | **300**[#1] | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 |
| PHCs | | | | | | | | | | | | |
| PHC F1 | µg/L | 50 | **420**[#2] | - | <50 | <50 | - | - | - | - | - | - |
| PHC F2 | µg/L | 50 | **150**[#3] | - | <50 | <50 | - | - | - | - | - | - |
| PHC F3 | µg/L | 400 | **500**[#4] | - | <400 | <400 | - | - | - | - | - | - |
| PHC F4 | µg/L | 400 | **500** | - | <400 | <400 | - | - | - | - | - | - |
| VOCs | | | | | | | | | | | | |
| Acetone | µg/L | 30 | **2700** | <30 | <30 | <30 | <30 | <30 | <30 | <30 | <30 | <30 |
| Bromodichloromethane | µg/L | 2 | **16** | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Bromoform | µg/L | 5 | **25** | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Bromomethane | µg/L | 0.5 | **0.89** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Carbon tetrachloride | µg/L | 0.2 | **0.79** | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.1 | **30** | - | - | - | - | - | - | - | - | - |
| Chloroform | µg/L | 1 | **2.4** | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Dibromochloromethane | µg/L | 2 | **25** | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Dichlorobenzene, 1,2- | µg/L | 0.5 | **3** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene, 1,3- | µg/L | 0.5 | **59** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene, 1,4- | µg/L | 0.5 | **1** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorodifluoromethane | µg/L | 2 | **590** | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Dichloroethane, 1,1- | µg/L | 0.5 | **5** | 1.3 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane, 1,2- | µg/L | 0.5 | **1.6** | <0.5 | <0.5 | 0.8 | 0.8 | 0.7 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene, 1,1- | µg/L | 0.5 | **1.6** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene, 1,2-cis- | µg/L | 0.5 | **1.6** | 13 | <0.5 | 1.2 | 1.2 | 0.9 | 0.9 | 2 | 63.7 | 57.8 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | **1.6** | 3.9 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 18.8 | 17.1 |
| Dichloropropane, 1,2- | µg/L | 0.5 | **5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropene, 1,3- | µg/L | | **0.5** | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Ethylene dibromide | µg/L | 0.2 | **0.2** | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Hexane | µg/L | 5 | **51** | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | µg/L | 20 | **1800** | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 |
| Methyl Isobutyl Ketone | µg/L | 20 | **640** | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 | <20 |
| Methylene chloride | µg/L | | **50** | - | - | - | - | - | - | - | - | - |
| Methyl tert-Butyl Ether | µg/L | 2 | **15** | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Styrene | µg/L | 0.5 | **5.4** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane, 1,1,2,2- | µg/L | 0.5 | **1** | <0.5 | <0.5 | <0.5 | - | - | - | - | - | - |
| Tetrachloroethane, 1,1,1,2- | µg/L | 0.5 | **1.1** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | **1.6** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane, 1,1,1- | µg/L | 0.5 | **200** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane, 1,1,2- | µg/L | 0.5 | **4.7** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | **1.6** | 0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 1 | 29.7 | 5.4 | 5.3 |
| Trichlorofluoromethane | µg/L | 5 | **150** | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Vinyl chloride | µg/L | 0.2 | **0.5** | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | 2.6 | 2.3 |
| PAHs | | | | | | | | | | | | |
| Acenaphthene | µg/L | 0.05 | **4.1** | - | - | - | - | - | - | - | - | - |
| Acenaphthylene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - | - | - |
| Anthracene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - | - | - |
| Benz(a)anthracene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - | - | - |
| Benzo(a)pyrene | µg/L | 0.01 | **0.01** | - | - | - | - | - | - | - | - | - |
| Benzo(b)fluoranthene | µg/L | 0.05 | **0.1** | - | - | - | - | - | - | - | - | - |
| Benzo(g,h,i)perylene | µg/L | 0.05 | **0.2** | - | - | - | - | - | - | - | - | - |
| Benzo(k)fluoranthene | µg/L | 0.05 | **0.1** | - | - | - | - | - | - | - | - | - |
| Chrysene | µg/L | 0.05 | **0.1** | - | - | - | - | - | - | - | - | - |
| Dibenz(a,h)anthracene | µg/L | 0.05 | **0.2** | - | - | - | - | - | - | - | - | - |
| Fluoranthene | µg/L | 0.05 | **0.41** | - | - | - | - | - | - | - | - | - |
| Fluorene | µg/L | 0.05 | **120** | - | - | - | - | - | - | - | - | - |
| Indeno(1,2,3-c,d)pyrene | µg/L | 0.05 | **0.2** | - | - | - | - | - | - | - | - | - |
| Methylnaphthalene, 1- | µg/L | 0.05 | **3.2**[#5] | - | - | - | - | - | - | - | - | - |
| Methylnaphthalene, 2- | µg/L | 0.08 | **3.2**[#5] | - | - | - | - | - | - | - | - | - |
| Methylnaphthalene, 2-,1- | µg/L | 1 | **3.2**[#5] | - | - | - | - | - | - | - | - | - |
| Naphthalene | µg/L | 0.05 | **11** | - | - | - | - | - | - | - | - | - |
| Phenanthrene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - | - | - |
| Pyrene | µg/L | 0.05 | **4.1** | - | - | - | - | - | - | - | - | - |
| Metals | | | | | | | | | | | | |
| Antimony (Filtered) | µg/L | 0.1 | **6** | - | - | <0.1 | - | - | - | - | - | - |
| Arsenic (Filtered) | µg/L | 0.1 | **25** | - | - | <0.1 | - | - | - | - | - | - |
| Barium (Filtered) | µg/L | 1 | **1000** | - | - | 525 | - | - | - | - | - | - |
| Boron (Filtered) | µg/L | 5 | **5000** | - | - | 21 | - | - | - | - | - | - |
| Beryllium (Filtered) | µg/L | 0.5 | **4** | - | - | - | - | - | - | - | - | - |
| Cadmium (Filtered) | µg/L | 0.015 | **2.1** | - | - | <0.015 | - | - | - | - | - | - |
| Chromium (VI) | µg/L | 10 | **25** | - | - | - | - | - | - | - | - | - |
| Chromium (III+VI) (Filtered) | µg/L | 2 | **50** | - | - | <2 | - | - | - | - | - | - |
| Cobalt (Filtered) | µg/L | 0.1 | **3.8** | - | - | <0.1 | - | - | - | - | - | - |
| Copper (Filtered) | µg/L | 2 | **69** | - | - | <2 | - | - | - | - | - | - |
| Lead (Filtered) | µg/L | 0.02 | **10** | - | - | <0.02 | - | - | - | - | - | - |
| Mercury (Filtered) | µg/L | 0.02 | **0.29** | - | - | <0.02 | - | - | - | - | - | - |
| Molybdenum (Filtered) | µg/L | 0.1 | **70** | - | - | 0.5 | - | - | - | - | - | - |
| Nickel (Filtered) | µg/L | 0.2 | **100** | - | - | 1.8 | - | - | - | - | - | - |
| Sodium (Filtered) | µg/L | 200 | **490000** | - | - | - | - | - | - | - | - | - |
| Selenium (Filtered) | µg/L | 1 | **10** | - | - | <1 | - | - | - | - | - | - |
| Silver (Filtered) | µg/L | 0.1 | **1.2** | - | - | <0.1 | - | - | - | - | - | - |
| Thallium (Filtered) | µg/L | 0.05 | **2** | - | - | <0.05 | - | - | - | - | - | - |
| Uranium (Filtered) | µg/L | 0.05 | **20** | - | - | <0.05 | - | - | - | - | - | - |
| Vanadium (Filtered) | µg/L | 0.1 | **6.2** | - | - | <0.1 | - | - | - | - | - | - |
| Zinc (Filtered) | µg/L | 5 | **890** | - | - | <5 | - | - | - | - | - | - |
| Polychlorinated Biphenyls | | | | | | | | | | | | |
| PCBs (Total) | µg/L | 0.05 | **0.2**[#6] | - | - | - | - | - | - | - | - | - |

**Env Stds Description**
Table 8 - within 30 m of a Water Body:Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MOE 2011).

**Env Stds Comments**
#1:Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2:Standard is applicable to PHC in the F1 range minus BTEX.
#3:Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4:Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5:Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.
#6:Standard is applicable to total PCBs, Individual aroclors should be added for comparison.

# Table 7 - Summary of Groundwater Quality - Volatile

| | | | Location | | | | | BH01 | BH01 | BH01 | BH01 | BH02 | BH02 | BH02 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Date | 8/29/19 | 9/12/19 | 10/24/19 | 2/12/20 | 2/26/16 | 5/26/16 | 10/25/17 | 8/29/19 | 2/26/16 | 5/26/16 | 10/25/17 |
| | | | Field ID | Trip Blank | Trip Blank | Trip Blank | Trip Blank | MW1 | MW1 | MW1/BH1 | MWBH 1 | MW/BH2 | MW2 | MW2/BH2 |
| | | | Laboratory | Caduceon | Caduceon | Caduceon | Caduceon | Exova | Exova | Maxxam | Caduceon | Exova | Exova | Maxxam |
| | | | Lab Report | B19-27446 | B19-29080 | B19-34508 | B20-04290 rev 1 | 1602890 | 1602890 | B8M2783 | B19-27446 | 1602890 | 1602890 | B8M2783 |
| | | | Sample Type | Trip_B | Trip_B | Trip_B | Trip_B | Normal | Normal | Normal | Normal | Normal | Normal | Normal |
| Parameter | Unit | RDL | Table 6 - All Types of Property Use | | | | | | | | | | | |
| BTEX | | | | | | | | | | | | | | |
| Benzene | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 |
| Toluene | µg/L | 0.5 | **24** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <1 | <0.5 | <0.5 | <0.5 | <0.4 |
| Ethylbenzene | µg/L | 0.5 | **2.4** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 |
| Xylene Total | µg/L | 1.1 | **72**[#1] | <1.1 | <1.1 | <1.1 | <1.1 | <0.5 | <0.5 | <0.5 | <1.1 | <0.5 | <0.5 | <0.2 |
| PHCs | | | | | | | | | | | | | | |
| PHC F1 | µg/L | 50 | **420**[#2] | <50 | - | - | - | 30 | - | - | - | <20 | - | - |
| PHC F2 | µg/L | 50 | **150**[#3] | - | - | - | - | <20 | - | - | - | <20 | - | - |
| PHC F3 | µg/L | 400 | **500**[#4] | - | - | - | - | <50 | - | - | - | <50 | - | - |
| PHC F4 | µg/L | 400 | **500** | - | - | - | - | <50 | - | - | - | <50 | - | - |
| VOCs | | | | | | | | | | | | | | |
| Acetone | µg/L | 30 | **2700** | <30 | <30 | <30 | <30 | <30 | <30 | <50 | <30 | <30 | <30 | <20 |
| Bromodichloromethane | µg/L | 2 | **16** | <2 | <2 | <2 | <2 | <0.3 | <0.3 | <0.5 | <2 | <0.3 | <0.3 | <0.2 |
| Bromoform | µg/L | 5 | **5** | <5 | <5 | <5 | <5 | <0.4 | <0.4 | <1 | <5 | <0.4 | <0.4 | <0.4 |
| Bromomethane | µg/L | 0.5 | **0.89** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <2.5 | <0.5 | <0.5 | <0.5 | <1 |
| Carbon tetrachloride | µg/L | 0.2 | **0.2** | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.5 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.2 | **30** | - | - | - | - | <0.2 | <0.2 | <0.5 | - | <0.2 | <0.2 | <0.2 |
| Chloroform | µg/L | 1 | **2** | <1 | <1 | <1 | <1 | <0.5 | <0.5 | <0.5 | <1 | <0.5 | <0.5 | <0.2 |
| Dibromochloromethane | µg/L | 2 | **25** | <2 | <2 | <2 | <2 | <0.3 | <0.3 | <1 | <2 | <0.3 | <0.3 | <0.4 |
| Dichlorobenzene, 1,2- | µg/L | 0.5 | **3** | <0.5 | <0.5 | <0.5 | <0.5 | - | <0.4 | <1 | <0.5 | <0.4 | <0.4 | <0.4 |
| Dichlorobenzene, 1,3- | µg/L | 0.5 | **59** | <0.5 | <0.5 | <0.5 | <0.5 | - | <0.4 | <1 | <0.5 | <0.4 | <0.4 | <0.4 |
| Dichlorobenzene, 1,4- | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | - | <0.4 | <1 | <0.5 | <0.4 | <0.4 | <0.4 |
| Dichlorodifluoromethane | µg/L | 2 | **590** | <2 | <2 | <2 | <2 | <0.5 | <0.5 | <2.5 | <2 | <0.5 | <0.5 | <1 |
| Dichloroethane, 1,1- | µg/L | 0.5 | **5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.4 | <0.4 | <0.5 | <0.5 | <0.4 | <0.4 | <0.2 |
| Dichloroethane, 1,2- | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 | <0.2 | <1 | <0.5 | <0.2 | <0.2 | <0.4 |
| Dichloroethylene, 1,1- | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | **1.2** | **1** | **1** | **0.9** | <0.5 | **0.8** | 0.42 |
| Dichloroethylene, 1,2-cis- | µg/L | 0.5 | **1.6** | <0.5 | <0.5 | <0.5 | <0.5 | **175** | **157** | **130** | **148** | **23.3** | **102** | **42** |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | **1.6** | <0.5 | <0.5 | <0.5 | <0.5 | 1.1 | 1.1 | **1.7** | 1.6 | <0.4 | 1 | 0.7 |
| Dichloropropane, 1,2- | µg/L | 0.5 | **0.58** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.2 |
| Dichloropropene, 1,3- | µg/L | | **0.5** | - | - | - | - | <0.2 | <0.2 | <1.4 | <1 | <0.2 | <0.2 | <0.57 |
| Ethylene dibromide | µg/L | 0.2 | **0.2** | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <1 | <0.2 | <0.2 | <0.2 | <0.4 |
| Hexane | µg/L | 5 | **5** | <5 | <5 | <5 | <5 | <5 | <5 | <2.5 | <5 | <5 | <5 | <1 |
| Methyl Ethyl Ketone | µg/L | 20 | **1800** | <20 | <20 | <20 | <20 | <10 | <10 | <25 | <20 | <10 | <10 | <10 |
| Methyl Isobutyl Ketone | µg/L | 20 | **640** | <20 | <20 | <20 | <20 | <10 | <10 | <25 | <20 | <10 | <10 | <10 |
| Methylene chloride | µg/L | | **26** | - | - | - | - | <4 | <4 | <2.5 | - | <4 | <4 | <1 |
| Methyl tert-Butyl Ether | µg/L | 2 | **15** | <2 | <2 | <2 | <2 | <2 | <2 | <1 | <2 | <2 | <2 | <0.4 |
| Styrene | µg/L | 0.5 | **5.4** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <1 | <0.5 | <0.5 | <0.5 | <0.4 |
| Tetrachloroethane, 1,1,2,2- | µg/L | 0.5 | **0.5** | <0.5 | - | - | - | <0.5 | <0.5 | <1 | <0.5 | <0.5 | <0.5 | <0.4 |
| Tetrachloroethane, 1,1,1,2- | µg/L | 0.5 | **1.1** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <1 | <0.5 | <0.5 | <0.5 | <0.4 |
| Tetrachloroethylene | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.3 | <0.3 | <0.5 | <0.5 | <0.3 | <0.3 | <0.2 |
| Trichloroethane, 1,1,1- | µg/L | 0.5 | **23** | <0.5 | <0.5 | <0.5 | <0.5 | <0.4 | <0.4 | <0.5 | <0.5 | <0.4 | <0.4 | <0.2 |
| Trichloroethane, 1,1,2- | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.4 | <0.4 | <1 | <0.5 | <0.4 | <0.4 | <0.4 |
| Trichloroethylene | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | **132** | **172** | **89** | **70.3** | **24.7** | **139** | **39** |
| Trichlorofluoromethane | µg/L | 5 | **150** | <5 | <5 | <5 | <5 | <0.5 | <0.5 | <1 | <5 | <0.5 | <0.5 | <0.4 |
| Vinyl chloride | µg/L | 0.2 | **0.5** | <0.2 | <0.2 | <0.2 | <0.2 | **9** | **6.6** | **5.7** | **6.2** | **1.4** | **5.1** | **2.2** |
| PAHs | | | | | | | | | | | | | | |
| Acenaphthylene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Anthracene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Benz(a)anthracene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Fluorene | µg/L | 0.05 | **120** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Methylnaphthalene, 2-,1- | µg/L | 1 | **3.2**[#5] | - | - | - | - | - | - | - | <1 | - | - | - |
| Naphthalene | µg/L | 0.05 | **7** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Phenanthrene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Pyrene | µg/L | 0.05 | **4.1** | - | - | - | - | - | - | - | <0.05 | - | - | - |
| Metals | | | | | | | | | | | | | | |
| Mercury (Filtered) | µg/L | 0.02 | **0.1** | - | - | - | - | - | - | - | - | <0.1 | - | - |

**Env Stds Description**
Table 6 - All Types of Property Use:Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MOE 2011).

**Env Stds Comments**
#1:Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2:Standard is applicable to PHC in the F1 range minus BTEX.
#3:Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4:Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5:Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.

# Table 7 - Summary of Groundwater Quality - Volatile

| Parameter | Unit | RDL | Table 6 - All Types of Property Use | Location | BH02 | BH02 | BH03 | BH03 | BH03 | BH101 | BH102 | BH102 | BH102 | BH102 | BH103 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Date | 8/29/19 | 10/10/19 | 2/26/16 | 5/26/16 | 10/25/17 | 10/25/17 | 10/25/17 | 8/29/19 | 8/29/19 | 10/10/19 | 10/25/17 |
| | | | | Field ID | MWBH 2 | BH2 | MW3 | MW3 | MW3/BH3 | MW101 | MW102 | BH 102 | QA/QC #3 | BH102 | MW103 |
| | | | | Laboratory | Caduceon | Caduceon | Exova | Exova | Maxxam | Maxxam | Maxxam | Caduceon | Caduceon | Caduceon | Maxxam |
| | | | | Lab Report | B19-27446 | B19-32768 | 1602890 | 1602890 | B8M2783 | B8M2783 | B8M2783 | B19-27446 | B19-27446 | B19-32768 | B8M2783 |
| | | | | Sample Type | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Normal | Field_D | Normal | Normal |
| BTEX | | | | | | | | | | | | | | | |
| Benzene | µg/L | 0.5 | **0.5** | | <0.5 | - | <0.5 | <0.5 | <0.1 | <0.1 | **1.5** | **1.9** | **1.8** | - | <0.1 |
| Toluene | µg/L | 0.5 | **24** | | <0.5 | - | 0.6 | <0.5 | <0.2 | 0.23 | <0.2 | <0.5 | <0.5 | - | 0.37 |
| Ethylbenzene | µg/L | 0.5 | **2.4** | | <0.5 | - | <0.5 | <0.5 | <0.1 | <0.1 | <0.1 | <0.5 | <0.5 | - | 0.13 |
| Xylene Total | µg/L | 1.1 | **72**[#1] | | <1.1 | - | <0.5 | <0.5 | <0.1 | 0.11 | <0.1 | <1.1 | <1.1 | - | 0.21 |
| PHCs | | | | | | | | | | | | | | | |
| PHC F1 | µg/L | 50 | **420**[#2] | | - | - | <20 | - | - | - | - | <50 | - | - | - |
| PHC F2 | µg/L | 50 | **150**[#3] | | - | - | <20 | - | - | - | - | <50 | - | - | - |
| PHC F3 | µg/L | 400 | **500**[#4] | | - | - | <50 | - | - | - | - | <400 | - | - | - |
| PHC F4 | µg/L | 400 | **500** | | - | - | <50 | - | - | - | - | <400 | - | - | - |
| VOCs | | | | | | | | | | | | | | | |
| Acetone | µg/L | 30 | **2700** | | <30 | - | <30 | <30 | <10 | <10 | <10 | - | - | - | <10 |
| Bromodichloromethane | µg/L | 2 | **16** | | <2 | - | <0.3 | <0.3 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Bromoform | µg/L | 5 | **5** | | <5 | - | <0.4 | <0.4 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Bromomethane | µg/L | 0.5 | **0.89** | | <0.5 | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | <0.5 |
| Carbon tetrachloride | µg/L | 0.2 | **0.2** | | <0.2 | - | <0.2 | <0.2 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Chlorobenzene | µg/L | 0.2 | **30** | | - | - | <0.2 | <0.2 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Chloroform | µg/L | 1 | **2** | | <1 | - | <0.5 | <0.5 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Dibromochloromethane | µg/L | 2 | **25** | | <2 | - | <0.3 | <0.3 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Dichlorobenzene, 1,2- | µg/L | 0.5 | **3** | | <0.5 | - | <0.4 | <0.4 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Dichlorobenzene, 1,3- | µg/L | 0.5 | **59** | | <0.5 | - | <0.4 | <0.4 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Dichlorobenzene, 1,4- | µg/L | 0.5 | **0.5** | | <0.5 | - | <0.4 | <0.4 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Dichlorodifluoromethane | µg/L | 2 | **590** | | <2 | - | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | - | - | - | <0.5 |
| Dichloroethane, 1,1- | µg/L | 0.5 | **5** | | <0.5 | - | <0.4 | <0.4 | <0.1 | <0.1 | 1.7 | - | - | - | <0.1 |
| Dichloroethane, 1,2- | µg/L | 0.5 | **0.5** | | <0.5 | - | <0.2 | <0.2 | <0.2 | <0.2 | 0.27 | - | - | - | <0.2 |
| Dichloroethylene, 1,1- | µg/L | 0.5 | **0.5** | | <0.5 | - | <0.5 | <0.5 | <0.1 | <0.1 | 0.35 | - | - | - | <0.1 |
| Dichloroethylene, 1,2-cis- | µg/L | 0.5 | **1.6** | | **51.3** | - | **6.1** | **48.5** | **9** | <0.1 | **1.8** | - | - | - | 0.58 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | **1.6** | | 0.6 | - | <0.4 | <0.4 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Dichloropropane, 1,2- | µg/L | 0.5 | **0.58** | | <0.5 | - | <0.5 | <0.5 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Dichloropropene, 1,3- | µg/L | | **0.5** | | <1 | - | <0.2 | <0.2 | <0.28 | <0.28 | <0.28 | - | - | - | <0.28 |
| Ethylene dibromide | µg/L | 0.2 | **0.2** | | <0.2 | - | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Hexane | µg/L | 5 | **5** | | <5 | - | <5 | <5 | <0.5 | <0.5 | <0.5 | - | - | - | <0.5 |
| Methyl Ethyl Ketone | µg/L | 20 | **1800** | | <20 | - | <10 | <10 | <5 | <5 | <5 | - | - | - | <5 |
| Methyl Isobutyl Ketone | µg/L | 20 | **640** | | <20 | - | <10 | <10 | <5 | <5 | <5 | - | - | - | <5 |
| Methylene chloride | µg/L | | **26** | | - | - | <4 | <4 | <0.5 | <0.5 | <0.5 | - | - | - | <0.5 |
| Methyl tert-Butyl Ether | µg/L | 2 | **15** | | <2 | - | <2 | <2 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Styrene | µg/L | 0.5 | **5.4** | | <0.5 | - | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Tetrachloroethane, 1,1,2,2- | µg/L | 0.5 | **0.5** | | <0.5 | - | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Tetrachloroethane, 1,1,1,2- | µg/L | 0.5 | **1.1** | | <0.5 | - | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Tetrachloroethylene | µg/L | 0.5 | **0.5** | | <0.5 | - | <0.3 | <0.3 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Trichloroethane, 1,1,1- | µg/L | 0.5 | **23** | | <0.5 | - | <0.4 | <0.4 | <0.1 | <0.1 | <0.1 | - | - | - | <0.1 |
| Trichloroethane, 1,1,2- | µg/L | 0.5 | **0.5** | | <0.5 | - | <0.4 | <0.4 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Trichloroethylene | µg/L | 0.5 | **0.5** | | **39.9** | - | **4.7** | **35.2** | **4.9** | <0.1 | **1.5** | - | - | - | 0.41 |
| Trichlorofluoromethane | µg/L | 5 | **150** | | <5 | - | <0.5 | <0.5 | <0.2 | <0.2 | <0.2 | - | - | - | <0.2 |
| Vinyl chloride | µg/L | 0.2 | **0.5** | | **2.5** | - | 0.4 | **3.2** | 0.46 | <0.2 | <0.2 | - | - | - | <0.2 |
| PAHs | | | | | | | | | | | | | | | |
| Acenaphthylene | µg/L | 0.05 | **1** | | - | - | - | - | - | - | - | - | - | - | - |
| Anthracene | µg/L | 0.05 | **1** | | - | - | - | - | - | - | - | - | - | - | - |
| Benz(a)anthracene | µg/L | 0.05 | **1** | | - | - | - | - | - | - | - | - | - | - | - |
| Fluorene | µg/L | 0.05 | **120** | | - | - | - | - | - | - | - | - | - | - | - |
| Methylnaphthalene, 2-,1- | µg/L | 1 | **3.2**[#5] | | - | - | - | - | - | - | - | - | - | - | - |
| Naphthalene | µg/L | 0.05 | **7** | | - | - | - | - | - | - | - | - | - | - | - |
| Phenanthrene | µg/L | 0.05 | **1** | | - | - | - | - | - | - | - | - | - | - | - |
| Pyrene | µg/L | 0.05 | **4.1** | | - | - | - | - | - | - | - | - | - | - | - |
| Metals | | | | | | | | | | | | | | | |
| Mercury (Filtered) | µg/L | 0.02 | **0.1** | | <0.02 | <0.02 | - | - | - | - | - | - | - | <0.02 | - |

**Env Stds Description**
Table 6 - All Types of Property Use:Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MOE 2011).

**Env Stds Comments**
#1:Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2:Standard is applicable to PHC in the F1 range minus BTEX.
#3:Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4:Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5:Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.

# Table 7 - Summary of Groundwater Quality - Volatile

| Parameter | Unit | RDL | Table 6 - All Types of Property Use | BH104 | BH201 | BH201 | BH201 | BH202 | BH203 | BH204 | BH204 | BH205 | BH206 | BH207 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Location** | | | | BH104 | BH201 | BH201 | BH201 | BH202 | BH203 | BH204 | BH204 | BH205 | BH206 | BH207 |
| **Date** | | | | 10/25/17 | 8/29/19 | 8/29/19 | 9/12/19 | 8/29/19 | 8/29/19 | 8/29/19 | 8/29/19 | 8/29/19 | 8/29/19 | 8/29/19 |
| **Field ID** | | | | MW104 | BH 201 | QA/QC #2 | BH 201 | BH 202 | BH 203 | BH 204 | QA/QC #1 | BH 205 | BH 206 | BH 207 |
| **Laboratory** | | | | Maxxam | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon |
| **Lab Report** | | | | B8M2783 | B19-27446 | B19-27446 | B19-29080 | B19-27446 | B19-27446 | B19-27446 | B19-27446 | B19-27446 | B19-27446 | B19-27446 |
| **Sample Type** | | | | Normal | Normal | Field_D | Normal | Normal | Normal | Normal | Field_D | Normal | Normal | Normal |
| BTEX | | | | | | | | | | | | | | |
| Benzene | µg/L | 0.5 | **0.5** | <0.1 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 0.5 | **24** | 0.63 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | **2.4** | 0.22 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Xylene Total | µg/L | 1.1 | **72**[#1] | 0.48 | <1.1 | <1.1 | - | <1.1 | <1.1 | <1.1 | - | <1.1 | <1.1 | <1.1 |
| PHCs | | | | | | | | | | | | | | |
| PHC F1 | µg/L | 50 | **420**[#2] | - | <50 | <50 | - | <50 | - | <50 | - | <50 | - | <50 |
| PHC F2 | µg/L | 50 | **150**[#3] | - | <50 | <50 | - | <50 | - | <50 | - | <50 | - | <50 |
| PHC F3 | µg/L | 400 | **500**[#4] | - | <400 | <400 | - | <400 | - | <400 | - | <400 | - | <400 |
| PHC F4 | µg/L | 400 | **500** | - | <400 | <400 | - | <400 | - | <400 | - | <400 | - | <400 |
| VOCs | | | | | | | | | | | | | | |
| Acetone | µg/L | 30 | **2700** | <10 | <30 | <30 | - | <30 | <30 | <30 | - | <30 | <30 | <30 |
| Bromodichloromethane | µg/L | 2 | **16** | <0.1 | <2 | <2 | - | <2 | <2 | <2 | - | <2 | <2 | <2 |
| Bromoform | µg/L | 5 | **5** | <0.2 | <5 | <5 | - | <5 | <5 | <5 | - | <5 | <5 | <5 |
| Bromomethane | µg/L | 0.5 | **0.89** | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Carbon tetrachloride | µg/L | 0.2 | **0.2** | <0.1 | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.2 | **30** | <0.1 | - | - | - | - | - | - | - | - | - | - |
| Chloroform | µg/L | 1 | **2** | 0.29 | <1 | <1 | - | <1 | <1 | <1 | - | <1 | <1 | <1 |
| Dibromochloromethane | µg/L | 2 | **25** | <0.2 | <2 | <2 | - | <2 | <2 | <2 | - | <2 | <2 | <2 |
| Dichlorobenzene, 1,2- | µg/L | 0.5 | **3** | <0.2 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene, 1,3- | µg/L | 0.5 | **59** | <0.2 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene, 1,4- | µg/L | 0.5 | **0.5** | <0.2 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Dichlorodifluoromethane | µg/L | 2 | **590** | <0.5 | <2 | <2 | - | <2 | <2 | <2 | - | <2 | <2 | <2 |
| Dichloroethane, 1,1- | µg/L | 0.5 | **5** | <0.1 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | 1.3 | <0.5 |
| Dichloroethane, 1,2- | µg/L | 0.5 | **0.5** | <0.2 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Dichloroethylene, 1,1- | µg/L | 0.5 | **0.5** | 0.2 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Dichloroethylene, 1,2-cis- | µg/L | 0.5 | **1.6** | **23** | <0.5 | <0.5 | - | <0.5 | <0.5 | **37.4** | - | **13.9** | **13** | <0.5 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | **1.6** | 0.47 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | **3.9** | <0.5 |
| Dichloropropane, 1,2- | µg/L | 0.5 | **0.58** | <0.1 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Dichloropropene, 1,3- | µg/L | | **0.5** | <0.28 | <1 | <1 | - | <1 | <1 | <1 | - | <1 | <1 | <1 |
| Ethylene dibromide | µg/L | 0.2 | **0.2** | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 | - | <0.2 | <0.2 | <0.2 |
| Hexane | µg/L | 5 | **5** | 0.59 | <5 | <5 | - | <5 | <5 | <5 | - | <5 | <5 | <5 |
| Methyl Ethyl Ketone | µg/L | 20 | **1800** | <5 | <20 | <20 | - | <20 | <20 | <20 | - | <20 | <20 | <20 |
| Methyl Isobutyl Ketone | µg/L | 20 | **640** | <5 | <20 | <20 | - | <20 | <20 | <20 | - | <20 | <20 | <20 |
| Methylene chloride | µg/L | | **26** | <0.5 | - | - | - | - | - | - | - | - | - | - |
| Methyl tert-Butyl Ether | µg/L | 2 | **15** | <0.2 | <2 | <2 | - | <2 | <2 | <2 | - | <2 | <2 | <2 |
| Styrene | µg/L | 0.5 | **5.4** | <0.2 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane, 1,1,2,2- | µg/L | 0.5 | **0.5** | <0.2 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane, 1,1,1,2- | µg/L | 0.5 | **1.1** | <0.2 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | **0.5** | <0.1 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Trichloroethane, 1,1,1- | µg/L | 0.5 | **23** | <0.1 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Trichloroethane, 1,1,2- | µg/L | 0.5 | **0.5** | <0.2 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 | - | <0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | **0.5** | **36** | <0.5 | <0.5 | - | <0.5 | <0.5 | **16.4** | - | **8.5** | 0.5 | <0.5 |
| Trichlorofluoromethane | µg/L | 5 | **150** | <0.2 | <5 | <5 | - | <5 | <5 | <5 | - | <5 | <5 | <5 |
| Vinyl chloride | µg/L | 0.2 | **0.5** | **0.64** | <0.2 | <0.2 | - | <0.2 | <0.2 | **1.7** | - | **0.7** | <0.2 | <0.2 |
| PAHs | | | | | | | | | | | | | | |
| Acenaphthylene | µg/L | 0.05 | **1** | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - | - | - |
| Anthracene | µg/L | 0.05 | **1** | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - | - | - |
| Benz(a)anthracene | µg/L | 0.05 | **1** | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - | - | - |
| Fluorene | µg/L | 0.05 | **120** | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - | - | - |
| Methylnaphthalene, 2-,1- | µg/L | 1 | **3.2**[#5] | - | - | - | <1 | - | - | <1 | <1 | - | - | - |
| Naphthalene | µg/L | 0.05 | **7** | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - | - | - |
| Phenanthrene | µg/L | 0.05 | **1** | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - | - | - |
| Pyrene | µg/L | 0.05 | **4.1** | - | - | - | <0.05 | - | - | <0.05 | <0.05 | - | - | - |
| Metals | | | | | | | | | | | | | | |
| Mercury (Filtered) | µg/L | 0.02 | **0.1** | - | <0.02 | <0.02 | - | - | - | <0.02 | - | <0.02 | - | - |

**Env Stds Description**
Table 6 - All Types of Property Use:Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MOE 2011).

**Env Stds Comments**
#1:Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2:Standard is applicable to PHC in the F1 range minus BTEX.
#3:Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4:Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5:Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.

## Table 7 - Summary of Groundwater Quality - Volatile

| | | | Location | BH208 | BH208 | BH208 | BH301 | BH401 | BH402 | BH402 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Date | 8/29/19 | 9/12/19 | 9/12/19 | 10/24/19 | 2/12/20 | 2/12/20 | 2/12/20 |
| | | | Field ID | BH 208 | BH 208 | QA/QC | BH 301 | BH401 | BH402 | QA/QC |
| | | | Laboratory | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon | Caduceon |
| | | | Lab Report | B19-27446 | B19-29080 | B19-29080 | B19-34508 | B20-04290 rev 1 | B20-04290 rev 1 | B20-04290 rev 1 |
| | | | Sample Type | Normal | Normal | Field_D | Normal | Normal | Normal | Field_D |
| Parameter | Unit | RDL | Table 6 - All Types of Property Use | | | | | | | |
| BTEX | | | | | | | | | | |
| Benzene | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Toluene | µg/L | 0.5 | **24** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Ethylbenzene | µg/L | 0.5 | **2.4** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Xylene Total | µg/L | 1.1 | **72**[#1] | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 | <1.1 |
| PHCs | | | | | | | | | | |
| PHC F1 | µg/L | 50 | **420**[#2] | <50 | - | - | - | - | - | - |
| PHC F2 | µg/L | 50 | **150**[#3] | <50 | - | - | - | - | - | - |
| PHC F3 | µg/L | 400 | **500**[#4] | <400 | - | - | - | - | - | - |
| PHC F4 | µg/L | 400 | **500** | <400 | - | - | - | - | - | - |
| VOCs | | | | | | | | | | |
| Acetone | µg/L | 30 | **2700** | <30 | <30 | <30 | <30 | <30 | <30 | <30 |
| Bromodichloromethane | µg/L | 2 | **16** | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Bromoform | µg/L | 5 | **5** | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Bromomethane | µg/L | 0.5 | **0.89** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Carbon tetrachloride | µg/L | 0.2 | **0.2** | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Chlorobenzene | µg/L | 0.2 | **30** | - | - | - | - | - | - | - |
| Chloroform | µg/L | 1 | **2** | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Dibromochloromethane | µg/L | 2 | **25** | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Dichlorobenzene, 1,2- | µg/L | 0.5 | **3** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene, 1,3- | µg/L | 0.5 | **59** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorobenzene, 1,4- | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichlorodifluoromethane | µg/L | 2 | **590** | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Dichloroethane, 1,1- | µg/L | 0.5 | **5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethane, 1,2- | µg/L | 0.5 | **0.5** | 0.8 | 0.8 | 0.7 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene, 1,1- | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloroethylene, 1,2-cis- | µg/L | 0.5 | **1.6** | 1.2 | 1.2 | 0.9 | 0.9 | 2 | 63.7 | 57.8 |
| Dichloroethylene,1,2-trans- | µg/L | 0.5 | **1.6** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 18.8 | 17.1 |
| Dichloropropane, 1,2- | µg/L | 0.5 | **0.58** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Dichloropropene, 1,3- | µg/L | | **0.5** | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Ethylene dibromide | µg/L | 0.2 | **0.2** | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| Hexane | µg/L | 5 | **5** | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Methyl Ethyl Ketone | µg/L | 20 | **1800** | <20 | <20 | <20 | <20 | <20 | <20 | <20 |
| Methyl Isobutyl Ketone | µg/L | 20 | **640** | <20 | <20 | <20 | <20 | <20 | <20 | <20 |
| Methylene chloride | µg/L | | **26** | - | - | - | - | - | - | - |
| Methyl tert-Butyl Ether | µg/L | 2 | **15** | <2 | <2 | <2 | <2 | <2 | <2 | <2 |
| Styrene | µg/L | 0.5 | **5.4** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethane, 1,1,2,2- | µg/L | 0.5 | **0.5** | <0.5 | - | - | - | - | - | - |
| Tetrachloroethane, 1,1,1,2- | µg/L | 0.5 | **1.1** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Tetrachloroethylene | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane, 1,1,1- | µg/L | 0.5 | **23** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethane, 1,1,2- | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| Trichloroethylene | µg/L | 0.5 | **0.5** | <0.5 | <0.5 | <0.5 | 1 | 29.7 | 5.4 | 5.3 |
| Trichlorofluoromethane | µg/L | 5 | **150** | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Vinyl chloride | µg/L | 0.2 | **0.5** | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | 2.6 | 2.3 |
| PAHs | | | | | | | | | | |
| Acenaphthylene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - |
| Anthracene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - |
| Benz(a)anthracene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - |
| Fluorene | µg/L | 0.05 | **120** | - | - | - | - | - | - | - |
| Methylnaphthalene, 2-,1- | µg/L | 1 | **3.2**[#5] | - | - | - | - | - | - | - |
| Naphthalene | µg/L | 0.05 | **7** | - | - | - | - | - | - | - |
| Phenanthrene | µg/L | 0.05 | **1** | - | - | - | - | - | - | - |
| Pyrene | µg/L | 0.05 | **4.1** | - | - | - | - | - | - | - |
| Metals | | | | | | | | | | |
| Mercury (Filtered) | µg/L | 0.02 | **0.1** | <0.02 | - | - | - | - | - | - |

**Env Stds Description**
Table 6 - All Types of Property Use:Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act (MOE 2011).

**Env Stds Comments**
#1:Standard is applicable to total xylenes; m & p-xylenes and o-xylenes should be summed for comparison.
#2:Standard is applicable to PHC in the F1 range minus BTEX.
#3:Standard is applicable to PHC F2 minus naphthalene. If naphthalene is not analyzed, the standard is applied to F2.
#4:Standard is applicable to PHC F3 minus PAHs (other than naphthalene). If PAHs have not been measured, the standard is applied to F3.
#5:Standard is applicable to Methylnaphthalene, 1- and Methylnaphthalene, 2-. If both are detected, the sum of the two must not exceed the standard.

**Table 8 - Summary of Soil Vapour Quality**

| Sample Location | Note | Units | RDL | IAC [1] | Modified IAC [2] | BH201 | BH202 | BH204 | | RPD (%) | BH205 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | BH204 | QA/QC | | |
| Sample Date (dd-mmm-yy) | | | | | | 21-Feb-20 | 21-Feb-20 | 21-Feb-20 | 21-Feb-20 | | 21-Feb-20 |
| Acetone | | µg/m3 | 1 | 2503 | 125150 | 7.6 | 8.9 | 6.4 | 2.7 | NC | 8 |
| Bromomethane | | µg/m3 | 3.1 | 1.04 | 52 | 5.1 | <3.1 | <3.1 | <3.1 | NC | <3.1 |
| Benzene | | µg/m3 | 0.21 | 0.506 | 25.3 | 0.39 | 0.48 | 0.73 | 0.44 | NC | 0.38 |
| Methyl Ethyl Ketone | | µg/m3 | 0.52 | 1003 | 50150 | 18 | 1.6 | <0.52 | <0.52 | NC | <0.52 |
| Carbon Tetrachloride | | µg/m3 | 0.1 | 0.417 | 20.85 | <0.1 | 0.22 | 0.14 | <0.1 | NC | <0.1 |
| Chlorobenzene | | µg/m3 | 0.1 | 209 | 10450 | <0.1 | <0.1 | <0.1 | <0.1 | NC | <0.1 |
| Chloroform | | µg/m3 | 0.1 | 20.9 | 1045 | <0.1 | 0.2 | <0.1 | <0.1 | NC | <0.1 |
| Ethylene dibromide | | µg/m3 | 0.052 | 0.00185 | 0.0925 | <0.052 | <0.052 | <0.052 | <0.052 | NC | <0.052 |
| Dichlorobenzene, 1,2- | | µg/m3 | 0.1 | 125 | 6250 | <0.1 | <0.1 | <0.1 | <0.1 | NC | <0.1 |
| Dichlorobenzene, 1,4- | | µg/m3 | 0.1 | 0.278 | 13.9 | <0.1 | <0.1 | <0.1 | <0.1 | NC | <0.1 |
| Dichloroethane, 1,1- | | µg/m3 | 0.1 | 34.4 | 1720 | <0.1 | <0.1 | <0.1 | <0.1 | NC | <0.1 |
| Dichloroethane, 1,2- | | µg/m3 | 0.063 | 0.0428 | 2.14 | <0.063 | <0.063 | <0.063 | <0.063 | NC | <0.063 |
| Dichloroethylene, 1,1- | | µg/m3 | 0.1 | 14.6 | 730 | 0.62 | <0.1 | <0.1 | <0.1 | NC | <0.1 |
| Dichloroethylene, 1,2-cis- | | µg/m3 | 0.1 | 31.3 | 1565 | <0.1 | <0.1 | 2.9 | 2.6 | 11 | 0.28 |
| Dichloroethylene, 1,2-trans- | | µg/m3 | 0.1 | 12.5 | 625 | <0.1 | <0.1 | <0.1 | <0.1 | NC | <0.1 |
| Methylene Chloride | | µg/m3 | 1 | 48.4 | 2420 | <1 | <1 | <1 | <1 | NC | <1 |
| Dichloropropane, 1,2- | | µg/m3 | 0.1 | 0.834 | 41.7 | <0.1 | <0.1 | <0.1 | <0.1 | NC | <0.1 |
| Dichloropropene,1,3- | | µg/m3 | 0.21 | 0.278 | 13.9 | <0.21 | <0.21 | <0.21 | <0.21 | NC | <0.21 |
| Ethylbenzene | | µg/m3 | 0.52 | 209 | 10450 | <0.52 | <0.52 | <0.52 | <0.52 | NC | <0.52 |
| Hexane (n) | | µg/m3 | 1 | 521 | 26050 | 2.8 | 2.6 | 2 | 2.5 | NC | 1.3 |
| Methyl tert-Butyl Ether (MTBE) | | µg/m3 | 0.21 | 4.28 | 214 | <0.21 | <0.21 | <0.21 | <0.21 | NC | <0.21 |
| Methyl Isobutyl Ketone | | µg/m3 | 0.21 | 602 | 30100 | <0.21 | <0.21 | <0.21 | <0.21 | NC | <0.21 |
| Styrene | | µg/m3 | 0.1 | 54.2 | 2710 | 0.43 | 0.54 | 0.25 | 0.23 | NC | 0.27 |
| Tetrachloroethane, 1,1,1,2- | | µg/m3 | 0.1 | 0.15 | 7.5 | <0.1 | <0.1 | <0.1 | <0.1 | NC | <0.1 |
| Tetrachloroethane, 1,1,2,2- | | µg/m3 | 0.073 | 0.0192 | 0.96 | <0.073 | <0.073 | <0.073 | <0.073 | NC | <0.073 |
| Tetrachloroethylene | | µg/m3 | 0.52 | 4.28 | 214 | 1.2 | 0.83 | <0.52 | <0.52 | NC | 0.69 |
| Toluene | | µg/m3 | 1 | 1043 | 52150 | 2.8 | 3.1 | 3.1 | 2.4 | NC | 1.8 |
| Trichloroethane, 1,1,1- | | µg/m3 | 0.1 | 209 | 10450 | 0.1 | <0.1 | <0.1 | <0.1 | NC | <0.1 |
| Trichloroethane, 1,1,2- | | µg/m3 | 0.1 | 0.0695 | 3.475 | <0.1 | <0.1 | <0.1 | <0.1 | NC | <0.1 |
| Trichloroethylene | | µg/m3 | 0.052 | 0.271 | 13.55 | <0.052 | 0.083 | 1.9 | 1.7 | 11 | 1.1 |
| Vinyl Chloride | | µg/m3 | 0.21 | 0.126 | 6.3 | <0.21 | <0.21 | <0.21 | <0.21 | NC | <0.21 |
| Xylene Mixture | | µg/m3 | 1.6 | 146 | 7300 | 1.8 | 2.4 | 2.3 | 2 | NC | <1.6 |
| Petroleum Hydrocarbons F1 | | µg/m3 | 100 | 2491 | 124550 | 230 | 200 | <100 | <100 | NC | 120 |
| Aliphatic C6-C8 | | µg/m3 | - | 9594 | 479700 | - | - | - | - | - | - |
| Aliphatic C>8-C10 | | µg/m3 | - | 521 | 26050 | - | - | - | - | - | - |
| Aromatic C>8-C10 | | µg/m3 | - | 104 | 5200 | - | - | - | - | - | - |
| Petroleum Hydrocarbons F2 | | µg/m3 | 330 | 471 | 23550 | <330 | <330 | <330 | <330 | NC | <330 |
| Aliphatic C>10-C12 | | µg/m3 | - | 521 | 26050 | - | - | - | - | - | - |
| Aliphatic C>12-C16 | | µg/m3 | - | 521 | 26050 | - | - | - | - | - | - |
| Aromatic C>10-C12 | | µg/m3 | - | 104 | 5200 | - | - | - | - | - | - |
| Aromatic C>12-C16 | | µg/m3 | - | 104 | 5200 | - | - | - | - | - | - |

Notes:
1. Health-Based Indoor Air Criteria for Residential Property Use, Lowest Risk Level of the Modified Generic Risk Assessment Model (Ministry, 2016).
2. Attenuation coefficient of 0.02 (50-fold dilution) used to approximate sub-slab vapour concentrations for comparison to human health IAC.

# Appendix A
# Plan of Survey

PLAN OF SURVEY SHOWING
TOPOGRAPHIC INFORMATION
# PART OF PARK LOTS 15, 16, 17 AND 18
(WEST OF BRADFORD STREET)
# REGISTERED PLAN 15
# CITY OF BARRIE
COUNTY OF SIMCOE

SCALE 1 : 200
5 0 5 10 metres

J.D. BARNES LIMITED

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**METRIC** DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

## BENCHMARK

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM BENCH MARK No 03120080023 HAVING A PUBLISHED ELEVATION OF 226.540 METRES.

## NOTES

BEARINGS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0).

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999704.

FOR BEARING COMPARISONS, A ROTATION OF 00°55'40" COUNTER-CLOCKWISE WAS APPLIED TO BEARINGS ON PLAN P1.

ALL SET SSIB AND PB MONUMENTS WERE USED DUE TO LACK OF OVERBURDEN AND/OR PROXIMITY OF UNDERGROUND UTILITIES IN ACCORDANCE WITH SECTION 11 (4) OF O.REG. 525/91.

## INTEGRATION DATA

OBSERVED REFERENCE POINTS (ORPs): UTM ZONE 17, NAD83 (CSRS) (2010.0).

COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.

| POINT ID | EASTING | NORTHING |
|---|---|---|
| ORP (A) | 604 158.98 | 4 914 446.99 |
| ORP (B) | 604 300.61 | 4 914 375.75 |

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

## LEGEND

| | | |
|---|---|---|
| ■ | DENOTES | SURVEY MONUMENT FOUND |
| □ | DENOTES | SURVEY MONUMENT SET |
| SIB | DENOTES | STANDARD IRON BAR |
| SSIB | DENOTES | SHORT STANDARD IRON BAR |
| IB | DENOTES | IRON BAR |
| CP | DENOTES | CONCRETE PIN |
| IP | DENOTES | IRON PIPE |
| WIT | DENOTES | WITNESS |
| MEAS | DENOTES | MEASURED |
| JDB | DENOTES | J.D. BARNES LIMITED |
| 738 | DENOTES | R.C. KIRKPATRICK, O.L.S. |
| 1255 | DENOTES | R.C. RAIKES, O.L.S. |
| 1403 | DENOTES | W.D. SMITH, O.L.S. |
| 1535 | DENOTES | P.J. MANSFIELD, O.L.S. |
| 1849 | DENOTES | C.A.MACDONALD SURVEYING INC, O.L.S. |
| P1 | DENOTES | PLAN 51R-7586 |
| P2 | DENOTES | PLAN 51R-34197 |
| P3 | DENOTES | PLAN 51R-13622 |
| CB | DENOTES | SINGLE CATCHBASIN |
| MH | DENOTES | MANHOLE |
| TMH | DENOTES | TELEPHONE MANHOLE |
| BOL | DENOTES | BOLLARD |
| HP | DENOTES | HYDRO POLE |
| H | DENOTES | FIRE HYDRANT |
| WELL | DENOTES | WELL |
| —E— | DENOTES | OVER HEAD HYDRO CABLE |
| | DENOTES | DECIDUOUS TREE |

## SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON NOVEMBER 4, 2019.

Nov. 5, 2019
DATE

NAVID NAJJARBASHI
ONTARIO LAND SURVEYOR

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2085555
THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29(3).

J.D.BARNES LIMITED
SURVEYING MAPPING GIS
LAND INFORMATION SPECIALISTS
142 COMMERCE PARK DRIVE, UNIT V, BARRIE, ON L4N 8W8
T: (705) 739-6770 F: (705) 739-6771 www.jdbarnes.com

| DRAWN BY: | CHECKED BY: | REFERENCE NO.: |
|---|---|---|
| MIKE WALDOCK | NN | 19-11-783-00 |

FILE: G:\19-11-783\00\DRAWINGS\19-11-783-00.dgn DATED: 11/04/2019

PLOTTED: 11/5/2019

# Appendix B

# Grain Size Distribution Results

# Grain Size Distribution Chart

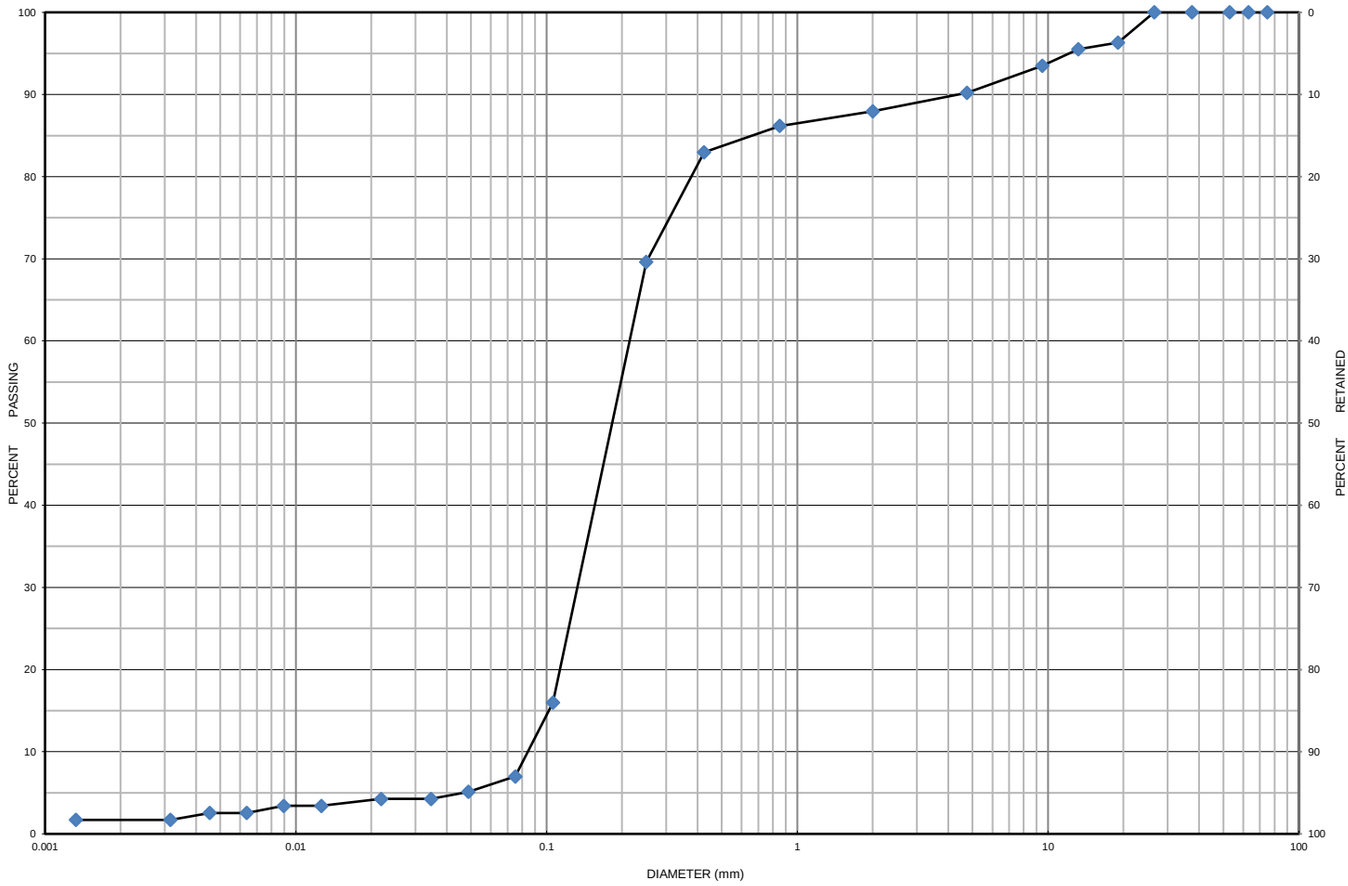
**Project Number:** *9326-002* **Client:** *ChayHotels Ltd.*

**Project Name:** *Geotech & Hydro-G - 220 Bradford Street, Barrie, ON*

**Sample Date:** *October 16-18 & 21, 2019* **Sampled By:** *Chris Malliaros - Cambium Inc.*

**Location:** *BH 301-19 SS 3* **Depth:** *1.5 m to 2 m* **Lab Sample No:** *S-19-0932*

| UNIFIED SOIL CLASSIFICATION SYSTEM | | | | | |
|---|---|---|---|---|---|
| CLAY & SILT (<0.075 mm) | SAND (<4.75 mm to 0.075 mm) | | | GRAVEL (>4.75 mm) | |
| | FINE | MEDIUM | COARSE | FINE | COARSE |




| MIT SOIL CLASSIFICATION SYSTEM | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| CLAY | SILT | FINE | MEDIUM | COARSE | FINE | MEDIUM | COARSE | BOULDERS |
| | | SAND | | | GRAVEL | | | |

| Borehole No. | Sample No. | Depth | Gravel | Sand | Silt | Clay | Moisture |
|---|---|---|---|---|---|---|---|
| BH 301-19 | SS 3 | 1.5 m to 2 m | 10 | 83 | 7 | | 16.4 |

| Description | Classification | $D_{60}$ | $D_{30}$ | $D_{10}$ | $C_u$ | $C_c$ |
|---|---|---|---|---|---|---|
| Sand some Gravel trace Silt trace Clay | SP | 0.2200 | 0.1400 | 0.0840 | 2.62 | 1.06 |

*Issued By:* _____ *Date Issued:* *November 11, 2019*

(Senior Project Manager)


**Cambium Inc. (Laboratory)**

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701 The Queensway | Units 5-6 | Peterborough | ON | K9J 7J6

# Grain Size Distribution Chart

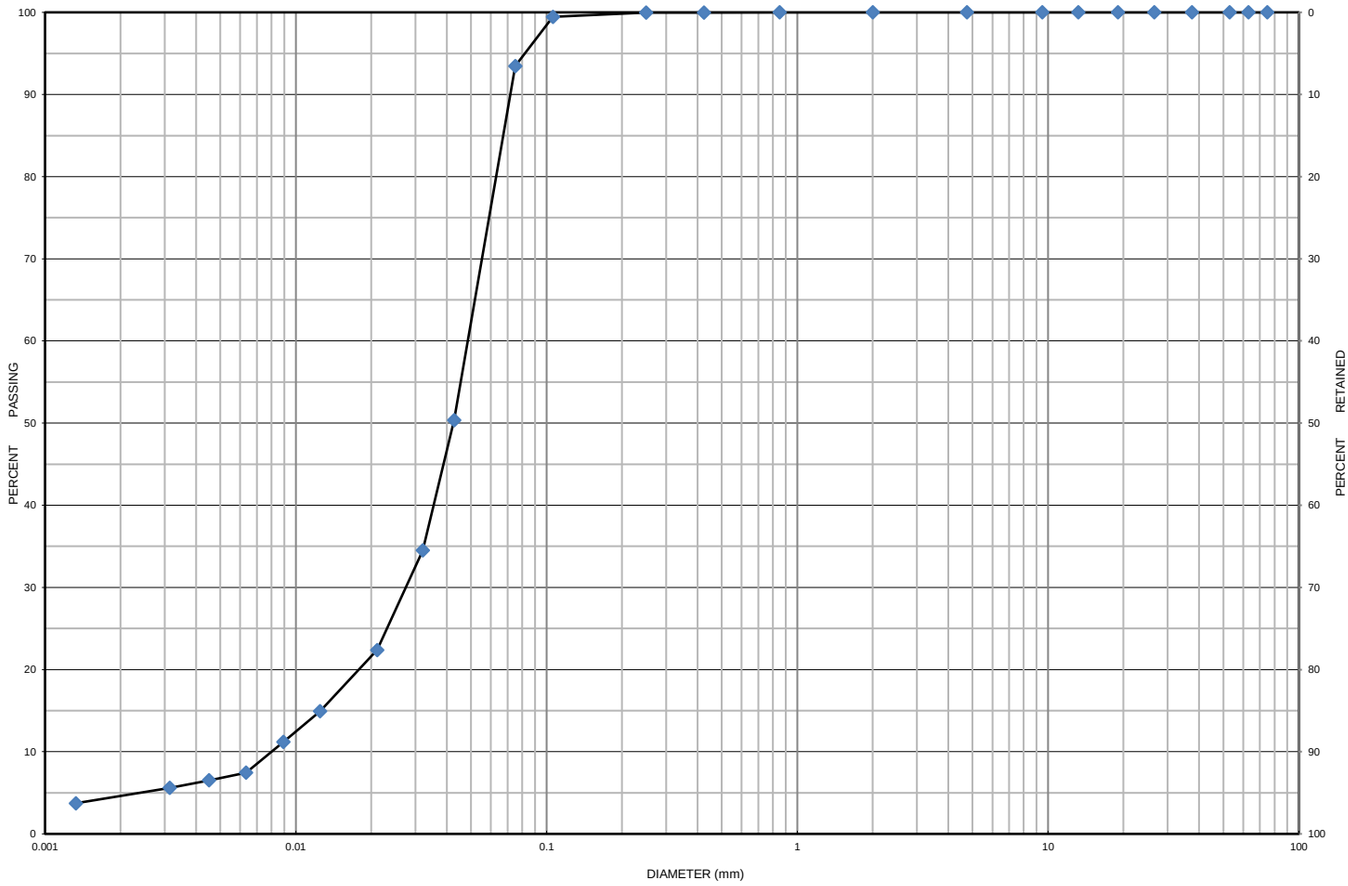
**Project Number:** *9326-002* **Client:** *ChayHotels Ltd.*

**Project Name:** *Geotech & Hydro-G - 220 Bradford Street, Barrie, ON*

**Sample Date:** *October 16-18 & 21, 2019* **Sampled By:** *Chris Malliaros - Cambium Inc.*

**Location:** *BH 302-19 SS 20* **Depth:** *25.9 m to 26.4 m* **Lab Sample No:** *S-19-0929*

| UNIFIED SOIL CLASSIFICATION SYSTEM | | | | | |
|---|---|---|---|---|---|
| CLAY & SILT (<0.075 mm) | SAND (<4.75 mm to 0.075 mm) | | | GRAVEL (>4.75 mm) | |
| | FINE | MEDIUM | COARSE | FINE | COARSE |




| MIT SOIL CLASSIFICATION SYSTEM | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| CLAY | SILT | FINE | MEDIUM | COARSE | FINE | MEDIUM | COARSE | BOULDERS |
| | | SAND | | | GRAVEL | | | |

| Borehole No. | Sample No. | Depth | Gravel | Sand | Silt | Clay | Moisture |
|---|---|---|---|---|---|---|---|
| BH 302-19 | SS 20 | 25.9 m to 26.4 m | 0 | 7 | 93 | | 21.3 |

| Description | Classification | $D_{60}$ | $D_{30}$ | $D_{10}$ | $C_u$ | $C_c$ |
|---|---|---|---|---|---|---|
| Silt trace Sand trace Clay | ML | 0.0490 | 0.0275 | 0.0025 | 19.60 | 6.17 |

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# Grain Size Distribution Chart

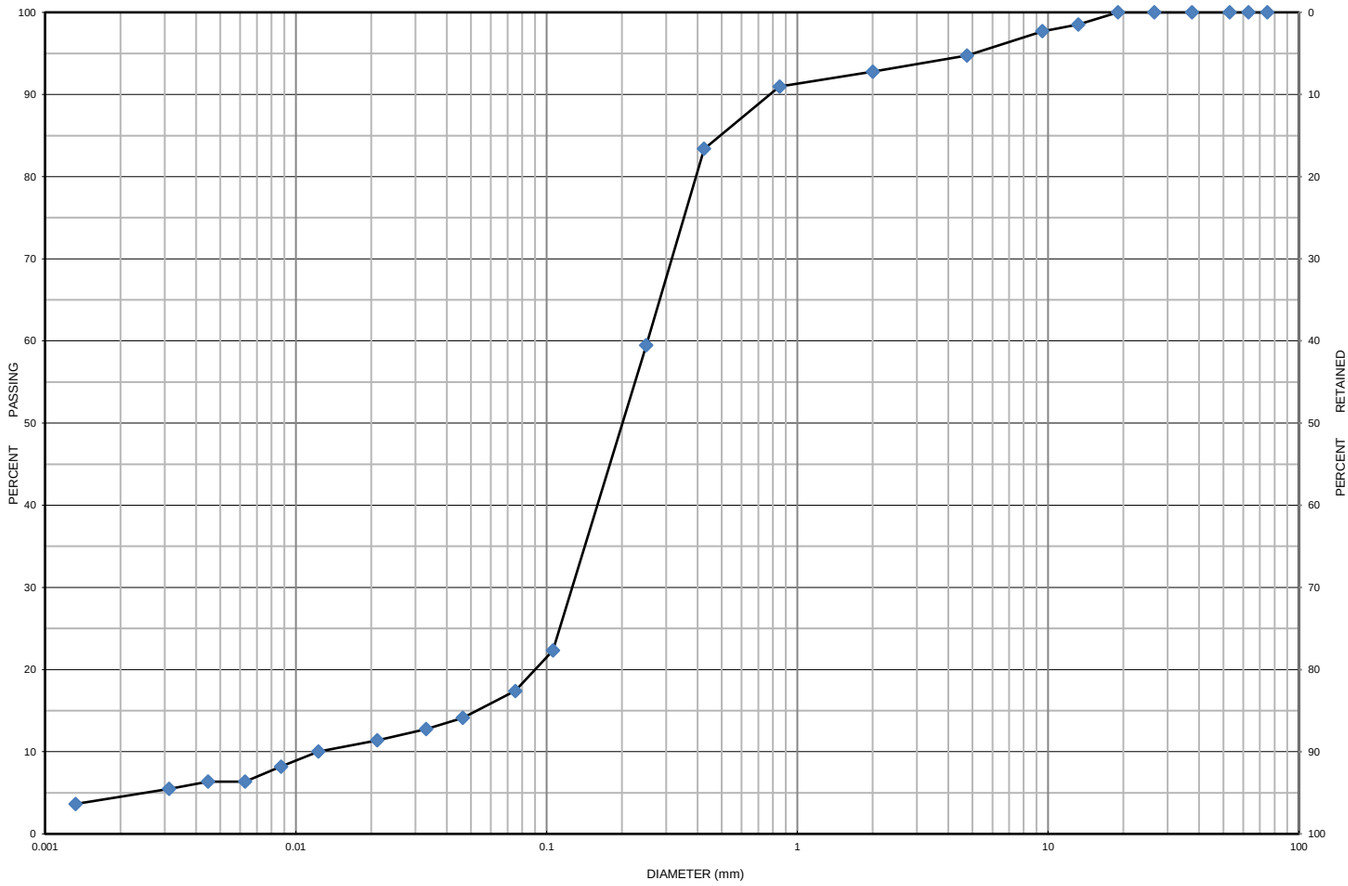
**Project Number:** *9326-002* **Client:** *ChayHotels Ltd.*

**Project Name:** *Geotech & Hydro-G - 220 Bradford Street, Barrie, ON*

**Sample Date:** *October 16-18 & 21, 2019* **Sampled By:** *Chris Malliaros - Cambium Inc.*

**Location:** *BH 303-19 SS 1* **Depth:** *0 m to 0.6 m* **Lab Sample No:** *S-19-0931*

| UNIFIED SOIL CLASSIFICATION SYSTEM | | | | | |
|---|---|---|---|---|---|
| CLAY & SILT (<0.075 mm) | SAND (<4.75 mm to 0.075 mm) | | | GRAVEL (>4.75 mm) | |
| | FINE | MEDIUM | COARSE | FINE | COARSE |




| MIT SOIL CLASSIFICATION SYSTEM | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| CLAY | SILT | FINE | MEDIUM | COARSE | FINE | MEDIUM | COARSE | BOULDERS |
| | | SAND | | | GRAVEL | | | |

| Borehole No. | Sample No. | Depth | Gravel | Sand | Silt | Clay | Moisture |
|---|---|---|---|---|---|---|---|
| BH 303-19 | SS 1 | 0 m to 0.6 m | 5 | 77 | 17 | | 13.2 |

| Description | Classification | $D_{60}$ | $D_{30}$ | $D_{10}$ | $C_u$ | $C_c$ |
|---|---|---|---|---|---|---|
| Sand some Silt trace Gravel trace Clay | SM | 0.2600 | 0.1400 | 0.0130 | 20.00 | 5.80 |

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(Senior Project Manager)

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# Grain Size Distribution Chart

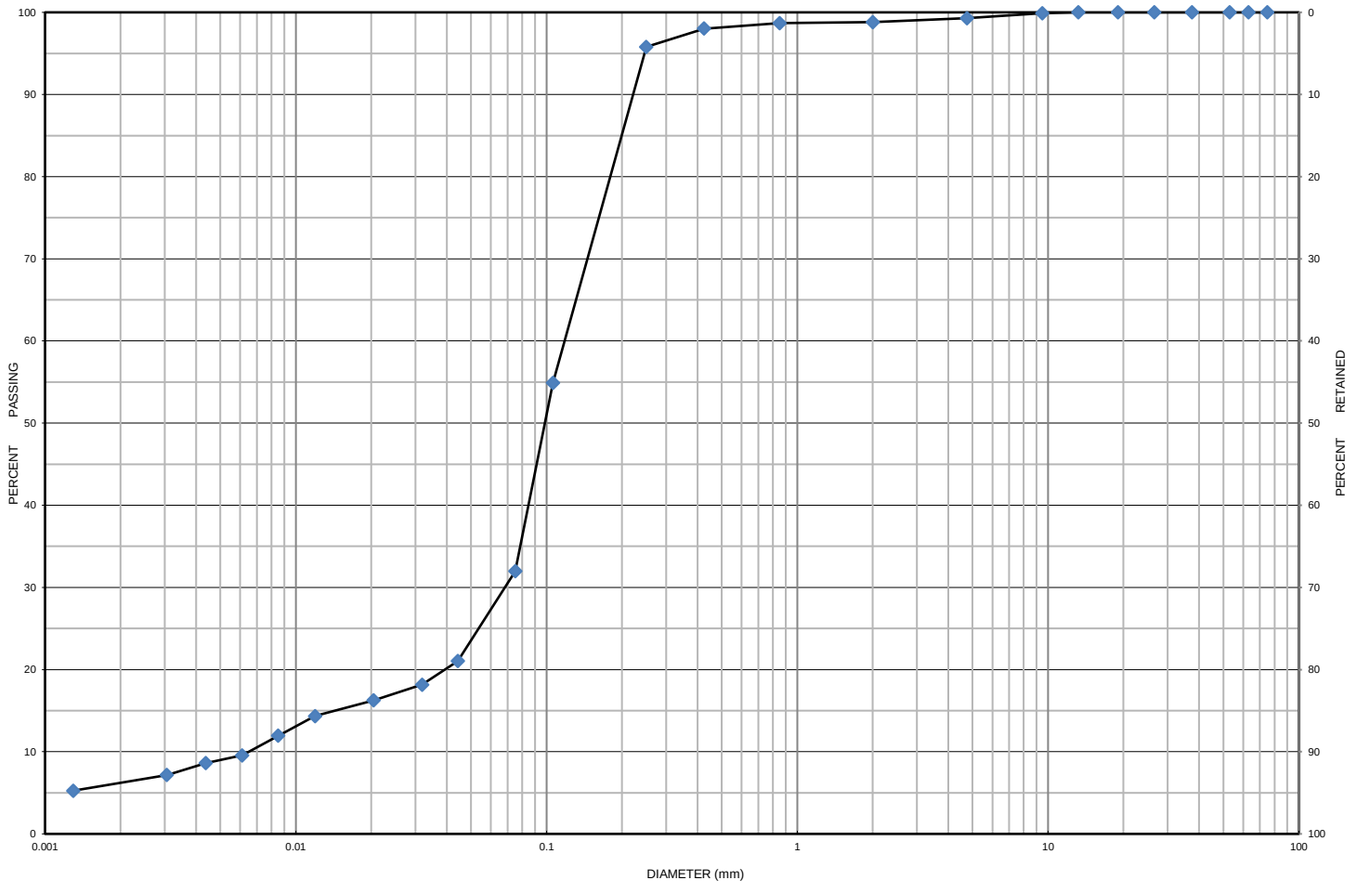
**Project Number:** *9326-002* **Client:** *ChayHotels Ltd.*

**Project Name:** *Geotech & Hydro-G - 220 Bradford Street, Barrie, ON*

**Sample Date:** *October 16-18 & 21, 2019* **Sampled By:** *Chris Malliaros - Cambium Inc.*

**Location:** *BH 304-19 SS 9* **Depth:** *9.5 m to 9.6 m* **Lab Sample No:** *S-19-0930*

| UNIFIED SOIL CLASSIFICATION SYSTEM | | | | | |
|---|---|---|---|---|---|
| CLAY & SILT (<0.075 mm) | SAND (<4.75 mm to 0.075 mm) | | | GRAVEL (>4.75 mm) | |
| | FINE | MEDIUM | COARSE | FINE | COARSE |




| MIT SOIL CLASSIFICATION SYSTEM | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| CLAY | SILT | FINE | MEDIUM | COARSE | FINE | MEDIUM | COARSE | BOULDERS |
| | | SAND | | | GRAVEL | | | |

| Borehole No. | Sample No. | Depth | Gravel | Sand | Silt | Clay | Moisture |
|---|---|---|---|---|---|---|---|
| BH 304-19 | SS 9 | 9.5 m to 9.6 m | 1 | 67 | 32 | | 19.1 |

| Description | Classification | $D_{60}$ | $D_{30}$ | $D_{10}$ | $C_u$ | $C_c$ |
|---|---|---|---|---|---|---|
| Silty Sand trace Gravel trace Clay | SM | 0.1250 | 0.0690 | 0.0065 | 19.23 | 5.86 |

*Issued By:* _____ *Date Issued:* *November 11, 2019*

(Senior Project Manager)


**Cambium Inc. (Laboratory)**

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Maxxam
A Bureau Veritas Group Company

Your Project #: 227626
Site Location: PHASE II ESA/ 220 BRADFORD
Your C.O.C. #: 679170-01-01

**Attention: Melissa Gallagher**

Pinchin Ltd
Unit 6
875 Main St W
Hamilton, ON
CANADA L8S 4R9

**Report Date: 2018/09/04**
Report #: R5385704
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B8M2749**
**Received: 2018/08/28, 15:20**

Sample Matrix: Soil
# Samples Received: 9

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Reference |
|---|---|---|---|---|---|
| 1,3-Dichloropropene Sum | 4 | N/A | 2018/09/01 | | EPA 8260C m |
| Petroleum Hydro. CCME F1 & BTEX in Soil (1) | 1 | N/A | 2018/08/31 | CAM SOP-00315 | CCME PHC-CWS m |
| Petroleum Hydrocarbons F2-F4 in Soil (2) | 1 | 2018/08/31 | 2018/09/01 | CAM SOP-00316 | CCME CWS m |
| Moisture | 5 | N/A | 2018/08/31 | CAM SOP-00445 | Carter 2nd ed 51.2 m |
| pH CaCl2 EXTRACT | 2 | 2018/08/31 | 2018/08/31 | CAM SOP-00413 | EPA 9045 D m |
| Sieve, 75um | 2 | N/A | 2018/09/04 | CAM SOP-00467 | Carter 2nd ed m |
| Volatile Organic Compounds in Soil | 4 | N/A | 2018/08/31 | CAM SOP-00228 | EPA 8260C m |

**Remarks:**

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

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

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

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

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

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



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

Your Project #: 227626
Site Location: PHASE II ESA/ 220 BRADFORD
Your C.O.C. #: 679170-01-01

**Attention: Melissa Gallagher**

Pinchin Ltd
Unit 6
875 Main St W
Hamilton, ON
CANADA L8S 4R9

**Report Date: 2018/09/04**
Report #: R5385704
Version: 1 - Final

# CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B8M2749**

**Received: 2018/08/28, 15:20**

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

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Antonella Brasil, Senior Project Manager
Email: ABrasil@maxxam.ca
Phone# (905)817-5817

==========

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

Maxxam Job #: B8M2749
Report Date: 2018/09/04

Pinchin Ltd
Client Project #: 227626
Site Location: PHASE II ESA/ 220 BRADFORD
Sampler Initials: KK

## RESULTS OF ANALYSES OF SOIL

| Maxxam ID | | HPE588 | | | HPE589 | | | HPE590 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Date | | 2018/08/23 | | | 2018/08/23 | | | 2018/08/23 | | |
| COC Number | | 679170-01-01 | | | 679170-01-01 | | | 679170-01-01 | | |
| | UNITS | BH101-6 | RDL | QC Batch | BH101-8 | RDL | QC Batch | BH102-6 | RDL | QC Batch |
| **Inorganics** | | | | | | | | | | |
| Moisture | % | | | | 19 | 1.0 | 5709342 | | | |
| **Miscellaneous Parameters** | | | | | | | | | | |
| Grain Size | % | COARSE | N/A | 5711224 | | | | COARSE | N/A | 5711224 |
| Sieve - #200 (<0.075mm) | % | 6 | 1 | 5711224 | | | | 14 | 1 | 5711224 |
| Sieve - #200 (>0.075mm) | % | 94 | 1 | 5711224 | | | | 86 | 1 | 5711224 |

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

| Maxxam ID | | HPE591 | HPE591 | | | HPE592 | HPE593 | |
|---|---|---|---|---|---|---|---|---|
| Sampling Date | | 2018/08/23 | 2018/08/23 | | | 2018/08/23 | 2018/08/23 | |
| COC Number | | 679170-01-01 | 679170-01-01 | | | 679170-01-01 | 679170-01-01 | |
| | UNITS | BH102-8 | BH102-8 Lab-Dup | RDL | QC Batch | BH103-2 | BH103-6 | QC Batch |
| **Inorganics** | | | | | | | | |
| Moisture | % | 17 | 16 | 1.0 | 5709342 | | | |
| Available (CaCl2) pH | pH | | | | | 7.88 | 7.94 | 5709024 |

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

| Maxxam ID | | HPE594 | HPE595 | HPE596 | | |
|---|---|---|---|---|---|---|
| Sampling Date | | 2018/08/23 | 2018/08/23 | 2018/08/23 | | |
| COC Number | | 679170-01-01 | 679170-01-01 | 679170-01-01 | | |
| | UNITS | BH103-7 | BH104-7 | BH104-8 | RDL | QC Batch |
| **Inorganics** | | | | | | |
| Moisture | % | 18 | 17 | 17 | 1.0 | 5709342 |

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch



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Maxxam Job #: B8M2749
Report Date: 2018/09/04

Pinchin Ltd
Client Project #: 227626
Site Location: PHASE II ESA/ 220 BRADFORD
Sampler Initials: KK

## VOLATILE ORGANICS BY GC/MS (SOIL)

| Maxxam ID | | HPE589 | HPE591 | HPE594 | | HPE596 | | |
|---|---|---|---|---|---|---|---|---|
| Sampling Date | | 2018/08/23 | 2018/08/23 | 2018/08/23 | | 2018/08/23 | | |
| COC Number | | 679170-01-01 | 679170-01-01 | 679170-01-01 | | 679170-01-01 | | |
| | UNITS | BH101-8 | BH102-8 | BH103-7 | QC Batch | BH104-8 | RDL | QC Batch |
| **Calculated Parameters** | | | | | | | | |
| 1,3-Dichloropropene (cis+trans) | ug/g | <0.050 | <0.050 | <0.050 | 5704625 | <0.050 | 0.050 | 5706545 |
| **Volatile Organics** | | | | | | | | |
| Acetone (2-Propanone) | ug/g | <0.50 | <0.50 | <0.50 | 5709041 | <0.50 | 0.50 | 5709041 |
| Benzene | ug/g | <0.020 | <0.020 | <0.020 | 5709041 | <0.020 | 0.020 | 5709041 |
| Bromodichloromethane | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Bromoform | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Bromomethane | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Carbon Tetrachloride | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Chlorobenzene | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Chloroform | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Dibromochloromethane | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| 1,2-Dichlorobenzene | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| 1,3-Dichlorobenzene | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| 1,4-Dichlorobenzene | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Dichlorodifluoromethane (FREON 12) | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| 1,1-Dichloroethane | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| 1,2-Dichloroethane | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| 1,1-Dichloroethylene | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| cis-1,2-Dichloroethylene | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| trans-1,2-Dichloroethylene | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| 1,2-Dichloropropane | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| cis-1,3-Dichloropropene | ug/g | <0.030 | <0.030 | <0.030 | 5709041 | <0.030 | 0.030 | 5709041 |
| trans-1,3-Dichloropropene | ug/g | <0.040 | <0.040 | <0.040 | 5709041 | <0.040 | 0.040 | 5709041 |
| Ethylbenzene | ug/g | <0.020 | <0.020 | <0.020 | 5709041 | <0.020 | 0.020 | 5709041 |
| Ethylene Dibromide | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Hexane | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Methylene Chloride(Dichloromethane) | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Methyl Ethyl Ketone (2-Butanone) | ug/g | <0.50 | <0.50 | <0.50 | 5709041 | <0.50 | 0.50 | 5709041 |
| Methyl Isobutyl Ketone | ug/g | <0.50 | <0.50 | <0.50 | 5709041 | <0.50 | 0.50 | 5709041 |
| Methyl t-butyl ether (MTBE) | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Styrene | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| 1,1,1,2-Tetrachloroethane | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| 1,1,2,2-Tetrachloroethane | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Tetrachloroethylene | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch



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Maxxam Job #: B8M2749
Report Date: 2018/09/04

Pinchin Ltd
Client Project #: 227626
Site Location: PHASE II ESA/ 220 BRADFORD
Sampler Initials: KK

## VOLATILE ORGANICS BY GC/MS (SOIL)

| Maxxam ID | | HPE589 | HPE591 | HPE594 | | HPE596 | | |
|---|---|---|---|---|---|---|---|---|
| Sampling Date | | 2018/08/23 | 2018/08/23 | 2018/08/23 | | 2018/08/23 | | |
| COC Number | | 679170-01-01 | 679170-01-01 | 679170-01-01 | | 679170-01-01 | | |
| | UNITS | BH101-8 | BH102-8 | BH103-7 | QC Batch | BH104-8 | RDL | QC Batch |
| Toluene | ug/g | <0.020 | <0.020 | <0.020 | 5709041 | <0.020 | 0.020 | 5709041 |
| 1,1,1-Trichloroethane | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| 1,1,2-Trichloroethane | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Trichloroethylene | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Trichlorofluoromethane (FREON 11) | ug/g | <0.050 | <0.050 | <0.050 | 5709041 | <0.050 | 0.050 | 5709041 |
| Vinyl Chloride | ug/g | <0.020 | <0.020 | <0.020 | 5709041 | <0.020 | 0.020 | 5709041 |
| p+m-Xylene | ug/g | <0.020 | <0.020 | <0.020 | 5709041 | <0.020 | 0.020 | 5709041 |
| o-Xylene | ug/g | <0.020 | <0.020 | <0.020 | 5709041 | <0.020 | 0.020 | 5709041 |
| Total Xylenes | ug/g | <0.020 | <0.020 | <0.020 | 5709041 | <0.020 | 0.020 | 5709041 |
| **Surrogate Recovery (%)** | | | | | | | | |
| 4-Bromofluorobenzene | % | 105 | 100 | 103 | 5709041 | 103 | | 5709041 |
| D10-o-Xylene | % | 106 | 106 | 100 | 5709041 | 106 | | 5709041 |
| D4-1,2-Dichloroethane | % | 98 | 95 | 97 | 5709041 | 96 | | 5709041 |
| D8-Toluene | % | 110 | 108 | 107 | 5709041 | 110 | | 5709041 |

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch



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Maxxam Job #: B8M2749
Report Date: 2018/09/04

Pinchin Ltd
Client Project #: 227626
Site Location: PHASE II ESA/ 220 BRADFORD
Sampler Initials: KK

## PETROLEUM HYDROCARBONS (CCME)

| Maxxam ID | | HPE595 | | |
|---|---|---|---|---|
| Sampling Date | | 2018/08/23 | | |
| COC Number | | 679170-01-01 | | |
| | UNITS | BH104-7 | RDL | QC Batch |
| **BTEX & F1 Hydrocarbons** | | | | |
| Benzene | ug/g | <0.020 | 0.020 | 5709037 |
| Toluene | ug/g | <0.020 | 0.020 | 5709037 |
| Ethylbenzene | ug/g | <0.020 | 0.020 | 5709037 |
| o-Xylene | ug/g | <0.020 | 0.020 | 5709037 |
| p+m-Xylene | ug/g | <0.040 | 0.040 | 5709037 |
| Total Xylenes | ug/g | <0.040 | 0.040 | 5709037 |
| F1 (C6-C10) | ug/g | <10 | 10 | 5709037 |
| F1 (C6-C10) - BTEX | ug/g | <10 | 10 | 5709037 |
| **F2-F4 Hydrocarbons** | | | | |
| F2 (C10-C16 Hydrocarbons) | ug/g | <10 | 10 | 5709094 |
| F3 (C16-C34 Hydrocarbons) | ug/g | <50 | 50 | 5709094 |
| F4 (C34-C50 Hydrocarbons) | ug/g | <50 | 50 | 5709094 |
| Reached Baseline at C50 | ug/g | Yes | | 5709094 |
| **Surrogate Recovery (%)** | | | | |
| 1,4-Difluorobenzene | % | 98 | | 5709037 |
| 4-Bromofluorobenzene | % | 96 | | 5709037 |
| D10-Ethylbenzene | % | 98 | | 5709037 |
| D4-1,2-Dichloroethane | % | 93 | | 5709037 |
| o-Terphenyl | % | 92 | | 5709094 |

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch



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Maxxam Job #: B8M2749
Report Date: 2018/09/04

Pinchin Ltd
Client Project #: 227626
Site Location: PHASE II ESA/ 220 BRADFORD
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## GENERAL COMMENTS

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

| | |
|---|---|
| Package 1 | 0.7°C |

**Results relate only to the items tested.**



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Maxxam Job #: B8M2749
Report Date: 2018/09/04

Pinchin Ltd
Client Project #: 227626
Site Location: PHASE II ESA/ 220 BRADFORD
Sampler Initials: KK

## QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| 5709024 | NYS | Spiked Blank | Available (CaCl2) pH | 2018/08/31 | | 97 | % | 97 - 103 |
| 5709024 | NYS | RPD | Available (CaCl2) pH | 2018/08/31 | 0.84 | | % | N/A |
| 5709037 | ABD | Matrix Spike | 1,4-Difluorobenzene | 2018/08/31 | | 100 | % | 60 - 140 |
| | | | 4-Bromofluorobenzene | 2018/08/31 | | 96 | % | 60 - 140 |
| | | | D10-Ethylbenzene | 2018/08/31 | | 97 | % | 60 - 140 |
| | | | D4-1,2-Dichloroethane | 2018/08/31 | | 95 | % | 60 - 140 |
| | | | Benzene | 2018/08/31 | | 94 | % | 60 - 140 |
| | | | Toluene | 2018/08/31 | | 88 | % | 60 - 140 |
| | | | Ethylbenzene | 2018/08/31 | | 89 | % | 60 - 140 |
| | | | o-Xylene | 2018/08/31 | | 85 | % | 60 - 140 |
| | | | p+m-Xylene | 2018/08/31 | | 81 | % | 60 - 140 |
| | | | F1 (C6-C10) | 2018/08/31 | | 80 | % | 60 - 140 |
| 5709037 | ABD | Spiked Blank | 1,4-Difluorobenzene | 2018/08/31 | | 101 | % | 60 - 140 |
| | | | 4-Bromofluorobenzene | 2018/08/31 | | 96 | % | 60 - 140 |
| | | | D10-Ethylbenzene | 2018/08/31 | | 93 | % | 60 - 140 |
| | | | D4-1,2-Dichloroethane | 2018/08/31 | | 95 | % | 60 - 140 |
| | | | Benzene | 2018/08/31 | | 100 | % | 60 - 140 |
| | | | Toluene | 2018/08/31 | | 94 | % | 60 - 140 |
| | | | Ethylbenzene | 2018/08/31 | | 95 | % | 60 - 140 |
| | | | o-Xylene | 2018/08/31 | | 91 | % | 60 - 140 |
| | | | p+m-Xylene | 2018/08/31 | | 86 | % | 60 - 140 |
| | | | F1 (C6-C10) | 2018/08/31 | | 92 | % | 80 - 120 |
| 5709037 | ABD | Method Blank | 1,4-Difluorobenzene | 2018/08/31 | | 99 | % | 60 - 140 |
| | | | 4-Bromofluorobenzene | 2018/08/31 | | 96 | % | 60 - 140 |
| | | | D10-Ethylbenzene | 2018/08/31 | | 92 | % | 60 - 140 |
| | | | D4-1,2-Dichloroethane | 2018/08/31 | | 93 | % | 60 - 140 |
| | | | Benzene | 2018/08/31 | <0.020 | | ug/g | |
| | | | Toluene | 2018/08/31 | <0.020 | | ug/g | |
| | | | Ethylbenzene | 2018/08/31 | <0.020 | | ug/g | |
| | | | o-Xylene | 2018/08/31 | <0.020 | | ug/g | |
| | | | p+m-Xylene | 2018/08/31 | <0.040 | | ug/g | |
| | | | Total Xylenes | 2018/08/31 | <0.040 | | ug/g | |
| | | | F1 (C6-C10) | 2018/08/31 | <10 | | ug/g | |
| | | | F1 (C6-C10) - BTEX | 2018/08/31 | <10 | | ug/g | |
| 5709037 | ABD | RPD | Benzene | 2018/08/31 | NC | | % | 50 |
| | | | Toluene | 2018/08/31 | NC | | % | 50 |
| | | | Ethylbenzene | 2018/08/31 | NC | | % | 50 |
| | | | o-Xylene | 2018/08/31 | NC | | % | 50 |
| | | | p+m-Xylene | 2018/08/31 | NC | | % | 50 |
| | | | Total Xylenes | 2018/08/31 | NC | | % | 50 |
| | | | F1 (C6-C10) | 2018/08/31 | NC | | % | 30 |
| | | | F1 (C6-C10) - BTEX | 2018/08/31 | NC | | % | 30 |
| 5709041 | AYA | Matrix Spike | 4-Bromofluorobenzene | 2018/09/01 | | 99 | % | 60 - 140 |
| | | | D10-o-Xylene | 2018/09/01 | | 98 | % | 60 - 130 |
| | | | D4-1,2-Dichloroethane | 2018/09/01 | | 98 | % | 60 - 140 |
| | | | D8-Toluene | 2018/09/01 | | 104 | % | 60 - 140 |
| | | | Acetone (2-Propanone) | 2018/09/01 | | 92 | % | 60 - 140 |
| | | | Benzene | 2018/09/01 | | 99 | % | 60 - 140 |
| | | | Bromodichloromethane | 2018/09/01 | | 102 | % | 60 - 140 |
| | | | Bromoform | 2018/09/01 | | 102 | % | 60 - 140 |
| | | | Bromomethane | 2018/09/01 | | 110 | % | 60 - 140 |
| | | | Carbon Tetrachloride | 2018/09/01 | | 107 | % | 60 - 140 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Chlorobenzene | 2018/09/01 | | 98 | % | 60 - 140 |
| | | | Chloroform | 2018/09/01 | | 104 | % | 60 - 140 |
| | | | Dibromochloromethane | 2018/09/01 | | 102 | % | 60 - 140 |
| | | | 1,2-Dichlorobenzene | 2018/09/01 | | 100 | % | 60 - 140 |
| | | | 1,3-Dichlorobenzene | 2018/09/01 | | 103 | % | 60 - 140 |
| | | | 1,4-Dichlorobenzene | 2018/09/01 | | 103 | % | 60 - 140 |
| | | | Dichlorodifluoromethane (FREON 12) | 2018/09/01 | | 107 | % | 60 - 140 |
| | | | 1,1-Dichloroethane | 2018/09/01 | | 106 | % | 60 - 140 |
| | | | 1,2-Dichloroethane | 2018/09/01 | | 98 | % | 60 - 140 |
| | | | 1,1-Dichloroethylene | 2018/09/01 | | 101 | % | 60 - 140 |
| | | | cis-1,2-Dichloroethylene | 2018/09/01 | | 101 | % | 60 - 140 |
| | | | trans-1,2-Dichloroethylene | 2018/09/01 | | 104 | % | 60 - 140 |
| | | | 1,2-Dichloropropane | 2018/09/01 | | 101 | % | 60 - 140 |
| | | | cis-1,3-Dichloropropene | 2018/09/01 | | 104 | % | 60 - 140 |
| | | | trans-1,3-Dichloropropene | 2018/09/01 | | 111 | % | 60 - 140 |
| | | | Ethylbenzene | 2018/09/01 | | 95 | % | 60 - 140 |
| | | | Ethylene Dibromide | 2018/09/01 | | 99 | % | 60 - 140 |
| | | | Hexane | 2018/09/01 | | 107 | % | 60 - 140 |
| | | | Methylene Chloride(Dichloromethane) | 2018/09/01 | | 97 | % | 60 - 140 |
| | | | Methyl Ethyl Ketone (2-Butanone) | 2018/09/01 | | 94 | % | 60 - 140 |
| | | | Methyl Isobutyl Ketone | 2018/09/01 | | 94 | % | 60 - 140 |
| | | | Methyl t-butyl ether (MTBE) | 2018/09/01 | | 93 | % | 60 - 140 |
| | | | Styrene | 2018/09/01 | | 99 | % | 60 - 140 |
| | | | 1,1,1,2-Tetrachloroethane | 2018/09/01 | | 107 | % | 60 - 140 |
| | | | 1,1,2,2-Tetrachloroethane | 2018/09/01 | | 101 | % | 60 - 140 |
| | | | Tetrachloroethylene | 2018/09/01 | | 105 | % | 60 - 140 |
| | | | Toluene | 2018/09/01 | | 99 | % | 60 - 140 |
| | | | 1,1,1-Trichloroethane | 2018/09/01 | | 106 | % | 60 - 140 |
| | | | 1,1,2-Trichloroethane | 2018/09/01 | | 102 | % | 60 - 140 |
| | | | Trichloroethylene | 2018/09/01 | | 102 | % | 60 - 140 |
| | | | Trichlorofluoromethane (FREON 11) | 2018/09/01 | | 107 | % | 60 - 140 |
| | | | Vinyl Chloride | 2018/09/01 | | 106 | % | 60 - 140 |
| | | | p+m-Xylene | 2018/09/01 | | 97 | % | 60 - 140 |
| | | | o-Xylene | 2018/09/01 | | 96 | % | 60 - 140 |
| 5709041 | AYA | Spiked Blank | 4-Bromofluorobenzene | 2018/08/31 | | 100 | % | 60 - 140 |
| | | | D10-o-Xylene | 2018/08/31 | | 96 | % | 60 - 130 |
| | | | D4-1,2-Dichloroethane | 2018/08/31 | | 103 | % | 60 - 140 |
| | | | D8-Toluene | 2018/08/31 | | 99 | % | 60 - 140 |
| | | | Acetone (2-Propanone) | 2018/08/31 | | 105 | % | 60 - 140 |
| | | | Benzene | 2018/08/31 | | 96 | % | 60 - 130 |
| | | | Bromodichloromethane | 2018/08/31 | | 107 | % | 60 - 130 |
| | | | Bromoform | 2018/08/31 | | 114 | % | 60 - 130 |
| | | | Bromomethane | 2018/08/31 | | 104 | % | 60 - 140 |
| | | | Carbon Tetrachloride | 2018/08/31 | | 106 | % | 60 - 130 |
| | | | Chlorobenzene | 2018/08/31 | | 98 | % | 60 - 130 |
| | | | Chloroform | 2018/08/31 | | 100 | % | 60 - 130 |
| | | | Dibromochloromethane | 2018/08/31 | | 114 | % | 60 - 130 |
| | | | 1,2-Dichlorobenzene | 2018/08/31 | | 103 | % | 60 - 130 |
| | | | 1,3-Dichlorobenzene | 2018/08/31 | | 104 | % | 60 - 130 |
| | | | 1,4-Dichlorobenzene | 2018/08/31 | | 105 | % | 60 - 130 |
| | | | Dichlorodifluoromethane (FREON 12) | 2018/08/31 | | 105 | % | 60 - 140 |
| | | | 1,1-Dichloroethane | 2018/08/31 | | 98 | % | 60 - 130 |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,2-Dichloroethane | 2018/08/31 | | 101 | % | 60 - 130 |
| | | | 1,1-Dichloroethylene | 2018/08/31 | | 98 | % | 60 - 130 |
| | | | cis-1,2-Dichloroethylene | 2018/08/31 | | 99 | % | 60 - 130 |
| | | | trans-1,2-Dichloroethylene | 2018/08/31 | | 98 | % | 60 - 130 |
| | | | 1,2-Dichloropropane | 2018/08/31 | | 99 | % | 60 - 130 |
| | | | cis-1,3-Dichloropropene | 2018/08/31 | | 107 | % | 60 - 130 |
| | | | trans-1,3-Dichloropropene | 2018/08/31 | | 113 | % | 60 - 130 |
| | | | Ethylbenzene | 2018/08/31 | | 99 | % | 60 - 130 |
| | | | Ethylene Dibromide | 2018/08/31 | | 108 | % | 60 - 130 |
| | | | Hexane | 2018/08/31 | | 94 | % | 60 - 130 |
| | | | Methylene Chloride(Dichloromethane) | 2018/08/31 | | 107 | % | 60 - 130 |
| | | | Methyl Ethyl Ketone (2-Butanone) | 2018/08/31 | | 107 | % | 60 - 140 |
| | | | Methyl Isobutyl Ketone | 2018/08/31 | | 109 | % | 60 - 130 |
| | | | Methyl t-butyl ether (MTBE) | 2018/08/31 | | 100 | % | 60 - 130 |
| | | | Styrene | 2018/08/31 | | 101 | % | 60 - 130 |
| | | | 1,1,1,2-Tetrachloroethane | 2018/08/31 | | 111 | % | 60 - 130 |
| | | | 1,1,2,2-Tetrachloroethane | 2018/08/31 | | 107 | % | 60 - 130 |
| | | | Tetrachloroethylene | 2018/08/31 | | 98 | % | 60 - 130 |
| | | | Toluene | 2018/08/31 | | 88 | % | 60 - 130 |
| | | | 1,1,1-Trichloroethane | 2018/08/31 | | 101 | % | 60 - 130 |
| | | | 1,1,2-Trichloroethane | 2018/08/31 | | 103 | % | 60 - 130 |
| | | | Trichloroethylene | 2018/08/31 | | 98 | % | 60 - 130 |
| | | | Trichlorofluoromethane (FREON 11) | 2018/08/31 | | 103 | % | 60 - 130 |
| | | | Vinyl Chloride | 2018/08/31 | | 100 | % | 60 - 130 |
| | | | p+m-Xylene | 2018/08/31 | | 97 | % | 60 - 130 |
| | | | o-Xylene | 2018/08/31 | | 98 | % | 60 - 130 |
| 5709041 | AYA | Method Blank | 4-Bromofluorobenzene | 2018/08/31 | | 101 | % | 60 - 140 |
| | | | D10-o-Xylene | 2018/08/31 | | 86 | % | 60 - 130 |
| | | | D4-1,2-Dichloroethane | 2018/08/31 | | 101 | % | 60 - 140 |
| | | | D8-Toluene | 2018/08/31 | | 101 | % | 60 - 140 |
| | | | Acetone (2-Propanone) | 2018/08/31 | <0.50 | | ug/g | |
| | | | Benzene | 2018/08/31 | <0.020 | | ug/g | |
| | | | Bromodichloromethane | 2018/08/31 | <0.050 | | ug/g | |
| | | | Bromoform | 2018/08/31 | <0.050 | | ug/g | |
| | | | Bromomethane | 2018/08/31 | <0.050 | | ug/g | |
| | | | Carbon Tetrachloride | 2018/08/31 | <0.050 | | ug/g | |
| | | | Chlorobenzene | 2018/08/31 | <0.050 | | ug/g | |
| | | | Chloroform | 2018/08/31 | <0.050 | | ug/g | |
| | | | Dibromochloromethane | 2018/08/31 | <0.050 | | ug/g | |
| | | | 1,2-Dichlorobenzene | 2018/08/31 | <0.050 | | ug/g | |
| | | | 1,3-Dichlorobenzene | 2018/08/31 | <0.050 | | ug/g | |
| | | | 1,4-Dichlorobenzene | 2018/08/31 | <0.050 | | ug/g | |
| | | | Dichlorodifluoromethane (FREON 12) | 2018/08/31 | <0.050 | | ug/g | |
| | | | 1,1-Dichloroethane | 2018/08/31 | <0.050 | | ug/g | |
| | | | 1,2-Dichloroethane | 2018/08/31 | <0.050 | | ug/g | |
| | | | 1,1-Dichloroethylene | 2018/08/31 | <0.050 | | ug/g | |
| | | | cis-1,2-Dichloroethylene | 2018/08/31 | <0.050 | | ug/g | |
| | | | trans-1,2-Dichloroethylene | 2018/08/31 | <0.050 | | ug/g | |
| | | | 1,2-Dichloropropane | 2018/08/31 | <0.050 | | ug/g | |
| | | | cis-1,3-Dichloropropene | 2018/08/31 | <0.030 | | ug/g | |
| | | | trans-1,3-Dichloropropene | 2018/08/31 | <0.040 | | ug/g | |
| | | | Ethylbenzene | 2018/08/31 | <0.020 | | ug/g | |



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## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | Ethylene Dibromide | 2018/08/31 | <0.050 | | ug/g | |
| | | | Hexane | 2018/08/31 | <0.050 | | ug/g | |
| | | | Methylene Chloride(Dichloromethane) | 2018/08/31 | <0.050 | | ug/g | |
| | | | Methyl Ethyl Ketone (2-Butanone) | 2018/08/31 | <0.50 | | ug/g | |
| | | | Methyl Isobutyl Ketone | 2018/08/31 | <0.50 | | ug/g | |
| | | | Methyl t-butyl ether (MTBE) | 2018/08/31 | <0.050 | | ug/g | |
| | | | Styrene | 2018/08/31 | <0.050 | | ug/g | |
| | | | 1,1,1,2-Tetrachloroethane | 2018/08/31 | <0.050 | | ug/g | |
| | | | 1,1,2,2-Tetrachloroethane | 2018/08/31 | <0.050 | | ug/g | |
| | | | Tetrachloroethylene | 2018/08/31 | <0.050 | | ug/g | |
| | | | Toluene | 2018/08/31 | <0.020 | | ug/g | |
| | | | 1,1,1-Trichloroethane | 2018/08/31 | <0.050 | | ug/g | |
| | | | 1,1,2-Trichloroethane | 2018/08/31 | <0.050 | | ug/g | |
| | | | Trichloroethylene | 2018/08/31 | <0.050 | | ug/g | |
| | | | Trichlorofluoromethane (FREON 11) | 2018/08/31 | <0.050 | | ug/g | |
| | | | Vinyl Chloride | 2018/08/31 | <0.020 | | ug/g | |
| | | | p+m-Xylene | 2018/08/31 | <0.020 | | ug/g | |
| | | | o-Xylene | 2018/08/31 | <0.020 | | ug/g | |
| | | | Total Xylenes | 2018/08/31 | <0.020 | | ug/g | |
| 5709041 | AYA | RPD | Acetone (2-Propanone) | 2018/08/31 | NC | | % | 50 |
| | | | Benzene | 2018/08/31 | NC | | % | 50 |
| | | | Bromodichloromethane | 2018/08/31 | NC | | % | 50 |
| | | | Bromoform | 2018/08/31 | NC | | % | 50 |
| | | | Bromomethane | 2018/08/31 | NC | | % | 50 |
| | | | Carbon Tetrachloride | 2018/08/31 | NC | | % | 50 |
| | | | Chlorobenzene | 2018/08/31 | NC | | % | 50 |
| | | | Chloroform | 2018/08/31 | NC | | % | 50 |
| | | | Dibromochloromethane | 2018/08/31 | NC | | % | 50 |
| | | | 1,2-Dichlorobenzene | 2018/08/31 | NC | | % | 50 |
| | | | 1,3-Dichlorobenzene | 2018/08/31 | NC | | % | 50 |
| | | | 1,4-Dichlorobenzene | 2018/08/31 | NC | | % | 50 |
| | | | Dichlorodifluoromethane (FREON 12) | 2018/08/31 | NC | | % | 50 |
| | | | 1,1-Dichloroethane | 2018/08/31 | NC | | % | 50 |
| | | | 1,2-Dichloroethane | 2018/08/31 | NC | | % | 50 |
| | | | 1,1-Dichloroethylene | 2018/08/31 | NC | | % | 50 |
| | | | cis-1,2-Dichloroethylene | 2018/08/31 | NC | | % | 50 |
| | | | trans-1,2-Dichloroethylene | 2018/08/31 | NC | | % | 50 |
| | | | 1,2-Dichloropropane | 2018/08/31 | NC | | % | 50 |
| | | | cis-1,3-Dichloropropene | 2018/08/31 | NC | | % | 50 |
| | | | trans-1,3-Dichloropropene | 2018/08/31 | NC | | % | 50 |
| | | | Ethylbenzene | 2018/08/31 | NC | | % | 50 |
| | | | Ethylene Dibromide | 2018/08/31 | NC | | % | 50 |
| | | | Hexane | 2018/08/31 | NC | | % | 50 |
| | | | Methylene Chloride(Dichloromethane) | 2018/08/31 | NC | | % | 50 |
| | | | Methyl Ethyl Ketone (2-Butanone) | 2018/08/31 | NC | | % | 50 |
| | | | Methyl Isobutyl Ketone | 2018/08/31 | NC | | % | 50 |
| | | | Methyl t-butyl ether (MTBE) | 2018/08/31 | NC | | % | 50 |
| | | | Styrene | 2018/08/31 | NC | | % | 50 |
| | | | 1,1,1,2-Tetrachloroethane | 2018/08/31 | NC | | % | 50 |
| | | | 1,1,2,2-Tetrachloroethane | 2018/08/31 | NC | | % | 50 |
| | | | Tetrachloroethylene | 2018/08/31 | NC | | % | 50 |
| | | | Toluene | 2018/08/31 | NC | | % | 50 |



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

Maxxam Job #: B8M2749
Report Date: 2018/09/04

Pinchin Ltd
Client Project #: 227626
Site Location: PHASE II ESA/ 220 BRADFORD
Sampler Initials: KK

## QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|---|---|---|---|---|---|---|---|---|
| | | | 1,1,1-Trichloroethane | 2018/08/31 | NC | | % | 50 |
| | | | 1,1,2-Trichloroethane | 2018/08/31 | NC | | % | 50 |
| | | | Trichloroethylene | 2018/08/31 | NC | | % | 50 |
| | | | Trichlorofluoromethane (FREON 11) | 2018/08/31 | NC | | % | 50 |
| | | | Vinyl Chloride | 2018/08/31 | NC | | % | 50 |
| | | | p+m-Xylene | 2018/08/31 | NC | | % | 50 |
| | | | o-Xylene | 2018/08/31 | NC | | % | 50 |
| | | | Total Xylenes | 2018/08/31 | NC | | % | 50 |
| 5709094 | AS2 | Matrix Spike | o-Terphenyl | 2018/09/01 | | 96 | % | 60 - 130 |
| | | | F2 (C10-C16 Hydrocarbons) | 2018/09/01 | | 99 | % | 50 - 130 |
| | | | F3 (C16-C34 Hydrocarbons) | 2018/09/01 | | 94 | % | 50 - 130 |
| | | | F4 (C34-C50 Hydrocarbons) | 2018/09/01 | | 90 | % | 50 - 130 |
| 5709094 | AS2 | Spiked Blank | o-Terphenyl | 2018/09/01 | | 95 | % | 60 - 130 |
| | | | F2 (C10-C16 Hydrocarbons) | 2018/09/01 | | 97 | % | 80 - 120 |
| | | | F3 (C16-C34 Hydrocarbons) | 2018/09/01 | | 93 | % | 80 - 120 |
| | | | F4 (C34-C50 Hydrocarbons) | 2018/09/01 | | 89 | % | 80 - 120 |
| 5709094 | AS2 | Method Blank | o-Terphenyl | 2018/09/01 | | 92 | % | 60 - 130 |
| | | | F2 (C10-C16 Hydrocarbons) | 2018/09/01 | <10 | | ug/g | |
| | | | F3 (C16-C34 Hydrocarbons) | 2018/09/01 | <50 | | ug/g | |
| | | | F4 (C34-C50 Hydrocarbons) | 2018/09/01 | <50 | | ug/g | |
| 5709094 | AS2 | RPD | F2 (C10-C16 Hydrocarbons) | 2018/09/01 | NC | | % | 30 |
| | | | F3 (C16-C34 Hydrocarbons) | 2018/09/01 | NC | | % | 30 |
| | | | F4 (C34-C50 Hydrocarbons) | 2018/09/01 | NC | | % | 30 |
| 5709342 | GKR | RPD [HPE591-01] | Moisture | 2018/08/31 | 3.6 | | % | 20 |
| 5711224 | NB3 | QC Standard | Sieve - #200 (<0.075mm) | 2018/09/04 | | 57 | % | 53 - 58 |
| | | | Sieve - #200 (>0.075mm) | 2018/09/04 | | 43 | % | 42 - 47 |
| 5711224 | NB3 | RPD | Sieve - #200 (<0.075mm) | 2018/09/04 | 0.20 | | % | 20 |
| | | | Sieve - #200 (>0.075mm) | 2018/09/04 | 6.6 | | % | 20 |

N/A = Not Applicable

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

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

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

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

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

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

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



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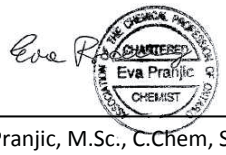
Maxxam Job #: B8M2749
Report Date: 2018/09/04

Pinchin Ltd
Client Project #: 227626
Site Location: PHASE II ESA/ 220 BRADFORD
Sampler Initials: KK

## VALIDATION SIGNATURE PAGE

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




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

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



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28-Aug-18 15:20
Antonella Brasil
B8M2749
URE ENV-938

Page 1 of 1

Only:
Bottle Order #: 679170
Project Manager: Antonella Brasil
COC #: C#679170-01-01

| INVOICE TO: | | REPORT TO: | | PROJECT INFORMATION: | |
|---|---|---|---|---|---|
| Company Name: | #47523 Pinchin Ltd | Company Name: | | Quotation #: | A70927 |
| Attention: | Accounts Payable | Attention: | Melissa Gallagher | P.O. #: | |
| Address: | Unit 6 875 Main St W<br>Hamilton ON L8S 4R9 | Address: | | Project: | 227626 |
| Tel: | (905) 577-6206 Fax: (905) 577-6207 | Tel: | (905) 577-6206 Ext: 1721 Fax: | Project Name: | Phase II ESA |
| Email: | ap@pinchin.com | Email: | mgallagher@pinchin.com | Site #: | 220 Bradford |
| | | | | Sampled By: | KK |

**MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY**

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

**Regulation 153 (2011)**
- [ ] Table 1 [ ] Res/Park [ ] Medium/Fine
- [ ] Table 2 [X] Ind/Comm [X] Coarse
- [X] Table 3 [ ] Agri/Other [ ] For RSC no
- [ ] Table ___

**Other Regulations**
- [ ] CCME [ ] Sanitary Sewer Bylaw
- [ ] Reg 558 [ ] Storm Sewer Bylaw
- [ ] MISA Municipality ___
- [ ] PWQO
- [ ] Other ___

**Special Instructions**

Include Criteria on Certificate of Analysis (Y/N)? ___

**Regular (Standard) TAT:** 5-day [X]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

**Job Specific Rush TAT (if applies to entire submission)**
Date Required: ___ Time Required: ___ [ ]
Rush Confirmation Number: ___ (call lab for #)

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

| | Sample Barcode Label | Sample (Location) Identification | Date Sampled | Time Sampled | Matrix | Field Filtered (please circle): Metals / Hg / Cr VI | VOCs | PHCs (F1-F4) | BTEX | pH | grain size +/- 75µm | # of Bottles | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | BH101-6 | Aug 23 2018 | — | Soil | | | | | | X | 1 | |
| 2 | | BH101-8 | | | | | X | | | | | 3 | |
| 3 | | BH102-6 | | | | | | | | | X | 1 | |
| 4 | | BH102-8 | | | | | X | | | | | 3 | |
| 5 | | BH103-2 | | | | | | | | X | | 1 | |
| 6 | | BH103-6 | | | | | | | | X | | 1 | |
| 7 | | BH103-7 | | | | | X | | | | | 3 | |
| 8 | | BH104-7 | | | | | | X | X | | | 3 | |
| 9 | | BH104-8 | | | | | X | | | | | 3 | |
| 10 | | | | | | | | | | | | | |

| * RELINQUISHED BY: (Signature/Print) | Date: (YY/MM/DD) | Time | RECEIVED BY: (Signature/Print) | Date: (YY/MM/DD) | Time | # jars used and not submitted |
|---|---|---|---|---|---|---|
| Melissa Gallagher M 25 | 18/08/28 | 1520 | HALIT ELEW | 2018/08/28 | 15:20 | |

Laboratory Use Only
Time Sensitive
Temperature (°C) on Recei: 0/1/1
Custody Seal: Present [ ] Yes [ ] No; Intact [ ] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

**SAMPLES MUST BE KEPT COOL ( < 10° C ) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM**

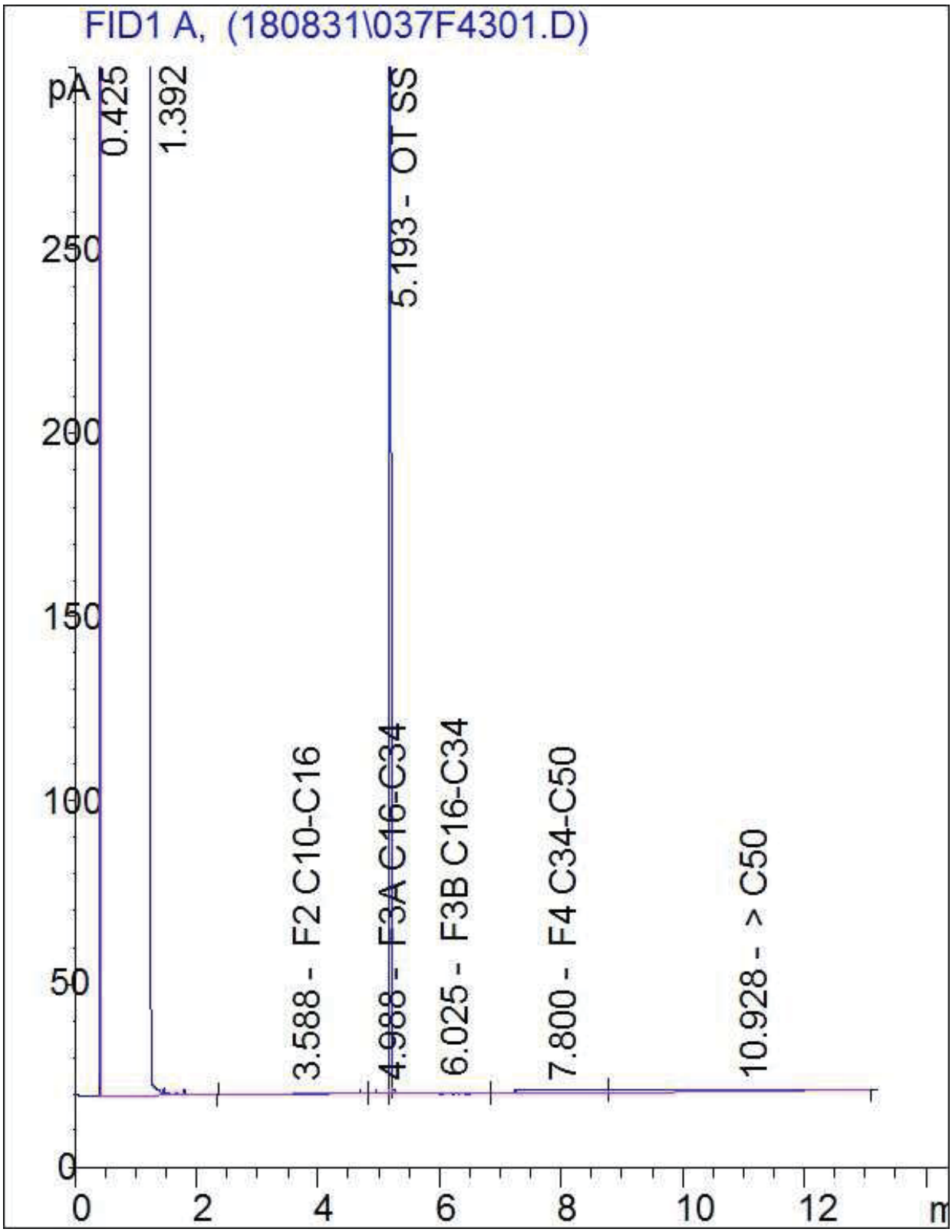
White: Maxxa Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam Job #: B8M2749
Report Date: 2018/09/04
Maxxam Sample: HPE595

Pinchin Ltd
Client Project #: 227626
Project name: PHASE II ESA/ 220 BRADFORD
Client ID: BH104-7

**Petroleum Hydrocarbons F2-F4 in Soil Chromatogram**

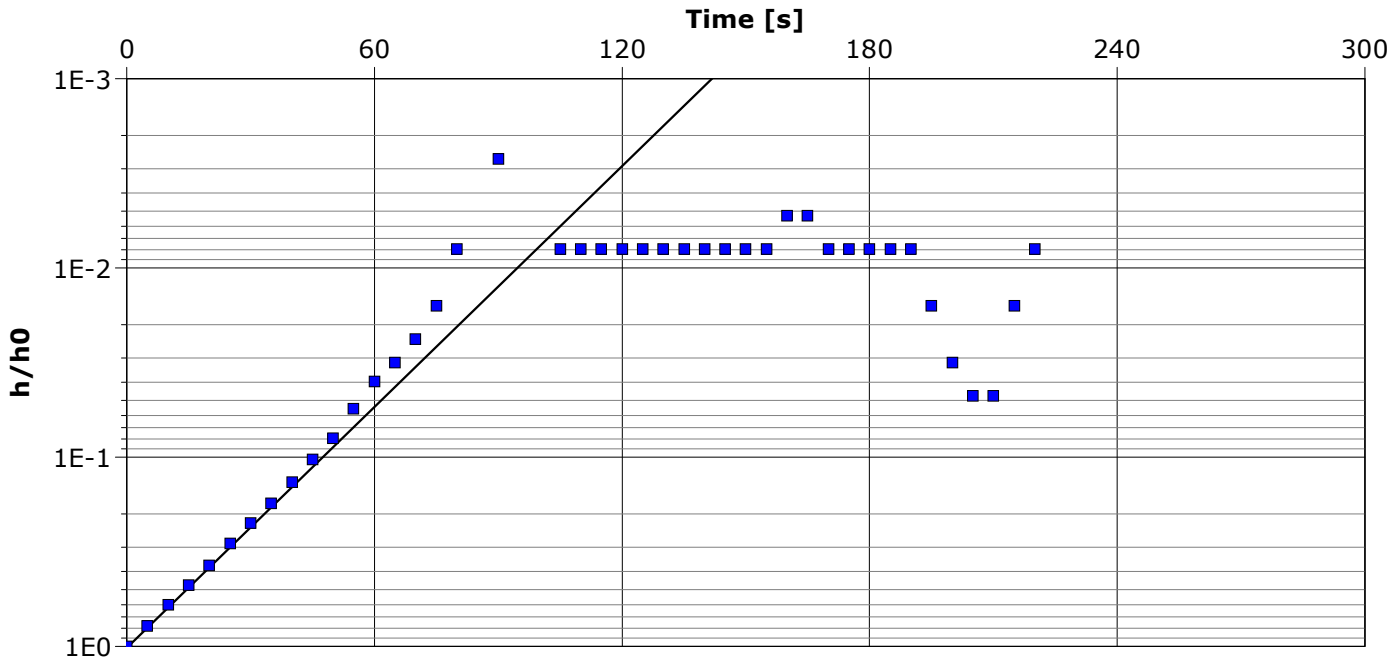



**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

# Appendix C
# Slug Test Analysis Reports

| | | |
|---|---|---|
| **Cambium Inc.**<br>**52 Hunter St. East**<br>**Peterborough, Ontatio, Canada**<br>**K9H 1G5** | **Slug Test Analysis Report** | |
| | Project: Hydrogeological Assessment | |
| | Number: 9326-002 | |
| | Client: Chayell Hotels | |

| | | |
|---|---|---|
| Location: 220 Bradford Street, Barrie, ON | Slug Test: Slug Test 1 (Slug out) | Test Well: BH202 |
| Test Conducted by: Chirs M. | | Test Date: 10/02/19 |
| Analysis Performed by: M.Francis | Slug 1 out | Analysis Date: 10/16/19 |
| Aquifer Thickness: 1.65 m | | |

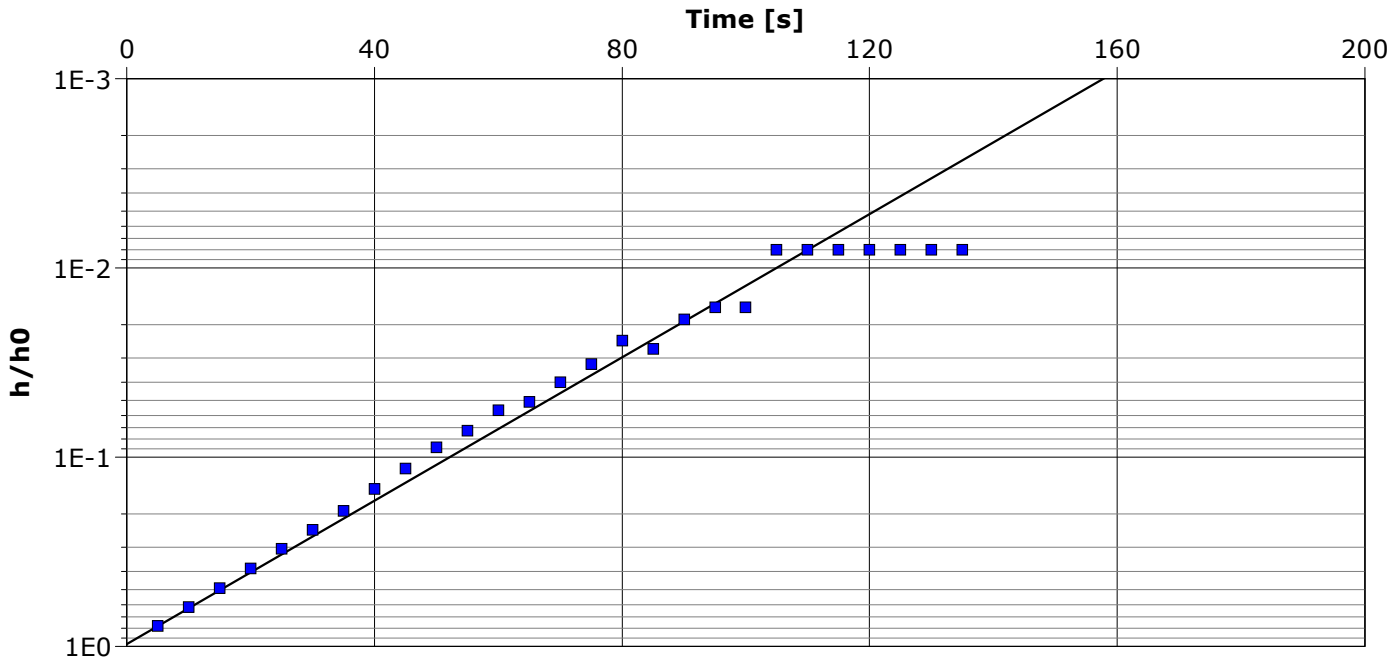



Calculation using Hvorslev

| Observation Well | Hydraulic Conductivity [m/s] | |
|---|---|---|
| BH202 | $8.65 \times 10^{-5}$ | |

| | | |
|---|---|---|
| **Cambium Inc.**<br>**52 Hunter St. East**<br>**Peterborough, Ontatio, Canada**<br>**K9H 1G5** | **Slug Test Analysis Report** | |
| | Project: Hydrogeological Assessment | |
| | Number: 9326-002 | |
| | Client: Chayell Hotels | |

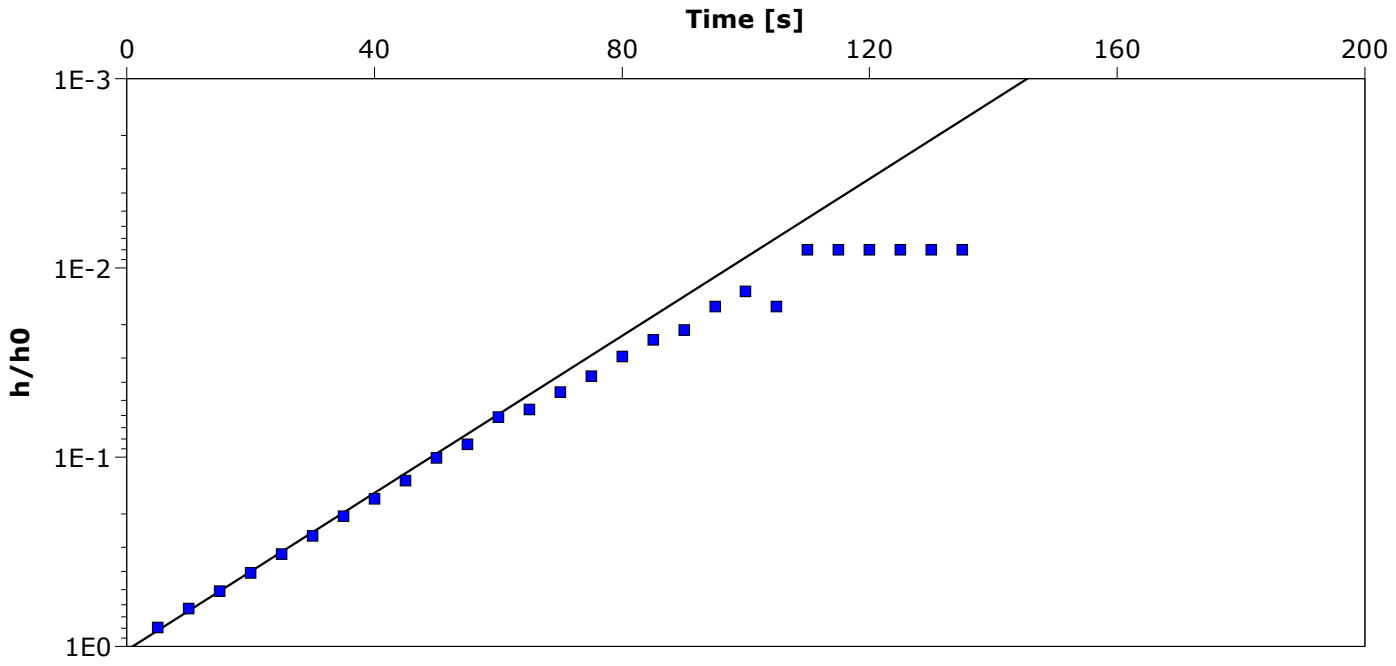
| | | |
|---|---|---|
| Location: 220 Bradford Street, Barrie, ON | Slug Test: Slug Test 2 (Slug Out) | Test Well: BH202 |
| Test Conducted by: Chirs M. | | Test Date: 10/02/19 |
| Analysis Performed by: M.Francis | Slug 2 Out | Analysis Date: 10/16/19 |
| Aquifer Thickness: 1.65 m | | |




Calculation using Hvorslev

| Observation Well | Hydraulic Conductivity [m/s] | |
|---|---|---|
| BH202 | $7.72 \times 10^{-5}$ | |

| | | |
|---|---|---|
| **Cambium Inc.**<br>**52 Hunter St. East**<br>**Peterborough, Ontatio, Canada**<br>**K9H 1G5** | **Slug Test Analysis Report** | |
| | Project: Hydrogeological Assessment | |
| | Number: 9326-002 | |
| | Client: Chayell Hotels | |
| Location: 220 Bradford Street, Barrie, ON | Slug Test: Slug Test 3 (Slug Out) | Test Well: BH202 |
| Test Conducted by: Chris M. | | Test Date: 10/02/19 |
| Analysis Performed by: M.Francis | Slug 3 Out | Analysis Date: 10/16/19 |
| Aquifer Thickness: 1.65 m | | |

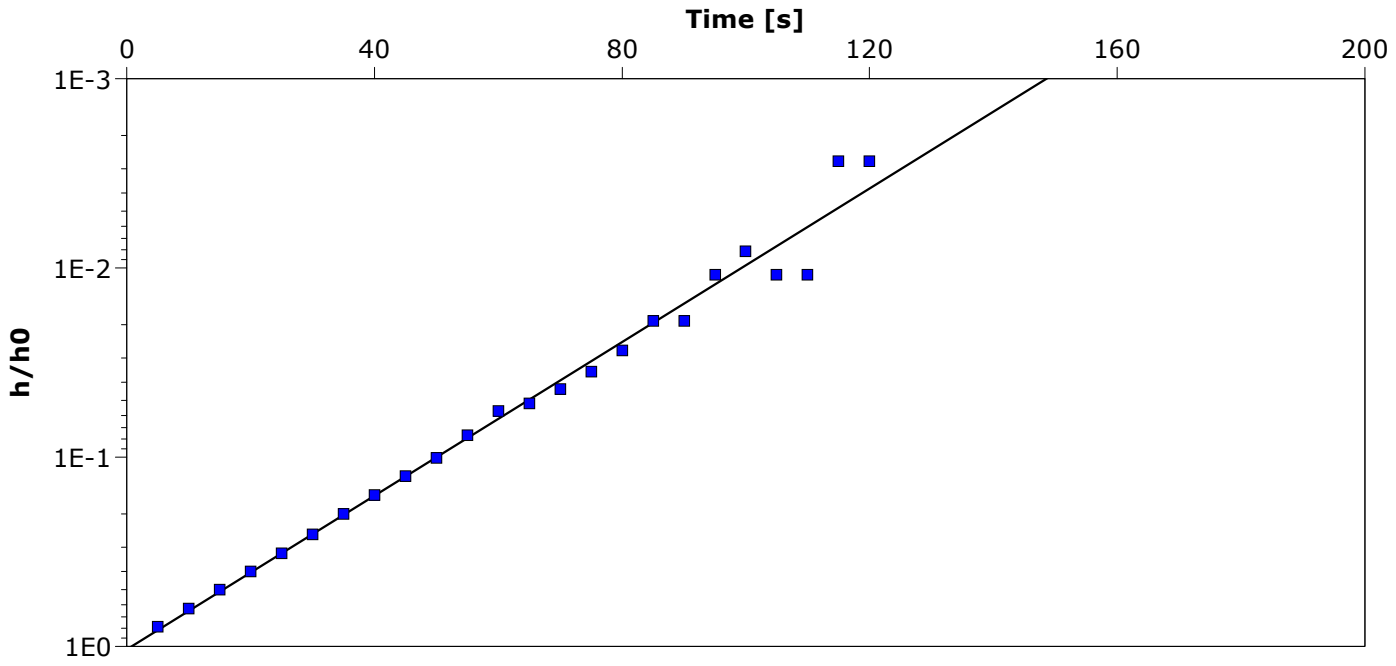



Calculation using Hvorslev

| Observation Well | Hydraulic Conductivity [m/s] | |
|---|---|---|
| BH202 | $8.46 \times 10^{-5}$ | |

| | |
|---|---|
| **Cambium Inc.**<br>**52 Hunter St. East**<br>**Peterborough, Ontatio, Canada**<br>**K9H 1G5** | **Slug Test Analysis Report**<br>Project: Hydrogeological Assessment<br>Number: 9326-002<br>Client: Chayell Hotels |

| | | |
|---|---|---|
| Location: 220 Bradford Street, Barrie, ON | Slug Test: Slug Test 4 (Slug Out) | Test Well: BH202 |
| Test Conducted by: Chris M. | | Test Date: 10/02/19 |
| Analysis Performed by: M.Francis | Slug 4 Out | Analysis Date: 10/16/19 |
| Aquifer Thickness: 1.65 m | | |

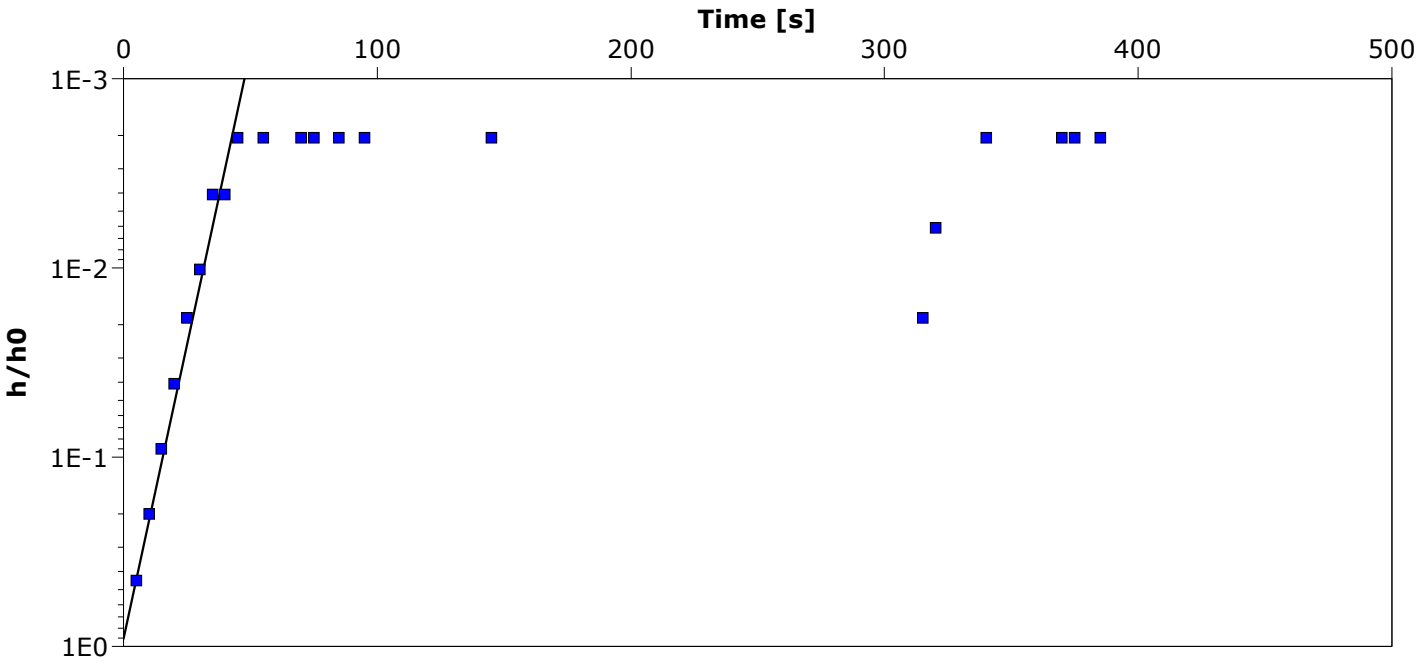



Calculation using Hvorslev

| Observation Well | Hydraulic Conductivity [m/s] | |
|---|---|---|
| BH202 | $8.28 \times 10^{-5}$ | |

| | |
|---|---|
| **Cambium Inc.**<br>**52 Hunter St. East**<br>**Peterborough, Ontatio, Canada**<br>**K9H 1G5** | **Slug Test Analysis Report**<br>Project: Hydrogeological Assessment<br>Number: 9326-002<br>Client: Chayell Hotels |

| | | |
|---|---|---|
| Location: 220 Bradford Street, Barrie, ON | Slug Test: Slug Test 1 (Slug Out) | Test Well: BH204 |
| Test Conducted by: Chris M. | | Test Date: 10/02/19 |
| Analysis Performed by: M. Francis | Slug 1 Out | Analysis Date: 10/17/19 |
| Aquifer Thickness: 2.44 m | | |

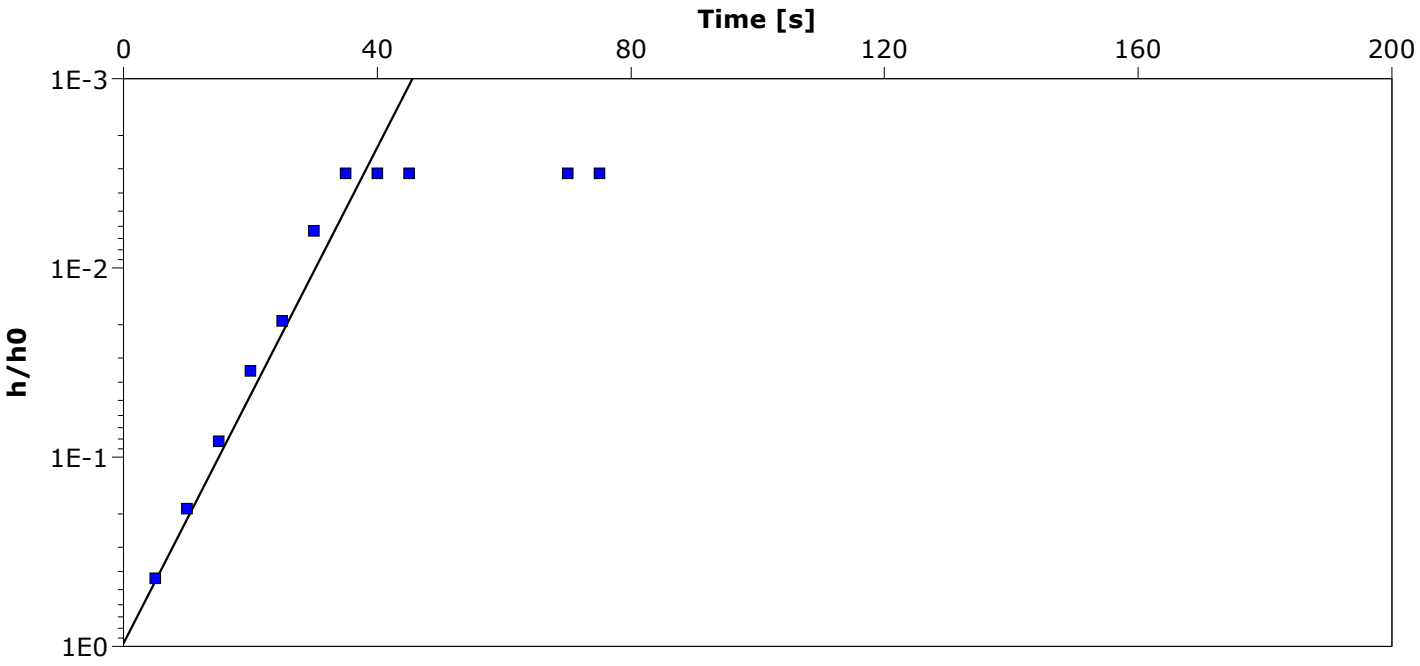



Calculation using Hvorslev

| Observation Well | Hydraulic Conductivity [m/s] | |
|---|---|---|
| BH204 | $2.53 \times 10^{-4}$ | |

| | | |
|---|---|---|
| **Cambium Inc.**<br>**52 Hunter St. East**<br>**Peterborough, Ontatio, Canada**<br>**K9H 1G5** | **Slug Test Analysis Report** | |
| | Project: Hydrogeological Assessment | |
| | Number: 9326-002 | |
| | Client: Chayell Hotels | |

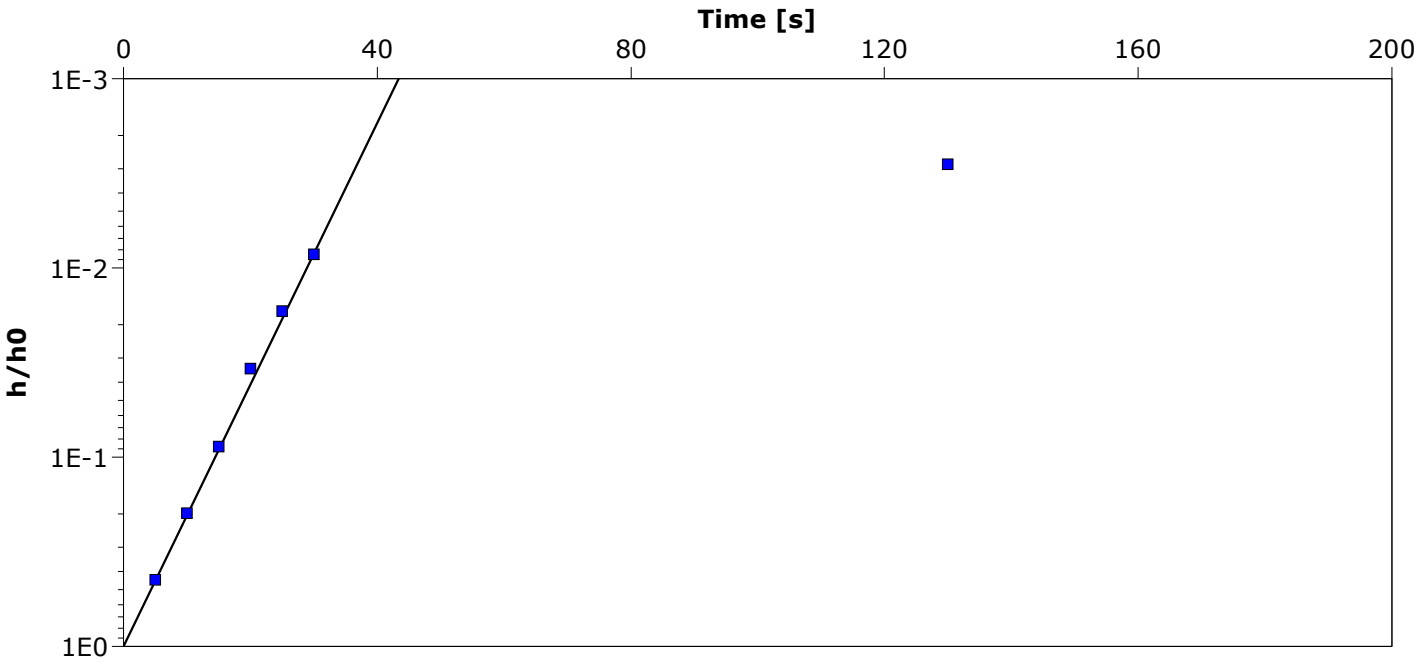
| | | |
|---|---|---|
| Location: 220 Bradford Street, Barrie, ON | Slug Test: Slug Test 2 (Slug Out) | Test Well: BH204 |
| Test Conducted by: Chris M. | | Test Date: 10/02/19 |
| Analysis Performed by: M. Francis | Slug 2 Out | Analysis Date: 10/17/19 |
| Aquifer Thickness: 2.44 m | | |




Calculation using Hvorslev

| Observation Well | Hydraulic Conductivity [m/s] | |
|---|---|---|
| BH204 | $2.67 \times 10^{-4}$ | |

| | | |
|---|---|---|
| **Cambium Inc.**<br>**52 Hunter St. East**<br>**Peterborough, Ontatio, Canada**<br>**K9H 1G5** | **Slug Test Analysis Report** | |
| | Project: Hydrogeological Assessment | |
| | Number: 9326-002 | |
| | Client: Chayell Hotels | |
| Location: 220 Bradford Street, Barrie, ON | Slug Test: Slug Test 3 (Slug Out) | Test Well: BH204 |
| Test Conducted by: Chris M. | | Test Date: 10/02/19 |
| Analysis Performed by: M. Francis | Slug 3 Out | Analysis Date: 10/17/19 |
| Aquifer Thickness: 2.44 m | | |

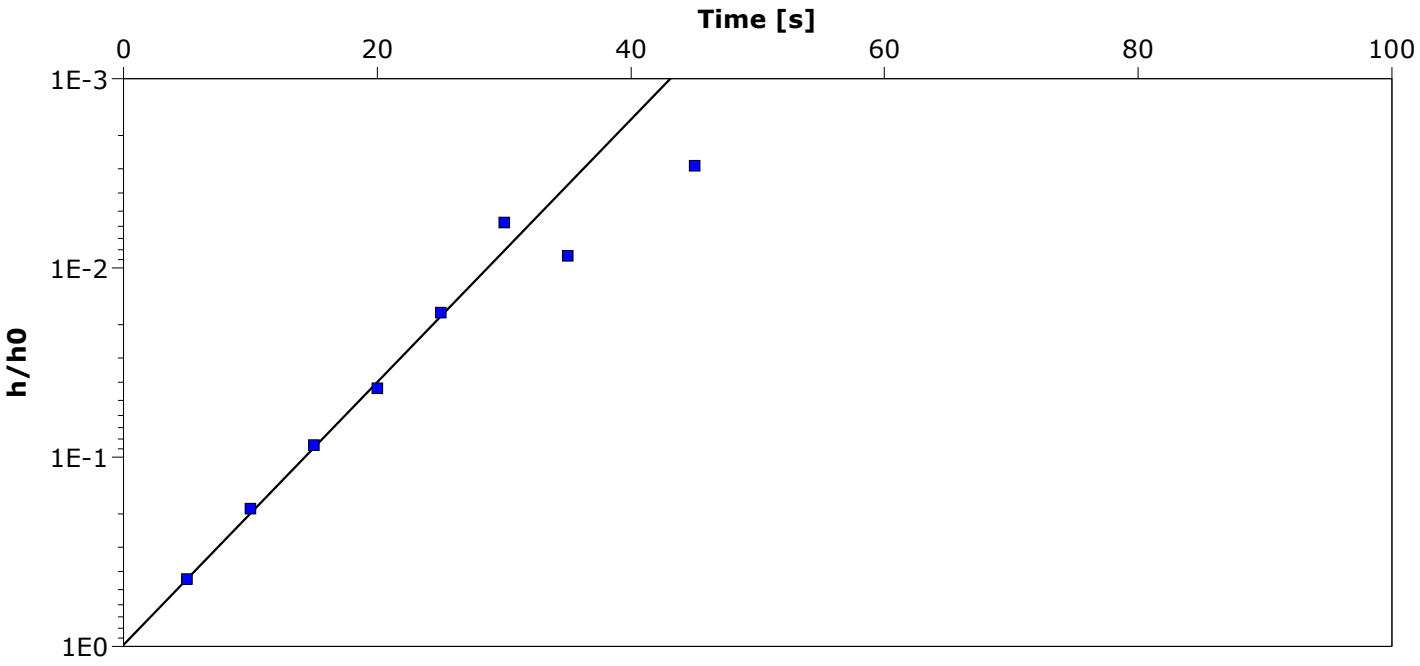



Calculation using Hvorslev

| Observation Well | Hydraulic Conductivity [m/s] | |
|---|---|---|
| BH204 | $2.82 \times 10^{-4}$ | |

| | |
|---|---|
| **Cambium Inc.**<br>**52 Hunter St. East**<br>**Peterborough, Ontatio, Canada**<br>**K9H 1G5** | **Slug Test Analysis Report**<br>Project: Hydrogeological Assessment<br>Number: 9326-002<br>Client: Chayell Hotels |

| | | |
|---|---|---|
| Location: 220 Bradford Street, Barrie, ON | Slug Test: Slug Test 4 (Slug Out) | Test Well: BH204 |
| Test Conducted by: Chris M. | | Test Date: 10/02/19 |
| Analysis Performed by: M. Francis | Slug 4 Out | Analysis Date: 10/17/19 |
| Aquifer Thickness: 2.44 m | | |

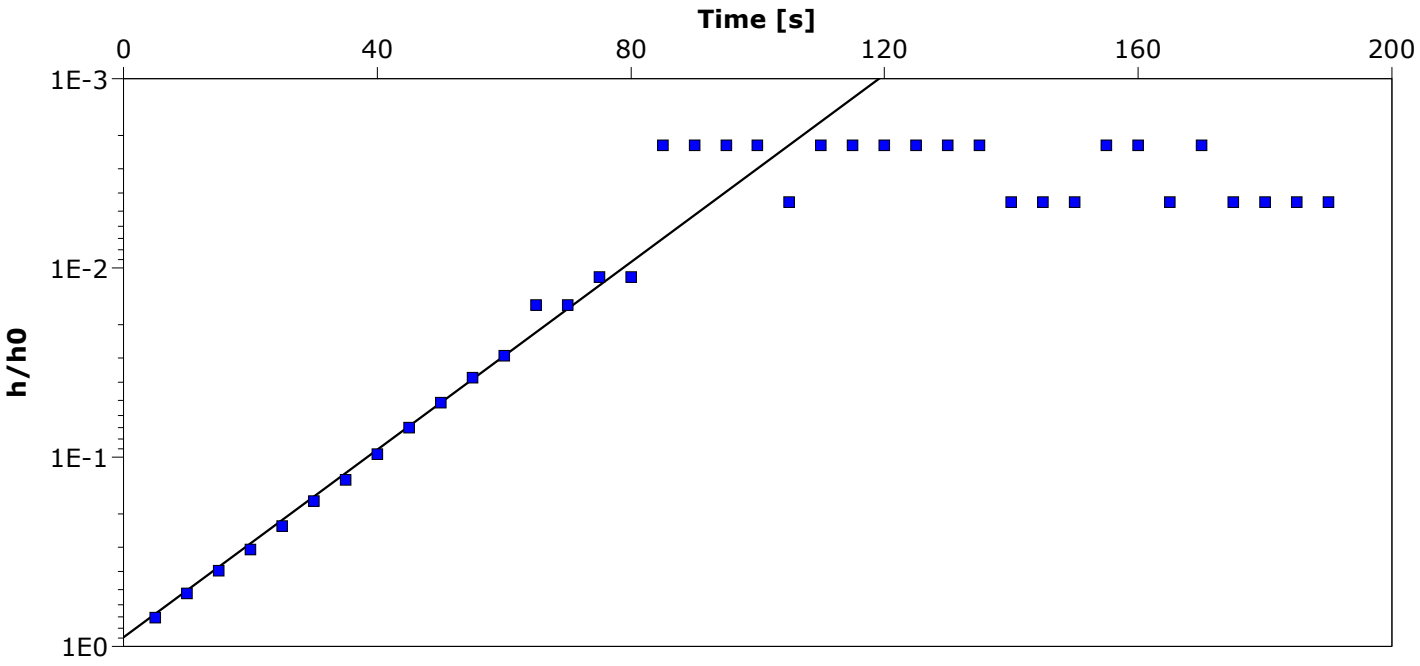



Calculation using Hvorslev

| Observation Well | Hydraulic Conductivity [m/s] | |
|---|---|---|
| BH204 | $2.83 \times 10^{-4}$ | |

| | | |
|---|---|---|
| **Cambium Inc.**<br>**52 Hunter St. East**<br>**Peterborough, Ontatio, Canada**<br>**K9H 1G5** | **Slug Test Analysis Report** | |
| | Project: Hydrogeological Assessment | |
| | Number: 9326-002 | |
| | Client: Chayell Hotels | |

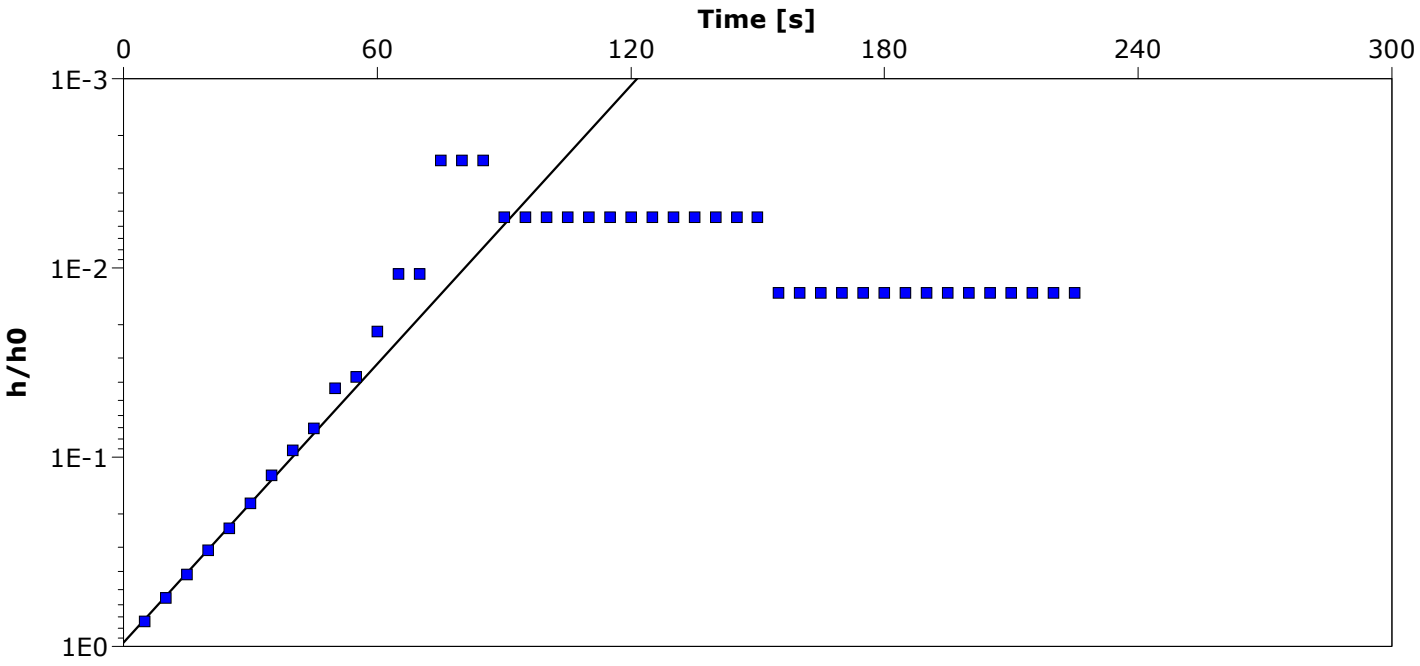
| | | |
|---|---|---|
| Location: 220 Bradford Street, Barrie, ON | Slug Test: Slug Test 1 (Slug Out) | Test Well: BH207 |
| Test Conducted by: Chris M. | | Test Date: 10/02/19 |
| Analysis Performed by: M. Francis | Slug Out 1 | Analysis Date: 10/18/19 |
| Aquifer Thickness: 1.55 m | | |




Calculation using Hvorslev

| Observation Well | Hydraulic Conductivity [m/s] | |
|---|---|---|
| BH207 | $1.01 \times 10^{-4}$ | |

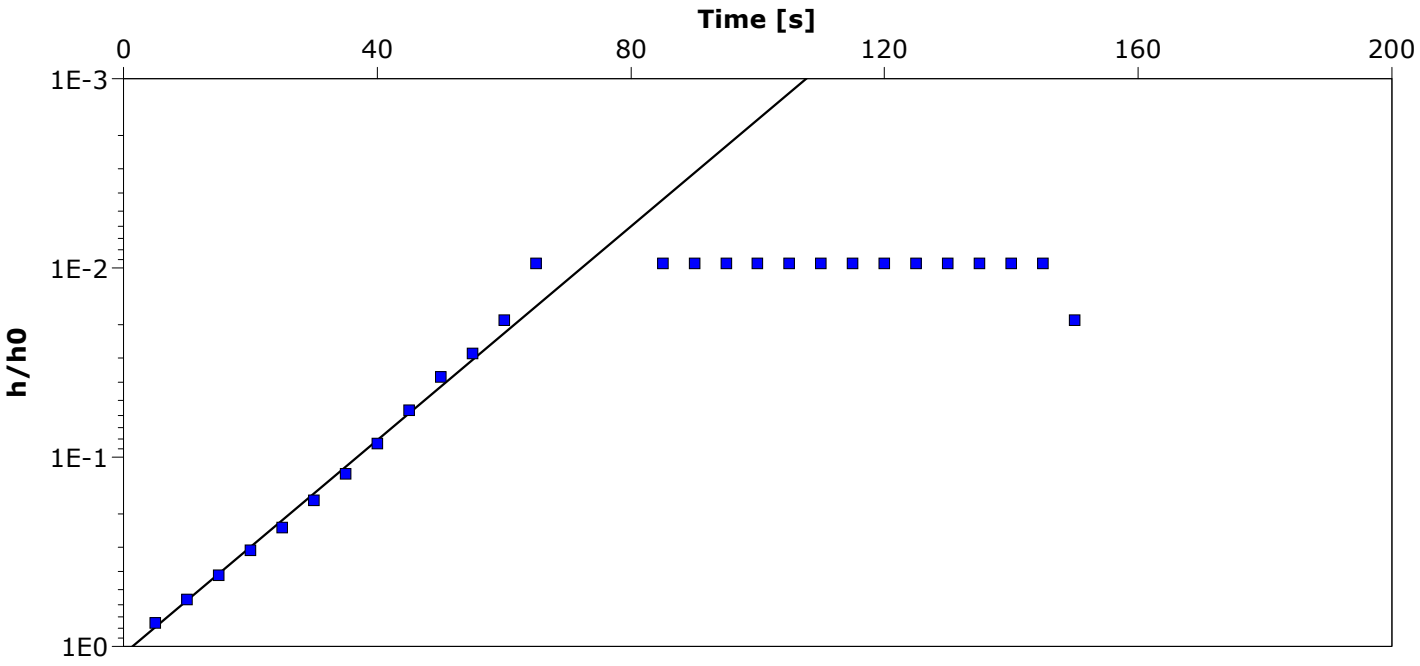
| | | |
|---|---|---|
| **Cambium Inc.**<br>**52 Hunter St. East**<br>**Peterborough, Ontatio, Canada**<br>**K9H 1G5** | **Slug Test Analysis Report** | |
| | Project: Hydrogeological Assessment | |
| | Number: 9326-002 | |
| | Client: Chayell Hotels | |
| Location: 220 Bradford Street, Barrie, ON | Slug Test: Slug Test 2 (Slug Out) | Test Well: BH207 |
| Test Conducted by: Chris M. | | Test Date: 10/02/19 |
| Analysis Performed by: M. Francis | Slug Out 2 | Analysis Date: 10/18/19 |
| Aquifer Thickness: 1.55 m | | |




Calculation using Hvorslev

| Observation Well | Hydraulic Conductivity [m/s] | |
|---|---|---|
| BH207 | $1.00 \times 10^{-4}$ | |

| | | |
|---|---|---|
| **Cambium Inc.**<br>**52 Hunter St. East**<br>**Peterborough, Ontatio, Canada**<br>**K9H 1G5** | **Slug Test Analysis Report** | |
| | Project: Hydrogeological Assessment | |
| | Number: 9326-002 | |
| | Client: Chayell Hotels | |
| Location: 220 Bradford Street, Barrie, ON | Slug Test: Slug Test 3 (Slug Out) | Test Well: BH207 |
| Test Conducted by: Chris M. | | Test Date: 10/02/19 |
| Analysis Performed by: C. MacDougall | Slug Out 3 | Analysis Date: 10/18/19 |
| Aquifer Thickness: 1.55 m | | |




Calculation using Hvorslev

| Observation Well | Hydraulic Conductivity [m/s] | |
|---|---|---|
| BH207 | $1.15 \times 10^{-4}$ | |

**Cambium Inc.**
**52 Hunter St. East**
**Peterborough, Ontatio, Canada**
**K9H 1G5**

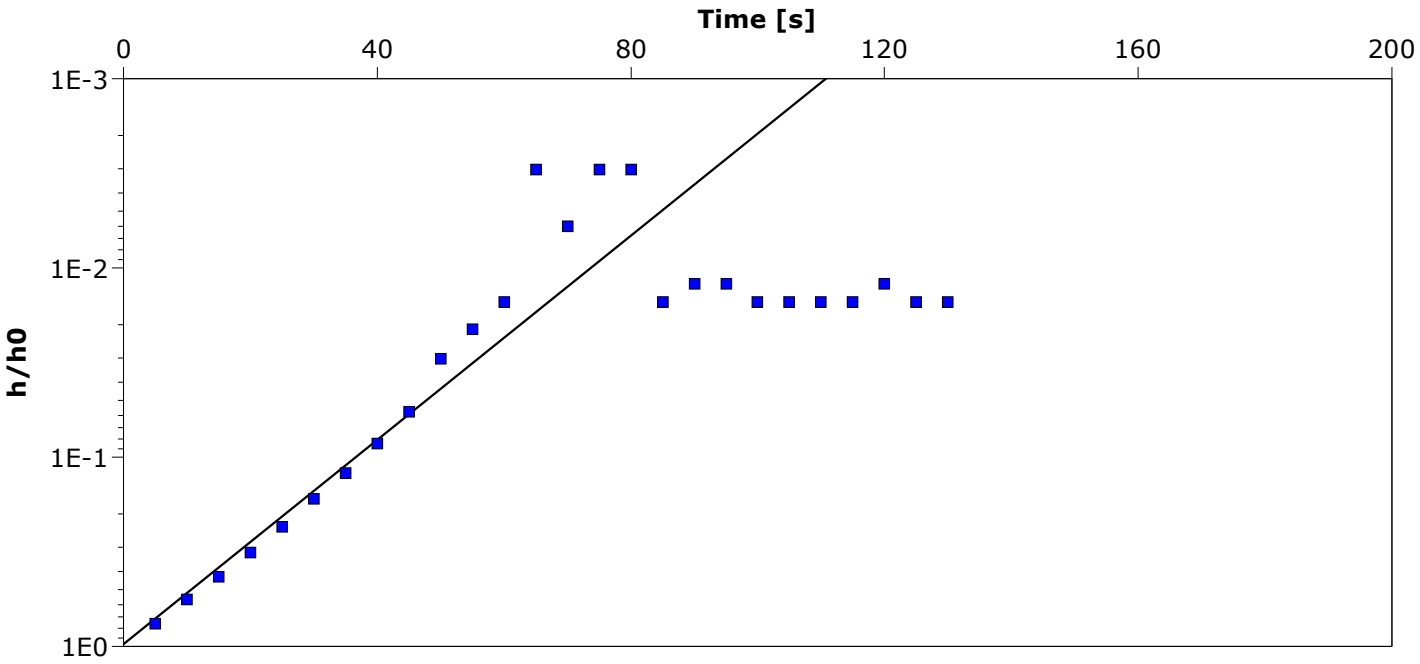
**Slug Test Analysis Report**

Project: Hydrogeological Assessment

Number: 9326-002

Client: Chayell Hotels

| | | |
|---|---|---|
| Location: 220 Bradford Street, Barrie, ON | Slug Test: Slug Test 4 (Slug Out) | Test Well: BH207 |
| Test Conducted by: Chris M. | | Test Date: 10/02/19 |
| Analysis Performed by: C. MacDougall | Slug Out 4 | Analysis Date: 10/18/19 |
| Aquifer Thickness: 1.55 m | | |




Calculation using Hvorslev

| Observation Well | Hydraulic Conductivity [m/s] | |
|---|---|---|
| BH207 | $1.10 \times 10^{-4}$ | |

# Appendix D
# Sampling and Analysis Plan

# Sampling and Analysis Plan - 220 Bradford Street, Barrie, Ontario

2020-01-13

Prepared for: Chayell Hotels Ltd.

© Cambium 2019 Reference No.: 9326-001

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# Table of Contents

# 1.0 Introduction

This document outlines the Sampling and Analysis Plan (SAP) for the field work proposed for the Phase Two Environmental Site Assessment (ESA) being completed at 220 Bradford Street in Barrie, Ontario (Site or Phase Two Property). This SAP establishes a quality assurance and quality control (QA/QC) program, data quality objectives, standard operating procedures, and a description of potential physical impediments that may limit the ability to conduct sampling and analysis.

## 1.1 Objectives

Cambium Inc. (Cambium) completed a Phase One ESA for the Site which identified areas of potential environmental concern (APECs) associated with former uses of the site and surrounding properties.

The purpose of the Phase Two ESA will be to investigate soil and/or groundwater quality in the identified APECs through the drilling of boreholes and installation of monitoring wells, and the collection of soil and groundwater samples.

The contaminants of potential concern (COPCs) associated with the APECs include: volatile organic compounds (VOCs), petroleum hydrocarbon fractions 1 to 4 (PHC F1-F4), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and metals.

The overall objective of the Phase Two work program is to identify areas of contaminants at the Phase Two property, if any, to support the filing of a Record of Site Condition (RSC) in accordance with Ontario Regulation (O.Reg.) 153/04.

## 2.0 Work Proposed

Proposed boreholes and monitoring well locations and rationale are included in the following table:

| Borehole / Test Pit / Monitoring Well ID | Rationale |
|---|---|
| BH201 | Investigate soil and groundwater quality for COPCs in APEC 1 in the central portion of the Site. |
| BH202 | Investigate soil and groundwater quality for COPCs in APECs 2 and 3 along the northeast side of the Site. |
| BH203 | Investigate soil and groundwater quality for COPCs in APECs 2 and 3 along the northeast side of the Site. |
| BH204 | Investigate groundwater quality for COPCs in APECs 3 and 4 along the southeast side of the Site. |
| BH205 | Investigate groundwater quality for COPCs in APECs 3 and 4 along the southeast side of the Site. |
| BH206 | Investigate groundwater quality for COPCs in APEC 3 in the southwest corner of the Site. |
| BH207 | Investigate groundwater quality for COPCs in APEC 3 on the central-west side of the Site. |
| BH208 | Investigate groundwater quality for VOCs. |
| BH1 | Investigate groundwater quality for VOCs and PAHs. |
| BH2 | Investigate groundwater quality for COPCs in APECs 3 along the southeast side of the Site. |
| BH102 | Investigate groundwater quality for PHCs/BTEX and metals. |
| BH301 | Investigate groundwater quality for VOCs. |
| BH401 | Investigate groundwater quality for COPCs in APEC 5. |
| BH402 | Investigate groundwater quality for COPCs in APEC 5. |

To meet the objectives outlined above, the Phase Two ESA work program will generally consist of the following:

- Advance eight boreholes to the depth of the water table;

- Advance three boreholes to roughly 10.7 m below ground surface (bgs) to investigate the deeper groundwater for VOCs;
- Collect soil samples continuously at regular intervals using a split spoon or dual tube sampling system;
- Instrument the eight shallow boreholes with monitoring wells with 3.05 m screens;
- Instrument the three deeper boreholes with a monitoring well with a 1.52 m screen; and,
- Collect groundwater samples using a low-flow sampling method.

## 2.1 Quality Assurance

Cambium will maintain the following quality control measures throughout the Phase Two work program:

- Non-dedicated sampling and monitoring equipment will be decontaminated following each use and between each sampling location.
- A minimum of one duplicate sample will be collected for every ten samples collected, for both soil and groundwater.
- Groundwater trip blanks will be submitted for analysis of VOCs with every groundwater VOC sample submission.

An analytical laboratory accredited by the Canadian Association of Laboratory Accreditation (CALA) will be utilized, and the laboratory will complete additional quality control measures (i.e. duplicates, method spikes) as required by its accreditation.

All laboratory certificates of analysis will be reviewed by Cambium for data integrity and quality control. If anomalies in the reported data are identified, Cambium will resample or collect additional samples, where possible and as required.

## 2.2 Sampling Methods

Boreholes will be advanced using a track-mounted drill rig. Retrieved soil samples will be inspected for visible and olfactory evidence of contamination. Soil samples will be divided, with

half or more of the sample placed in a dedicated polyethylene sample bag and sealed for field screening, and the remaining sample placed in dedicated sample jars or vials for analytical submission. Samples to be submitted for analysis of VOCs will be collected applying the appropriate techniques, as per O. Reg. 153/04 (i.e. Terra Core sampler and methanol preserved vial).

Two-inch monitoring wells will be installed by a licensed well contractor. Monitoring wells will generally consist of a 3.05 m length of schedule 40 PVC screen with riser to the top of the well. The deeper well will consist of a 1.52 m length of schedule 40 PVC screen. Wells will be completed with a flush-mount casing.

Groundwater samples will be collected following development of the well to ensure representative formation waters. Samples from each well will be collected using low-flow sampling methodology, with dedicated tubing installed in each of the monitoring wells. Groundwater samples requiring filtration will be field filtered using an in-line filter attached to the end of the polyethylene tubing.

Each sample will be handled by a Cambium field technician using dedicated nitrile gloves to minimize the potential for cross-contamination.

### 2.2.1 Sample Handling and Custody

Samples will be collected in laboratory-supplied sample containers, with preservative as necessary. All samples requiring laboratory analysis will be placed in a cooler and maintained at less than 10°C prior to and during transport to the laboratory.

Samples will be labelled with a unique sample ID, sampling date, and project number. All samples will be shipped to the laboratory under chain of custody protocols.

### 2.2.2 Instrumentation

The Phase Two work program will require the use of the following non-dedicated instrumentation and equipment: field water quality kit, peristaltic pump, and interface probe. Equipment will be inspected daily for damage or defects, and appropriate measures will be

taken if necessary, prior to commencing field work. The interface probe will be decontaminated between monitoring wells using an Alconox wash, and rinsed with distilled water.

## 2.3 Quality Control

### 2.3.1 Verification and Validation Methods

To validate the integrity of the laboratory analytical data as well as sampling methods, Cambium will determine the relative percent difference (RPD) of QA/QC duplicate samples and the corresponding numbered samples. Cambium will also review the analysis of trip blanks and laboratory completed matrix spikes.

RPD is calculated using the following formula:

$$RPD = \frac{|S - D|}{1/2(S + D)} * 100$$

Where S = numbered sample value

D = duplicate value

Low concentrations are more sensitive to RPD values; as such, RPDs will not be calculated where the parameter concentration in the sample and/or duplicate is less than five times the laboratory RDL.

RPD values will be evaluated based on data quality objectives (DQOs) of 60% for soil and 40% for water.

If an RPD is calculated above the allowable limits, Cambium will attempt to determine the source of the variance, and will assess whether the elevated RPD affects the integrity and usability of the data.

If detectable contaminant concentrations are identified in the trip blank, Cambium will assess the chain of custody protocols and sample transport procedures, and determine if there are impacts to the integrity of the data.

# Appendix E
# Borehole Logs

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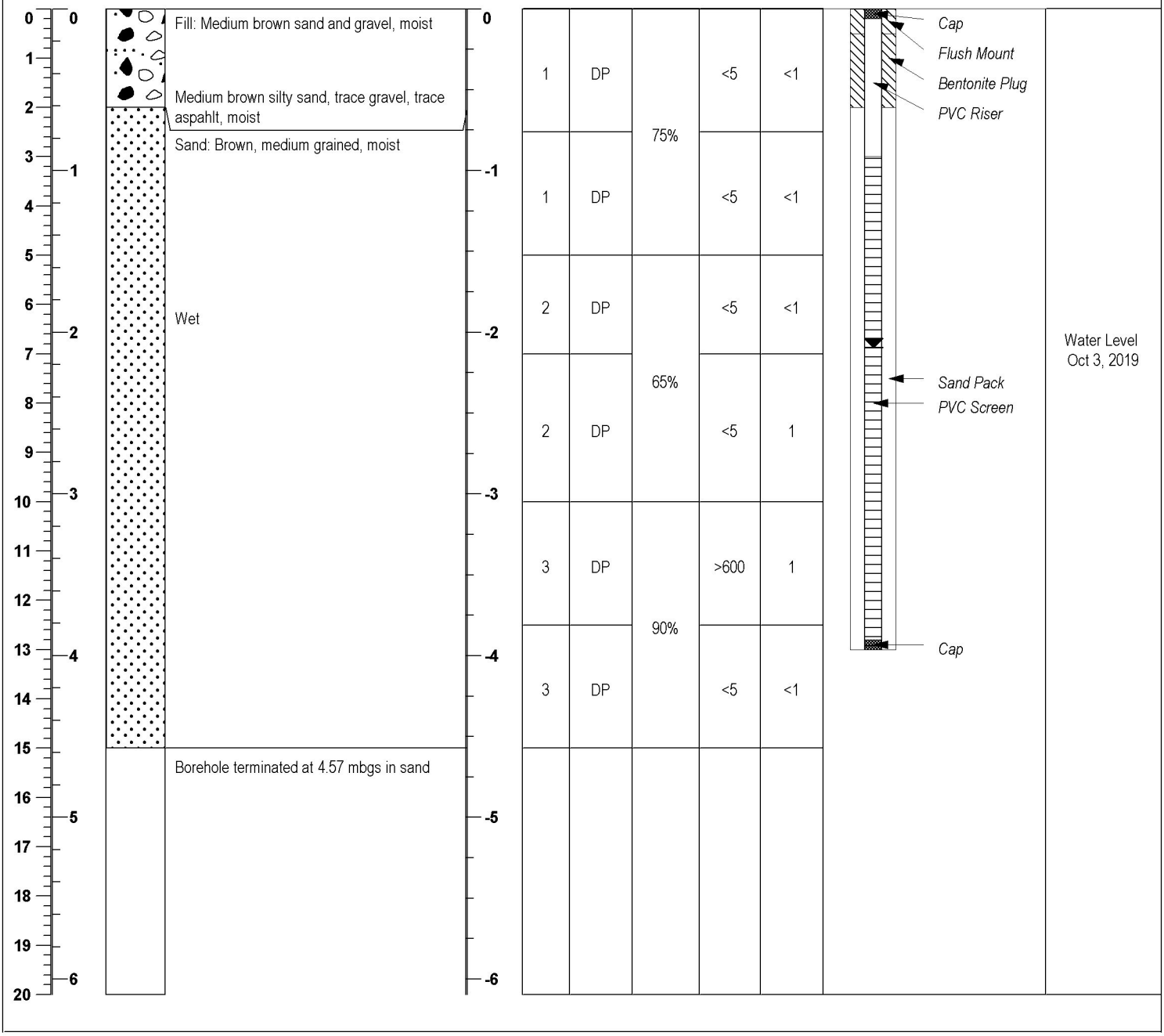
# Log of Borehole: BH201



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Chayell Hotels Ltd. | **Project Name:** | Phase Two Environmental Site Assesment | **Project No.:** | 9326-001 |
| **Contractor:** | Strata Drilling Group | **Method:** | Direct Push | **Date Completed:** | 26-08-2019 |
| **Location:** | 220 Bradford Street, Barrie, ON | **UTM:** | 17T, 604128.4, 4914440.5 | **Elevation:** | 223.02 masl |




**Logged By:** Natalie Wright **Input By:** Brenden Hnatiw

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# Log of Borehole: BH202



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Chayell Hotels Ltd. | **Project Name:** | Phase Two Environmental Site Assesment | **Project No.:** | 9326-001 |
| **Contractor:** | Strata Drilling Group | **Method:** | Direct Push | **Date Completed:** | 26-08-2019 |
| **Location:** | 220 Bradford Street, Barrie, ON | **UTM:** | 17T, 604134.2, 4914456.3 | **Elevation:** | 223.95 masl |

| SUBSURFACE PROFILE | | | | | SAMPLING INFO | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth (ft) | Depth (m) | Lithology | Description | Elevation (m) | Number | Type | % Recovery | CSV (ppm) | OV (ppm) | Well Installation | Remarks |
| 0 | 0 | | Fill: Medium brown sand, trace silt, some organics, moist | 0 | 1 | DP | | <5 | 5 | Cap | |
| 1 | | | Light brown, some silt, trace gravel | | | | | | | Flush Mount | |
| 2 | | | | | | | | | | Bentonite Plug | |
| 3 | 1 | | | -1 | 1 | DP | 55% | <5 | 1 | PVC Riser | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | 2 | | Sand: Medium brown, medium grained, moist | -2 | 2 | DP | | <5 | <1 | | |
| 7 | | | | | | | 60% | | | | |
| 8 | | | | | 2 | DP | | <5 | <1 | | |
| 9 | | | | | | | | | | | |
| 10 | 3 | | Wet | -3 | | | | | | Sand Pack | |
| 11 | | | | | 3 | DP | | 165 | 1 | PVC Screen | Water Level Oct 3, 2019 |
| 12 | | | | | | | 90% | | | | |
| 13 | 4 | | | -4 | 3 | DP | | <5 | 1 | | |
| 14 | | | | | | | | | | | |
| 15 | | | Borehole terminated at 4.57 mbgs in sand | | | | | | | Cap | |
| 16 | 5 | | | -5 | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | | | | | | | | | | | |
| 19 | | | | | | | | | | | |
| 20 | 6 | | | -6 | | | | | | | |

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# Log of Borehole: BH203



**Client:** Chayell Hotels Ltd. **Project Name:** Phase Two Environmental Site Assesment **Project No.:** 9326-001

**Contractor:** Strata Drilling Group **Method:** Direct Push **Date Completed:** 26-08-2019

**Location:** 220 Bradford Street, Barrie, ON **UTM:** 17T, 604118.6, 4914444.6 **Elevation:** 224.11 masl

| SUBSURFACE PROFILE | | | | | SAMPLING INFO | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth (ft) | Depth (m) | Lithology | Description | Elevation (m) | Number | Type | % Recovery | CSV (ppm) | OV (ppm) | Well Installation | Remarks |
| 0 | 0 | | Fill: Medium brown sand, trace silt, some organics, moist | 0 | 1 | DP | | <5 | <1 | Cap | |
| 1 | | | | | | | | | | Flush Mount | |
| 2 | | | Light brown sand, some silt, trace gravel, moist | | | | | | | Bentonite Plug | |
| 3 | 1 | | | -1 | 1 | DP | 50% | <5 | <1 | PVC Riser | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | 2 | | Sand: Medium brown, medium grained, moist | -2 | 2 | DP | | <5 | <1 | | |
| 7 | | | | | | | 70% | | | | |
| 8 | | | Wet | | 2 | DP | | <5 | <1 | | |
| 9 | | | | | | | | | | | |
| 10 | 3 | | | -3 | | | | | | Sand Pack | Water Level Oct 3, 2019 |
| 11 | | | | | 3 | DP | | 210 | <1 | PVC Screen | |
| 12 | | | | | | | 70% | | | | |
| 13 | 4 | | | -4 | 3 | DP | | <5 | <1 | | |
| 14 | | | | | | | | | | | |
| 15 | | | Terminated at 4.57 mbgs in sand | | | | | | | Cap | |
| 16 | 5 | | | -5 | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | | | | | | | | | | | |
| 19 | | | | | | | | | | | |
| 20 | 6 | | | -6 | | | | | | | |

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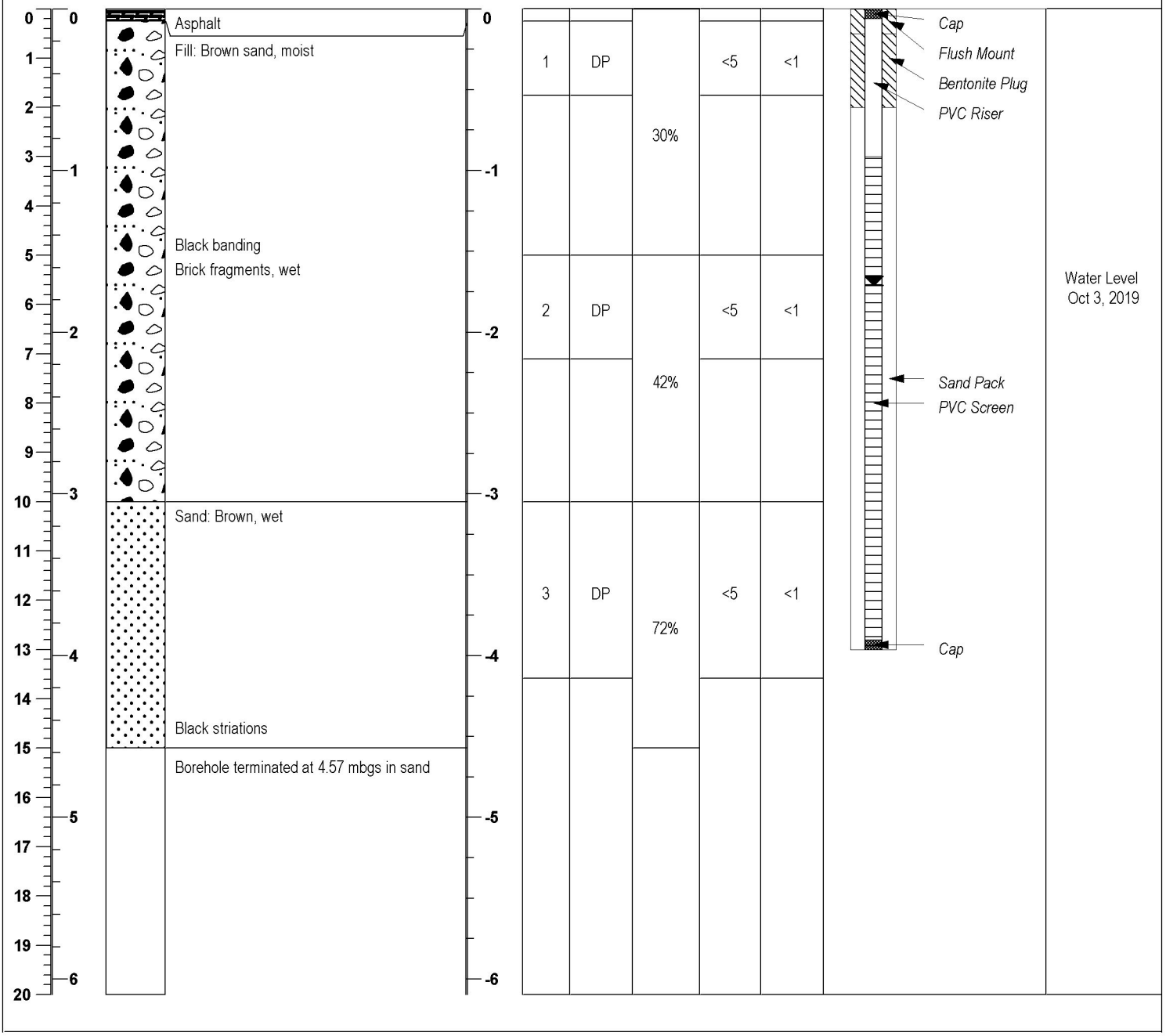
# Log of Borehole: BH204



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Chayell Hotels Ltd. | **Project Name:** | Phase Two Environmental Site Assesment | **Project No.:** | 9326-001 |
| **Contractor:** | Strata Drilling Group | **Method:** | Direct Push | **Date Completed:** | 22-08-2019 |
| **Location:** | 220 Bradford Street, Barrie, ON | **UTM:** | 17T, 604148.3, 4914446 | **Elevation:** | 222.46 masl |




**Logged By:** Matt Cunnigham **Input By:** Brenden Hnatiw

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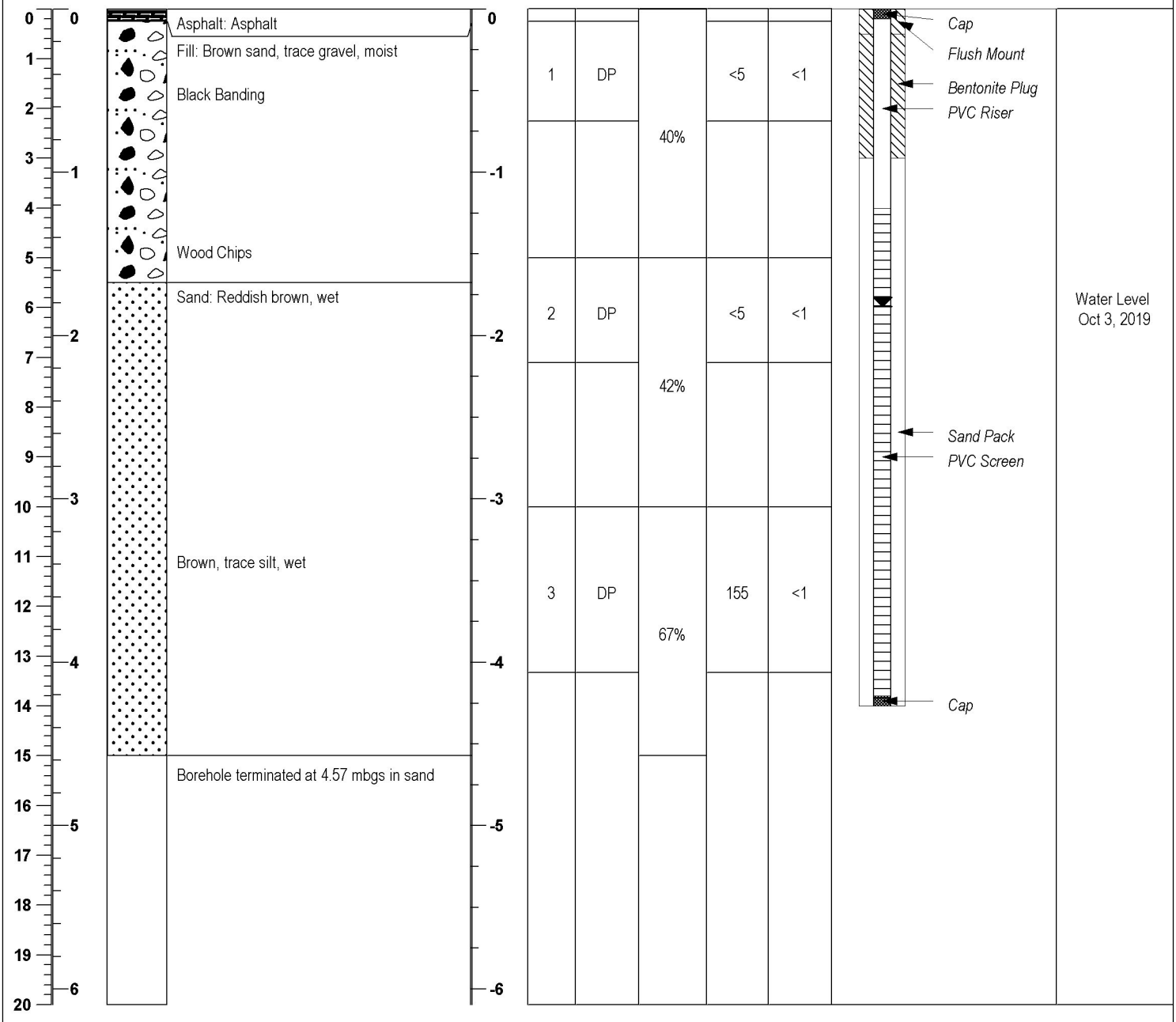
# Log of Borehole: BH205



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Chayell Hotels Ltd. | **Project Name:** | Phase Two Environmental Site Assesment | **Project No.:** | 9326-001 |
| **Contractor:** | Strata Drilling Group | **Method:** | Direct Push | **Date Completed:** | 22-08-2019 |
| **Location:** | 220 Bradford Street, Barrie, ON | **UTM:** | 17T, 604131.6, 4914427.8 | **Elevation:** | 222.79 masl |




**Logged By:** Matt Cunnigham **Input By:** Brenden Hnatiw

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# Log of Borehole: BH206



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Chayell Hotels Ltd. | **Project Name:** | Phase Two Environmental Site Assesment | **Project No.:** | 9326-001 |
| **Contractor:** | Strata Drilling Group | **Method:** | Direct Push | **Date Completed:** | 22-08-2019 |
| **Location:** | 220 Bradford Street, Barrie, ON | **UTM:** | 17T, 604085.3, 4914392.4 | **Elevation:** | 222.05 masl |

| SUBSURFACE PROFILE | | | | SAMPLING INFO | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (ft) | Depth (m) | Lithology | Description | Elevation (m) | Number | Type | % Recovery | CSV (ppm) | OV (ppm) | Well Installation | Remarks |
| 0 | 0 | | Sand: Dark brown, trace gravel, moist | 0 | 1 | DP | 27% | <5 | <1 | Cap<br>Flush Mount<br>Bentonite Plug<br>PVC Riser | Water Level Oct 3, 2019 |
| 5 | 1 | | Coarse grained, some organics | -1 | 2 | DP | 43% | <5 | <1 | Sand Pack<br>PVC Screen | |
| 10 | 3 | | Trace silt | -3 | 3 | DP | 58% | <5 | <1 | Cap | |
| 15 | 4.57 | | Borehole terminated at 4.57 in sand | -4.57 | | | | | | | |
| 20 | 6 | | | -6 | | | | | | | |

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# Log of Borehole: BH207



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Chayell Hotels Ltd. | **Project Name:** | Phase Two Environmental Site Assesment | **Project No.:** | 9326-001 |
| **Contractor:** | Strata Drilling Group | **Method:** | Direct Push | **Date Completed:** | 22-08-2019 |
| **Location:** | 220 Bradford Street, Barrie, ON | **UTM:** | 17T, 604096.9, 4914428.6 | **Elevation:** | 224.26 masl |

| SUBSURFACE PROFILE | | | | | SAMPLING INFO | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth (ft) | Depth (m) | Lithology | Description | Elevation (m) | Number | Type | % Recovery | CSV (ppm) | OV (ppm) | Well Installation | Remarks |
| 0 | 0 | | Asphalt | 0 | | | | | | Cap | |
| | | | Sand: Light brown. moist | | | | | | | Flush Mount | |
| 1 | | | | | 1 | DP | | 15 | <1 | | |
| 2 | | | | | | | 47% | | | Bentonite Plug | |
| 3 | 1 | | | -1 | | | | | | PVC Riser | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 7 | 2 | | | -2 | 2 | DP | | 20 | <1 | | |
| 8 | | | | | | | 68% | | | | |
| 9 | | | | | | | | | | | |
| 10 | 3 | | | -3 | | | | | | Sand Pack | |
| 11 | | | Wet | | 3 | DP | | 115 | <1 | PVC Screen | Water Level Oct 3, 2019 |
| 12 | | | | | | | | | | | |
| 13 | 4 | | | -4 | 4 | DP | 73% | 20 | <1 | | |
| 14 | | | | | | | | | | | |
| 15 | | | Borehole terminated at 4.57 mbgs in sand | | | | | | | Cap | |
| 16 | 5 | | | -5 | | | | | | | |
| 17 | | | | | | | | | | | |
| 18 | | | | | | | | | | | |
| 19 | 6 | | | -6 | | | | | | | |
| 20 | | | | | | | | | | | |

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# Log of Borehole: BH208



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Chayell Hotels Ltd. | **Project Name:** | Phase Two Environmental Site Assesment | **Project No.:** | 9326-001 |
| **Contractor:** | Strata Drilling Group | **Method:** | Direct Push | **Date Completed:** | 22/26-08-2019 |
| **Location:** | 220 Bradford Street, Barrie, ON | **UTM:** | 17T, 604147.8, 4914443 | **Elevation:** | 222.51 masl |

| SUBSURFACE PROFILE | | | | | SAMPLING INFO | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth (ft) | Depth (m) | Lithology | Description | Elevation (m) | Number | Type | % Recovery | CSV (ppm) | OV (ppm) | Well Installation | Remarks |
| 0 | 0 | | Asphalt | 0 | | | | | | Cap | |
| 1 | | | Fill: Medium brown sand, trace gravel, moist | | 1 | DP | 40% | <5 | <1 | Flush Mount | Water Level Oct 3, 2019 |
| 2 | 1 | | | -1 | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | 2 | | Wet | -2 | 2 | DP | 47% | <5 | <1 | | |
| 7 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 10 | 3 | | Sand: Medium brown, wet | -3 | 3 | DP | 83% | 230 | <1 | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | 4 | | Grey | -4 | 4 | DP | | 4 | <1 | | |
| 14 | | | | | | | | | | | |
| 15 | | | | | | | | | | Bentonite Plug | |
| 16 | | | Trace silt | | | | | | | PVC Riser | |
| 17 | 5 | | | -5 | 5 | DP | 100% | 250 | <1 | | |
| 18 | | | | | | | | | | | |
| 19 | | | Silty Sand: Dark grey, trace gravel, wet | | 6 | DP | | <5 | <1 | | |
| 20 | 6 | | | -6 | | | | | | | |
| 21 | | | Silt: Grey, some sand, wet | | 7 | DP | | <5 | <1 | | |
| 22 | | | | | | | | | | | |
| 23 | 7 | | Clay: Grey, some silt | -7 | 8 | DP | 70% | <5 | <1 | | |
| 24 | | | | | | | | | | | |
| 25 | | | | | | | | | | | |
| 26 | 8 | | Sand: Grey, medium grained, wet | -8 | 9 | DP | 85% | <5 | <1 | | |
| 27 | | | | | | | | | | | |
| 28 | | | | | | | | | | | |
| 29 | | | | | 10 | DP | 100% | <5 | <1 | | |
| 30 | 9 | | | -9 | | | | | | | |
| 31 | | | | | | | | | | | |
| 32 | | | | | 11 | DP | 100% | <5 | <1 | Sand Pack | |
| 33 | 10 | | Silty Sand: Grey, wet | -10 | | | | | | PVC Screen | |
| 34 | | | Silt: Grey, some fine sand, wet | | 12 | DP | | <5 | <1 | | |
| 35 | | | | | | | | | | Cap | |
| 36 | 11 | | Borehole terminated at 10.66 mbgs in silt | -11 | | | | | | | |
| 37 | | | | | | | | | | | |
| 38 | | | | | | | | | | | |
| 39 | | | | | | | | | | | |
| 40 | 12 | | | -12 | | | | | | | |

**Logged By:** Matt Cunnigham **Input By:** Brenden Hnatiw

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# Log of Borehole: BH301



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Chayell Hotels Ltd. | **Project Name:** | Phase Two Environmental Site Assesment | **Project No.:** | 9326-001 |
| **Contractor:** | Walker Drilling | **Method:** | Hollow Stem Augers | **Date Completed:** | 21-10-2019 |
| **Location:** | 220 Bradford Street, Barrie, ON | **UTM:** | 17T, 604094, 491446 | **Elevation:** | 224.91 masl |

| SUBSURFACE PROFILE | | | | SAMPLING INFO | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (ft) | Depth (m) | Lithology | Description | Elevation (m) | Number | Type | % Recovery | CSV (ppm) | OV (ppm) | Well Installation | Remarks |
| 0 | 0 | | Fill: Brown sand, with organics, trace gravel, moist, very loose | 0 | 1 | SS | 40 | - | - | Cap | |
| 3 | 1 | | Sand: Brown sand, some gravel, trace organics, moist, loose | -1 | 2 | SS | 50 | - | - | Grout | |
| | | | Compact | | 3 | SS | 70 | - | - | Bentonite Plug | |
| 7 | 2 | | | -2 | | | | | | PVC Riser | |
| | | | | | 4 | SS | 80 | - | - | | |
| 10 | 3 | | | -3 | | | | | | Sand Pack | |
| | | | | | 5 | SS | 80 | - | - | PVC Screen | |
| 13 | 4 | | | -4 | | | | | | | |
| | | | Wet | | 6 | SS | 80 | - | - | | |
| 17 | 5 | | | -5 | | | | | | | |
| 20 | 6 | | | -6 | | | | | | | |
| | | | Sandy Silt: Grey sandy silt, trace gravel, trace clay, wet, compact | | 7 | SS | 90 | - | - | | |
| 23 | 7 | | | -7 | | | | | | | |
| | | | Loose | | 8 | SS | 90 | - | - | | |
| 27 | 8 | | | -8 | | | | | | | |
| 30 | 9 | | | -9 | | | | | | | |
| | | | Compact | | 9 | SS | 100 | - | - | Cap | |
| 33 | 10 | | Borehole terminated at 9.6 mbgs in sandy silt | -10 | | | | | | | |
| 36 | 11 | | | -11 | | | | | | | |
| 40 | 12 | | | -12 | | | | | | | |

**Logged By:** BW **Input By:** BH

Peterborough
Barrie
Oshawa
Kingston
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# Log of Borehole: BH401



**Client:** Chayell Hotels Ltd. **Project Name:** Phase Two Environmental Site Assessment **Project No.:** 9326-001

**Contractor:** Strata Drilling Group **Method:** Hollow Stem Augers **Date Completed:** 30-01-2020

**Location:** 220 Bradford Street, Barrie, ON **UTM:** 17T, 604146, 4914467 **Elevation:** 222.75 masl

| SUBSURFACE PROFILE | | | | SAMPLING INFO | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (ft) | Depth (m) | Lithology | Description | Elevation (m) | Number | Type | % Recovery | CSV (ppm) | OV (ppm) | Well Installation | Remarks |
| 0–40 | 0–12 | | Fill: Brown silty sand, moist | 0 to -1 | N/A | N/A | N/A | N/A | N/A | Cap; Flush Mount | Water level Feb 12, 2020 |
| | | | Silty Sand: Light brown, moist | -1 to -2 | | | | | | | |
| | | | wet | -2 to -3 | | | | | | | |
| | | | | -3 to -4 | | | | | | Bentonite Plug; PVC Riser | |
| | | | grey | -4 to -6 | | | | | | | |
| | | | some clay | -6 to -9 | | | | | | | |
| | | | Silt: Grey, some clay, wet | -9 to -10 | | | | | | Sand Pack; PVC Screen | |
| | | | | -10 to -11 | | | | | | Cap | |
| | | | | -11 to -12 | | | | | | | |

**Logged By:** B. White **Input By:** N. Wright

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Barrie
Oshawa
Kingston
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# Log of Borehole: BH402



**Client:** Chayell Hotels Ltd. **Project Name:** Phase Two Environmental Site Assessment **Project No.:** 9326-001

**Contractor:** Strata Drilling Group **Method:** Hollow Stem Augers **Date Completed:** 30-01-2020

**Location:** 220 Bradford Street, Barrie, ON **UTM:** 17T, 604081, 4914469 **Elevation:** 225.13 masl

| SUBSURFACE PROFILE | | | | SAMPLING INFO | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Depth (ft) | Depth (m) | Lithology | Description | Elevation (m) | Number | Type | % Recovery | CSV (ppm) | OV (ppm) | Well Installation | Remarks |
| 0–40 | 0–12 | | Topsoil: moist | 0 to -12 | N/A | N/A | N/A | N/A | N/A | Cap; Monument; Bentonite Plug; PVC Riser; Sand Pack; PVC Screen; Cap | Water level Feb 12, 2020 |
| | | | Silty Sand: Brown, moist | | | | | | | | |
| | | | Silt: Grey, some sand, trace clay, wet | | | | | | | | |

**Logged By:** B. White **Input By:** N. Wright

# Log of Borehole: MW101

***Project #:*** 227626 ***Logged By:*** KK

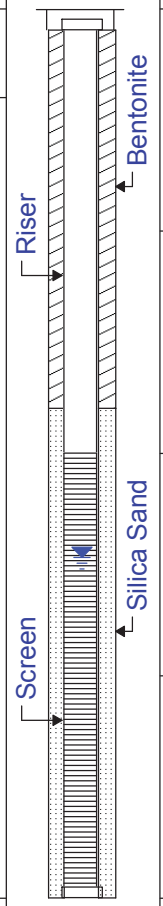
***Project:*** Phase II Environmental Site Assessment

***Client:*** Chayell Hospitality Group Inc.

***Location:*** 220 Bradford Street, Barrie, Ontario

***Drill Date:*** August 23, 2018

| SUBSURFACE PROFILE | | | | | SAMPLE | | | |
|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Measured Depth (m) | Monitoring Well Details | Recovery (%) | Sample ID | Soil Vapour Concentration (ppm) CGI/PID | Laboratory Analysis |
| 0 / 0 | | Ground Surface | 0.00 | | | | | |
| 1 / 0 | | ***Topsoil*** Black sandy silt, with organics. | 0.61 | | 50 | BH101-1 | 0/0 | |
| 2 / 1 | | ***Sand*** Brown to light brown, damp. | | | | BH101-2 | 0/0 | |
| 5 / 2 | | | | | 90 | BH101-3 | 0/0 | |
| 6 / 2 | | | | | | BH101-4 | 0/0 | |
| 10 / 3 | | | | | | BH101-5 | 0/0 | |
| 12 / 4 | | Grey-brown, wet below 3.81 mbgs. | | | 100 | BH101-6 | 0/0 | Grain Size |
| 15 / 5 | | Some silt, wet below 4.88 mbgs. | | | | BH101-7 | 0/0 | |
| 16 / 5 | | | | | 100 | BH101-8 | 0/1 | VOCs |
| 20 / 6 | | | 6.10 | | | | | |
| 20 / 6 | | End of Borehole | | Water level measured at 3.76 mbgs on August 27, 2018. | | | | |
| 23 / 7 | | Soil vapour concentrations measured using a RKI Eagle 2 equipped with a photoionization detector (PID) and a combustible gas indicator (CGI). | | | | | | |




***Contractor:*** Strata

***Grade Elevation:*** NM

***Drilling Method:*** Direct Push

***Top of Casing Elevation:*** NM

***Well Casing Size:*** 5.1 cm

***Sheet:*** 1 of 1

# Log of Borehole: MW102

**Project #:** 227626 **Logged By:** KK

**Project:** Phase II Environmental Site Assessment

**Client:** Chayell Hospitality Group Inc.

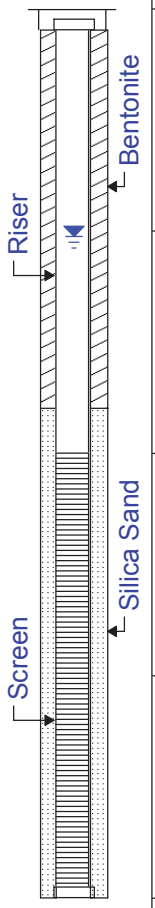
**Location:** 220 Bradford Street, Barrie, Ontario

**Drill Date:** August 23, 2018

## SUBSURFACE PROFILE

| Depth (ft / m) | Description | Measured Depth (m) |
|---|---|---|
| 0 / 0 | Ground Surface | 0.00 |
| 0 / 0 | ***Sand and Gravel*** Brown to black, some silt, damp. | 0.46 |
| 2 / 1 | ***Silty Sand*** Brown to light brown, some gravel, damp. | |
| 6 / 2 | Dark brown, wet below 1.83 mbgs. | |
| 7 / 2 | Grey-brown wet below 2.29 mbgs. | |
| 20 / 6 | | 6.10 |
| 20 / 6 | End of Borehole | |

Soil vapour concentrations measured using a RKI Eagle 2 equipped with a photoionization detector (PID) and a combustible gas indicator (CGI).




Water level measured at 1.56 mbgs on August 27, 2018.

## SAMPLE

| Recovery (%) | Sample ID | Soil Vapour Concentration (ppm) CGI/PID | Laboratory Analysis |
|---|---|---|---|
| 30 | BH102-1 | 0/0 | |
| | BH102-2 | 0/0 | |
| 80 | BH102-3 | 0/0 | |
| | BH102-4 | 0/0 | |
| 95 | BH102-5 | 5/0 | |
| | BH102-6 | 0/0 | Grain Size |
| 100 | BH102-7 | 0/0 | |
| | BH102-8 | 0/0 | VOCs |

**Contractor:** Strata

**Drilling Method:** Direct Push

**Well Casing Size:** 5.1 cm

**Grade Elevation:** 100.441 mREL

**Top of Casing Elevation:** 100.366 mREL

**Sheet:** 1 of 1

# Log of Borehole: MW103

**Project #:** 227626 **Logged By:** KK

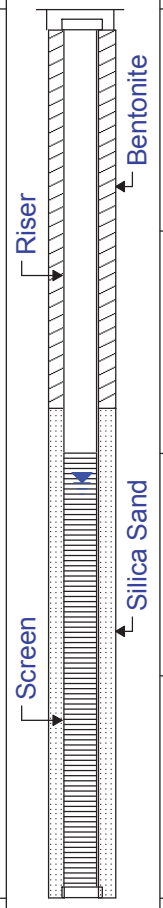
**Project:** Phase II Environmental Site Assessment

**Client:** Chayell Hospitality Group Inc.

**Location:** 220 Bradford Street, Barrie, Ontario

**Drill Date:** August 23, 2018

| SUBSURFACE PROFILE | | | | | SAMPLE | | | |
|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Measured Depth (m) | Monitoring Well Details | Recovery (%) | Sample ID | Soil Vapour Concentration (ppm) CGI/PID | Laboratory Analysis |
| 0 / 0 | | Ground Surface | 0.00 | | | | | |
| | | ***Topsoil*** Dark brown, with organics, damp. | | | 55 | BH103-1 | 0/0 | |
| | | ***Sand*** Brown to grey-brown, damp. | | | | BH103-2 | 0/0 | pH |
| | | | | | 75 | BH103-3 | 0/0 | |
| | | | | | | BH103-4 | 0/0 | |
| | | Grey-brown, wet below 3.66 mbgs. | | | 85 | BH103-5 | 0/0 | |
| | | | | | | BH103-6 | 0/0 | pH |
| | | | | | 95 | BH103-7 | 0/9 | VOCs |
| 20 / 6 | | | 6.10 | | | BH103-8 | 0/0 | |
| | | End of Borehole | | Water level measured at 3.25 mbgs on August 27, 2018. | | | | |
| | | Soil vapour concentrations measured using a RKI Eagle 2 equipped with a photoionization detector (PID) and a combustible gas indicator (CGI). | | | | | | |




**Contractor:** Strata

**Grade Elevation:** 101.996 mREL

**Drilling Method:** Direct Push

**Top of Casing Elevation:** 102.619 mREL

**Well Casing Size:** 5.1 cm

**Sheet:** 1 of 1

# Log of Borehole: MW104

**Project #:** 227626 **Logged By:** KK

**Project:** Phase II Environmental Site Assessment

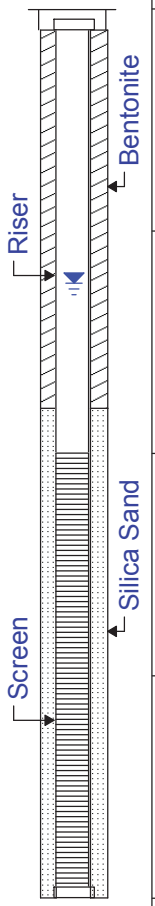
**Client:** Chayell Hospitality Group Inc.

**Location:** 220 Bradford Street, Barrie, Ontario

**Drill Date:** August 23, 2018

## SUBSURFACE PROFILE

| Depth (ft / m) | Symbol | Description | Measured Depth (m) |
|---|---|---|---|
| 0 / 0 | | Ground Surface | 0.00 |
| | | ***Sand and Gravel*** Dark brown, with asphalt pieces, damp. | |
| | | ***Sand*** Brown to grey-brown, damp. | |
| | | Grey-brown, wet below 1.83 mbgs. | |
| 20 / 6 | | | 6.10 |
| | | End of Borehole | |
| | | Soil vapour concentrations measured using a RKI Eagle 2 equipped with a photoionization detector (PID) and a combustible gas indicator (CGI). | |




Water level measured at 1.88 mbgs on August 27, 2018.

## SAMPLE

| Recovery (%) | Sample ID | Soil Vapour Concentration (ppm) CGI/PID | Laboratory Analysis |
|---|---|---|---|
| | BH104-1 | 0/0 | |
| 55 | BH104-2 | 0/0 | |
| | BH104-3 | 0/0 | |
| 75 | BH104-4 | 0/0 | |
| | BH104-5 | 0/0 | |
| 100 | BH104-6 | 0/2 | |
| | BH104-7 | 1000/2 | BTEX, PHCs |
| 100 | BH104-8 | 730/2 | VOCs |

**Contractor:** Strata

**Drilling Method:** Direct Push

**Well Casing Size:** 5.1 cm

**Grade Elevation:** 101.996 mREL

**Top of Casing Elevation:** 102.619 mREL

**Sheet:** 1 of 1

# Log of Borehole: MW1/BH1

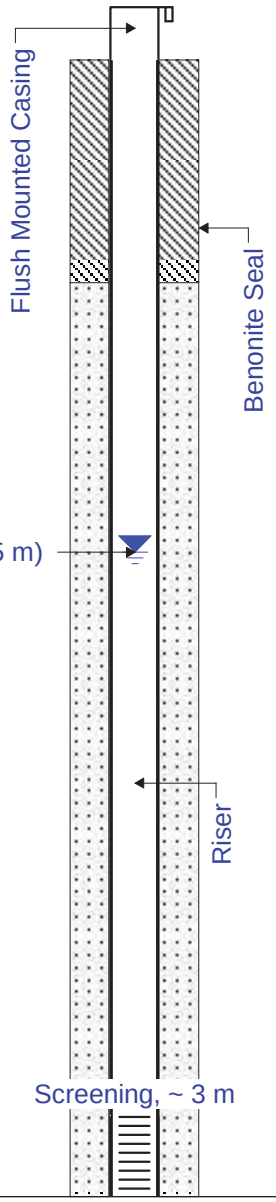
T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

***Project No.:*** THEM # T16-16418-00
***Project:*** Limited Phase II ESA
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

***Enclosure:***
***Project Manager:*** Raj Kundu

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| 0 / 0 | | **Ground Surface** | 0.0 | | | | | |
| | | ***Fill Materials*** Granular fill materials with inclusions of pea gravel | 0.0 | 1-1 | | 50% | ppm | |
| | | | -4.0 | | | | | |
| | | ***Sand*** Loose, damp, brown sand | 4.0 | | | | | |
| | | | | 1-2 | | 75% | ppm | |
| | | | -8.0 | | | | | |
| | | ***Sand*** Loose, damp, brown sand | 8.0 | | | | | |
| | | | | 1-3 | | 100% | ppm | |

Water Level February 26, 2016 (1.5 m)




***Drilled By:*** Strata Soil Sampling Inc.
***Drill Method:*** Geoprobe 6620 DT
***Drill Date:*** February 23, 2016

***Hole Size:*** 5 cm
***Datum:*** Grade
***Sheet:*** 1 of 2

T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

# Log of Borehole: MW1/BH1

***Project No.:*** THEM # T16-16418-00
***Enclosure:***
***Project:*** Limited Phase II ESA
***Project Manager:*** Raj Kundu
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| | | | -12.0 | | | | | |
| 12 | | ***Sand*** Loose, wet, brown sand | 12.0 | | | | | |
| 14 | | | | 1-4 | | 100% | ppm | |
| | | | -16.0 | | | | | |
| 16 | | ***Clayey Sand*** Medium dense, wet, grey clayey sand | 16.0 | | | | | |
| | 5 | | | | | | | |
| 18 | | | | 1-5 | | 100% | ppm | |
| | | | -20.0 | | | | | |
| 20 | | | 20.0 | | | | | End of Borehole 6.1 m |

#2 Silica Sand

***Drilled By:*** Strata Soil Sampling Inc.
***Hole Size:*** 5 cm
***Drill Method:*** Geoprobe 6620 DT
***Datum:*** Grade
***Drill Date:*** February 23, 2016
***Sheet:*** 2 of 2

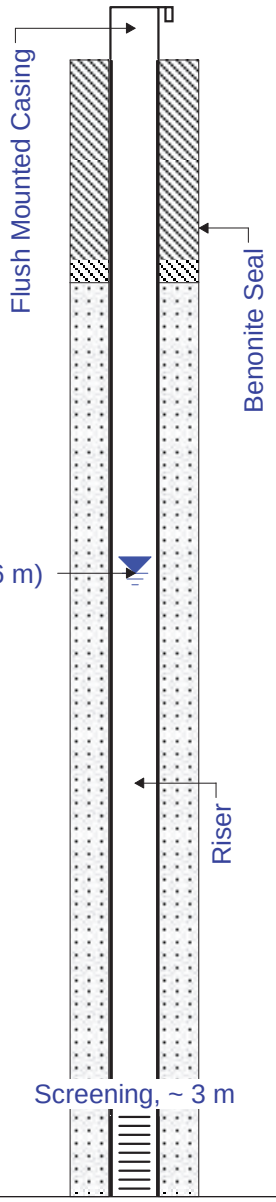
T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

# Log of Borehole: MW2/BH2

***Project No.:*** THEM # T16-16418-00
***Enclosure:***
***Project:*** Limited Phase II ESA
***Project Manager:*** Raj Kundu
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| 0 / 0 | | **Ground Surface** | 0.0 | | | | | |
| | | ***Asphalt*** | 0.0 | | | | | |
| | | ***Sand***<br>Loose, moist, brown sand | | 2-1 | | 75% | 0.3ppm | |
| | | | -4.0 | | | | | |
| | | ***Sand***<br>Loose, damp, brow-red sand | 4.0 | | | | | |
| | | | | 2-2 | | 75% | 0.2ppm | |
| | | | -8.0 | | | | | |
| | | ***Sand***<br>Loose, wet, brow-grey sand | 8.0 | | | | | |
| | | | | 2-3 | | 100% | 0.3ppm | |

Water Level February 26, 2016 (1.56 m)



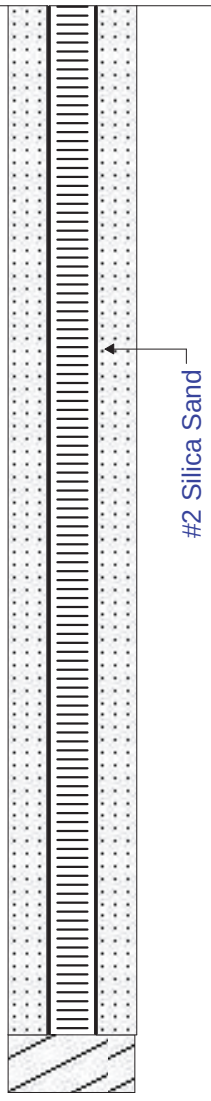

***Drilled By:*** Strata Soil Sampling Inc.
***Hole Size:*** 5 cm
***Drill Method:*** Geoprobe 6620 DT
***Datum:*** Grade
***Drill Date:*** February 23, 2016
***Sheet:*** 1 of 2

T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

# Log of Borehole: MW2/BH2

***Project No.:*** THEM # T16-16418-00
***Enclosure:***
***Project:*** Limited Phase II ESA
***Project Manager:*** Raj Kundu
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| | | | -12.0 | | | | | |
| 12 | | ***Sand*** Loose, wet, brown sand | 12.0 | | | | | |
| 14 | | | -16.0 | | | | | |
| 16 | | ***Clayey Sand*** Medium dense, wet, grey clayey sand | 16.0 | | | | | |
| | 5 | | | | | | | |
| 18 | | | -20.0 | | | | | |
| 20 | | | 20.0 | | | | | End of Borehole 6.1 m |



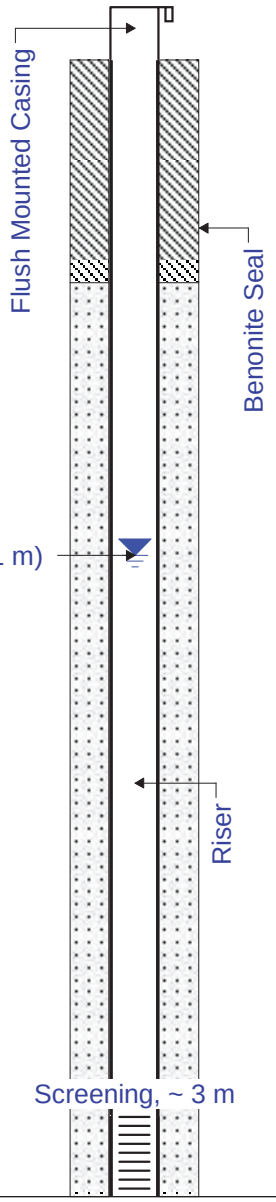

***Drilled By:*** Strata Soil Sampling Inc.
***Hole Size:*** 5 cm
***Drill Method:*** Geoprobe 6620 DT
***Datum:*** Grade
***Drill Date:*** February 23, 2016
***Sheet:*** 2 of 2

T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

# Log of Borehole: MW3/BH3

***Project No.:*** THEM # T16-16418-00
***Enclosure:***
***Project:*** Limited Phase II ESA
***Project Manager:*** Raj Kundu
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| 0 / 0 | | **Ground Surface** | 0.0 | | | | | |
| | | ***Topsoil*** | 0.0 | | | | | |
| | | ***Sand***<br>Loose, damp, brown-grey sand | | | | 75% | | |
| | | | -4.0 | | | | | |
| | | ***Sand***<br>Loose, damp, grey sand | 4.0 | | | | | |
| | | | | 3-2 | | 75% | 0.1ppm | |
| | | | -8.0 | | | | | |
| | | ***Sand***<br>Loose, wet, brown-grey sand | 8.0 | | | | | |
| | | | | 3-3 | | 100% | 0.1ppm | |




***Drilled By:*** Strata Soil Sampling Inc.
***Hole Size:*** 5 cm
***Drill Method:*** Geoprobe 6620 DT
***Datum:*** Grade
***Drill Date:*** February 23, 2016
***Sheet:*** 1 of 2

T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

# Log of Borehole: MW3/BH3

***Project No.:*** THEM # T16-16418-00
***Enclosure:***
***Project:*** Limited Phase II ESA
***Project Manager:*** Raj Kundu
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| | | | -12.0 | | | | | |
| 12 | | ***Sand*** Loose, wet, brown sand | 12.0 | | | | | |
| 14 | | | | | | | | |
| | | | -16.0 | | | | | |
| 16 | | ***Clayey Sand*** Medium dense, wet, grey clayey sand | 16.0 | | | | | |
| | 5 | | | | | | | |
| 18 | | | | | | | | |
| | | | -20.0 | | | | | |
| 20 | | | 20.0 | | | | | |

#2 Silica Sand

End of Borehole 6.1 m

***Drilled By:*** Strata Soil Sampling Inc.
***Hole Size:*** 5 cm
***Drill Method:*** Geoprobe 6620 DT
***Datum:*** Grade
***Drill Date:*** February 23, 2016
***Sheet:*** 2 of 2

T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

# Log of Borehole: BH4

***Project No.:*** THEM# T16-16418-00
***Enclosure:***
***Project:*** Limited Phase II ESA
***Project Manager:*** Raj Kundu
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| 0 / 0 | | **Ground Surface** | 0.0 | | | | | |
| | | ***Sand***<br>Loose, damp, brown sand | 0.0 | 4-1 | | 10% | | Not applicable |
| 4 | | | -4.0<br>4.0 | | | | | |

***Drilled By:*** Strata Soil Sampling Inc.
***Hole Size:*** 5 cm
***Drill Method:*** Geoprobe 6620 DT
***Datum:*** Grade
***Drill Date:*** February 23, 2016
***Sheet:*** 1 of 1

T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

# Log of Borehole: BH5

***Project No.:*** THEM# T16-16418-00
***Enclosure:***
***Project:*** Limited Phase II ESA
***Project Manager:*** Raj Kundu
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| 0 / 0 | | **Ground Surface** | 0.0 | | | | | No samples were submeted to the Lab – |
| | | ***Sand***<br>0-2<br>Granular fill materials<br>2-4<br>Loose, moist, brown sand | 0.0 | | | | | |
| 2 | | | | | | | | |
| | | | -4.0 | | | | | |
| 4 | | | 4.0 | | | | | |

***Drilled By:*** Strata Soil Sampling Inc.
***Hole Size:*** 5 cm
***Drill Method:*** Geoprobe 6620 DT
***Datum:*** Grade
***Drill Date:*** February 23, 2016
***Sheet:*** 1 of 1

T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

# Log of Borehole: BH6

***Project No.:*** THEM# T16-16418-00
***Enclosure:***
***Project:*** Limited Phase II ESA
***Project Manager:*** Raj Kundu
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| 0 / 0 | | **Ground Surface** | 0.0 | | | | | |
| | | ***Sand***<br>0-2<br>Granular fill materials<br>2-4<br>Loose, damp, brown sand | 0.0<br>-4.0 | | | | | |
| 4 | | ***Sand***<br>Loose, damp, brown sand | 4.0 | 6-2 | | 75% | 0.3ppm | Not applicable |
| 6 / 2 | | | -8.0 | | | | | |
| 8 | | | 8.0 | | | | | |

***Drilled By:*** Strata Soil Sampling Inc.
***Hole Size:*** 5 cm
***Drill Method:*** Geoprobe 6620 DT
***Datum:*** Grade
***Drill Date:*** February 23, 2016
***Sheet:*** 1 of 1

T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

# Log of Borehole: BH7

***Project No.:*** THEM# T16-16418-00
***Enclosure:***
***Project:*** Limited Phase II ESA
***Project Manager:*** Raj Kundu
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| 0 / 0 | | **Ground Surface** | 0.0 | | | | | |
| | | ***Sand***<br>0-2<br>Granular fill materials<br>2-4<br>Loose, moist, brown sand | 0.0 | 7-1 | | 70% | | |
| | | | -4.0 | | | | | |
| 4 | | ***Sand***<br>Loose, moist, brown sand | 4.0 | | | | | Not applicable |
| 6 / 2 | | | | | | 70% | | |
| | | | -8.0 | | | | | |
| 8 | | | 8.0 | | | | | |

***Drilled By:*** Strata Soil Sampling Inc.
***Hole Size:*** 5 cm
***Drill Method:*** Geoprobe 6620 DT
***Datum:*** Grade
***Drill Date:*** February 23, 2016
***Sheet:*** 1 of 1

T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

# Log of Borehole: BH8

***Project No.:*** THEM# T16-16418-00
***Enclosure:***
***Project:*** Limited Phase II ESA
***Project Manager:*** Raj Kundu
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| 0 / 0 | | **Ground Surface** | 0.0 | | | | | |
| | | ***Sand***<br>0-2<br>Granular fill materials<br>2-4<br>Loose, moist, brown sand | 0.0<br>-4.0 | | | | | |
| 4 | | ***Sand***<br>Loose, damp, brown sand | 4.0 | 8-2 | | | | Not applicable |
| 6 / 2 | | | -8.0 | | | | | |
| 8 | | | 8.0 | | | | | |

***Drilled By:*** Strata Soil Sampling Inc.
***Hole Size:*** 5 cm
***Drill Method:*** Geoprobe 6620 DT
***Datum:*** Grade
***Drill Date:*** February 23, 2016
***Sheet:*** 1 of 1

T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

# Log of Borehole: BH9

***Project No.:*** THEM# T16-16418-00
***Enclosure:***
***Project:*** Limited Phase II ESA
***Project Manager:*** Raj Kundu
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| 0 / 0 | | **Ground Surface** | 0.0 | | | | | |
| | | ***Sand***<br>0-2<br>Granular fill materials<br>2-4<br>Loose, moist, brown sand | 0.0<br>-4.0 | | | | | |
| 4 | | ***Sand***<br>Loose, moist, grey sand | 4.0 | 9-2 | | | 0.2ppm | Not applicable |
| 6 / 2 | | | -8.0 | | | | | |
| 8 | | | 8.0 | | | | | |

***Drilled By:*** Strata Soil Sampling Inc.
***Hole Size:*** 5 cm
***Drill Method:*** Geoprobe 6620 DT
***Datum:*** Grade
***Drill Date:*** February 23, 2016
***Sheet:*** 1 of 1

T. Harris Environmental Management Inc.
93 Skyway Avenue, Suite 101

# Log of Borehole: BH10

***Project No.:*** THEM# T16-16418-00
***Enclosure:***
***Project:*** Limited Phase II ESA
***Project Manager:*** Raj Kundu
***Client:*** Mr. Joseph Tascona
***Location:*** 220 Bradford Street, Barrie

| SUBSURFACE PROFILE | | | | SAMPLE | | | | |
|---|---|---|---|---|---|---|---|---|
| Depth (ft / m) | Symbol | Description | Depth/Elev. | Number | Type | Recovery, % | Vapour, ppm | Well Completion Details |
| 0 / 0 | | **Ground Surface** | 0.0 | | | | | |
| | | ***Sand***<br>0-2<br>Granular fill materials<br>2-4<br>Loose, moist, brown-red sand | 0.0 | 10-1 | | | | |
| | | | -4.0 | | | | | |
| 4 | | ***Sand***<br>Loose, moist, brown sand | 4.0 | | | | | Not applicable |
| 6 / 2 | | | -8.0 | | | | | |
| 8 | | | 8.0 | | | | | |

***Drilled By:*** Strata Soil Sampling Inc.
***Hole Size:*** 5 cm
***Drill Method:*** Geoprobe 6620 DT
***Datum:*** Grade
***Drill Date:*** February 23, 2016
***Sheet:*** 1 of 1

# Appendix F
# Laboratory Certificates of Analysis

CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (i)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| pH | 3 | Holly Lane | LMG | 03-Sep-19 | A-PH-01 (o) | SM 4500H |
| Chromium (VI) | 6 | Holly Lane | LMG | 03-Sep-19 | D-CRVI-02 (o) | EPA7196A |
| Mercury | 6 | Holly Lane | PBK | 04-Sep-19 | D-HG-01 (o) | EPA 7471A |
| Boron - HWS | 6 | Holly Lane | AHM | 04-Sep-19 | D-HWE s | MOE3470 |
| Metals - ICP-OES | 6 | Holly Lane | AHM | 04-Sep-19 | D-ICP-02 (o) | EPA 6010 |
| Metals - ICP-MS | 6 | Holly Lane | TPR | 04-Sep-19 | D-ICPMS-01 (o) | EPA 6020 |

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg
F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)
F2 C10-C16 hydrocarbons in µg/g, (F2-napth if requested)
F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)
F4 C34-C50 hydrocarbons in µg/g
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
Any deviations from the method are noted and reported for any particular sample.
nC6 and nC10 response factor is within 30% of response factor for toluene:
nC10,nC16 and nC34 response factors within 10% of each other:
C50 response factors within 70% of nC10+nC16+nC34 average:
Linearity is within 15%:
All results expressed on a dry weight basis.
Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met.
If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC
QC will be made available upon request.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

CADUCEON ENVIRONMENTAL LABORATORIES
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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (i)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 204 1.50-2.18m | BH 205 0.0-1.52m | QA/QC 2 | BH 201 1.8-2.1m | O. Reg. 153 Tbl. 8 - RPIICC | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27055-1 | B19-27055-3 | B19-27055-7 | B19-27055-9 | | |
| | Date Collected | | 22-Aug-19 | 22-Aug-19 | 22-Aug-19 | 26-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| pH @25°C | pH Units | | | | | | | |
| Antimony | µg/g | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.3 | |
| Arsenic | µg/g | 0.5 | 0.7 | 0.9 | 0.7 | 0.6 | 18 | |
| Barium | µg/g | 1 | 12 | 18 | 8 | 8 | 220 | |
| Beryllium | µg/g | 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 2.5 | |
| Boron | µg/g | 0.5 | 10.0 | 11.0 | 10.0 | 11.1 | 36 | |
| Boron (HWS) | µg/g | 0.02 | 0.21 | 0.26 | 0.16 | 0.25 | 1.5 | |
| Cadmium | µg/g | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.2 | |
| Chromium | µg/g | 1 | 10 | 9 | 9 | 8 | 70 | |
| Chromium (VI) | µg/g | 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 0.66 | |
| Cobalt | µg/g | 1 | 2 | 2 | 2 | 2 | 22 | |
| Copper | µg/g | 1 | 2 | 2 | 1 | 2 | 92 | |
| Lead | µg/g | 5 | < 5 | 13 | < 5 | < 5 | 120 | |
| Mercury | µg/g | 0.005 | 0.008 | 0.025 | 0.006 | < 0.005 | 0.27 | |
| Molybdenum | µg/g | 1 | < 1 | < 1 | < 1 | < 1 | 2 | |
| Nickel | µg/g | 1 | 3 | 4 | 2 | 2 | 82 | |
| Selenium | µg/g | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.5 | |
| Silver | µg/g | 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 0.5 | |
| Thallium | µg/g | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 1 | |
| Uranium | µg/g | 0.1 | 0.4 | 0.3 | 0.3 | 0.4 | 2.5 | |
| Vanadium | µg/g | 1 | 31 | 27 | 28 | 24 | 86 | |
| Zinc | µg/g | 3 | 13 | 18 | 9 | 10 | 290 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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CADUCEON ENVIRONMENTAL LABORATORIES
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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (i)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 201 3.0-3.7m | BH 203 0.6-1.5m | BH 202 0.6-1.5m | BH 201 0.9-1.5m | O. Reg. 153 Tbl. 8 - RPIICC | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27055-10 | B19-27055-11 | B19-27055-12 | B19-27055-15 | | |
| | Date Collected | | 26-Aug-19 | 26-Aug-19 | 26-Aug-19 | 26-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| pH @25°C | pH Units | | 7.72 | | | 7.81 | | |
| Antimony | µg/g | 0.5 | | < 0.5 | < 0.5 | | 1.3 | |
| Arsenic | µg/g | 0.5 | | 1.0 | 1.0 | | 18 | |
| Barium | µg/g | 1 | | 26 | 31 | | 220 | |
| Beryllium | µg/g | 0.2 | | 0.2 | 0.2 | | 2.5 | |
| Boron | µg/g | 0.5 | | 12.6 | 12.9 | | 36 | |
| Boron (HWS) | µg/g | 0.02 | | 0.19 | 0.19 | | 1.5 | |
| Cadmium | µg/g | 0.5 | | < 0.5 | < 0.5 | | 1.2 | |
| Chromium | µg/g | 1 | | 8 | 8 | | 70 | |
| Chromium (VI) | µg/g | 0.2 | | < 0.2 | < 0.2 | | 0.66 | |
| Cobalt | µg/g | 1 | | 3 | 3 | | 22 | |
| Copper | µg/g | 1 | | 6 | 5 | | 92 | |
| Lead | µg/g | 5 | | < 5 | < 5 | | 120 | |
| Mercury | µg/g | 0.005 | | 0.009 | 0.014 | | 0.27 | |
| Molybdenum | µg/g | 1 | | < 1 | < 1 | | 2 | |
| Nickel | µg/g | 1 | | 5 | 5 | | 82 | |
| Selenium | µg/g | 0.5 | | < 0.5 | < 0.5 | | 1.5 | |
| Silver | µg/g | 0.2 | | < 0.2 | < 0.2 | | 0.5 | |
| Thallium | µg/g | 0.1 | | < 0.1 | < 0.1 | | 1 | |
| Uranium | µg/g | 0.1 | | 0.4 | 0.4 | | 2.5 | |
| Vanadium | µg/g | 1 | | 18 | 17 | | 86 | |
| Zinc | µg/g | 3 | | 18 | 22 | | 290 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (i)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | QA/QC 8 | | | | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27055-16 | | | | Tbl. 8 - | |
| | Date Collected | | 26-Aug-19 | | | | RPIICC | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| pH @25°C | pH Units | | 7.79 | | | | | |
| Antimony | µg/g | 0.5 | | | | | 1.3 | |
| Arsenic | µg/g | 0.5 | | | | | 18 | |
| Barium | µg/g | 1 | | | | | 220 | |
| Beryllium | µg/g | 0.2 | | | | | 2.5 | |
| Boron | µg/g | 0.5 | | | | | 36 | |
| Boron (HWS) | µg/g | 0.02 | | | | | 1.5 | |
| Cadmium | µg/g | 0.5 | | | | | 1.2 | |
| Chromium | µg/g | 1 | | | | | 70 | |
| Chromium (VI) | µg/g | 0.2 | | | | | 0.66 | |
| Cobalt | µg/g | 1 | | | | | 22 | |
| Copper | µg/g | 1 | | | | | 92 | |
| Lead | µg/g | 5 | | | | | 120 | |
| Mercury | µg/g | 0.005 | | | | | 0.27 | |
| Molybdenum | µg/g | 1 | | | | | 2 | |
| Nickel | µg/g | 1 | | | | | 82 | |
| Selenium | µg/g | 0.5 | | | | | 1.5 | |
| Silver | µg/g | 0.2 | | | | | 0.5 | |
| Thallium | µg/g | 0.1 | | | | | 1 | |
| Uranium | µg/g | 0.1 | | | | | 2.5 | |
| Vanadium | µg/g | 1 | | | | | 86 | |
| Zinc | µg/g | 3 | | | | | 290 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (i)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

**Summary of Exceedances**

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Christine Burke
Lab Manager


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CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (ii)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| % Moisture | 7 | Richmond Hill | FAL | 03-Sep-19 | A-% moisture RH | |
| PHC(F2-F4) | 7 | Kingston | KPR | 30-Aug-19 | C-PHC-S-001 (k) | CWS Tier 1 |
| PHC(F2-F4) | 1 | Kingston | MLY | 03-Sep-19 | C-PHC-S-001 (k) | CWS Tier 1 |
| VOC's | 7 | Richmond Hill | FAL | 28-Aug-19 | C-VOC-02 (rh) | EPA 8260 |
| PHC(F1) | 7 | Richmond Hill | FAL | 28-Aug-19 | C-VPHS-01 (rh) | CWS Tier 1 |

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg
F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)
F2 C10-C16 hydrocarbons in µg/g, (F2-napth if requested)
F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)
F4 C34-C50 hydrocarbons in µg/g
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
Any deviations from the method are noted and reported for any particular sample.
nC6 and nC10 response factor is within 30% of response factor for toluene:
nC10,nC16 and nC34 response factors within 10% of each other:
C50 response factors within 70% of nC10+nC16+nC34 average:
Linearity is within 15%:
All results expressed on a dry weight basis.
Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met.
If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC
QC will be made available upon request.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Christine Burke
Lab Manager


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CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (ii)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 204 3.05-4.14m | BH 205 3.04-4.57m | BH 207 3.05-3.40m | BH 208 4.57-5.47m | O. Reg. 153 Tbl. 8 - RPIICC | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27055-2 | B19-27055-4 | B19-27055-5 | B19-27055-6 | | |
| | Date Collected | | 22-Aug-19 | 22-Aug-19 | 22-Aug-19 | 22-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acetone | µg/g | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Benzene | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.02 | |
| Bromodichloromethane | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Bromoform | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Bromomethane | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Carbon Tetrachloride | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Monochlorobenzene (Chlorobenzene) | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Chloroform | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Dibromochloromethane | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Dichlorobenzene,1,2- | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Dichlorobenzene,1,3- | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Dichlorobenzene,1,4- | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Dichlorodifluoromethane | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Dichloroethane,1,1- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Dichloroethane,1,2- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Dichloroethylene,1,1- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Dichloroethene, cis-1,2- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Dichloroethene, trans-1,2- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Dichloropropane,1,2- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Dichloropropene, cis-1,3- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | | |
| Dichloropropene, trans-1,3- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | | |
| Dichloropropene 1,3-cis+trans | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (ii)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 204 3.05-4.14m | BH 205 3.04-4.57m | BH 207 3.05-3.40m | BH 208 4.57-5.47m | O. Reg. 153 Tbl. 8 - RPIICC | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27055-2 | B19-27055-4 | B19-27055-5 | B19-27055-6 | | |
| | Date Collected | | 22-Aug-19 | 22-Aug-19 | 22-Aug-19 | 22-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Ethylbenzene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Dibromoethane,1,2-(Ethylene Dibromide) | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Hexane | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Methyl Ethyl Ketone | µg/g | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Methyl Isobutyl Ketone | µg/g | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Methyl-t-butyl Ether | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Dichloromethane (Methylene Chloride) | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Styrene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Tetrachloroethane,1,1,1,2- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Tetrachloroethane,1,1,2,2- | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Tetrachloroethylene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Toluene | µg/g | 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 0.2 | |
| Trichloroethane,1,1,1- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Trichloroethane,1,1,2- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.05 | |
| Trichloroethylene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.05 | |
| Trichlorofluoromethane | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.25 | |
| Vinyl Chloride | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.02 | |
| Xylene, m,p- | µg/g | 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | | |
| Xylene, o- | µg/g | 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | | |
| Xylene, m,p,o- | µg/g | 0.03 | < 0.03 | < 0.03 | < 0.03 | < 0.03 | 0.05 | |
| PHC F1 (C6-C10) | µg/g | 10 | < 10 | < 10 | < 10 | < 10 | 25 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (ii)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 204 3.05-4.14m | BH 205 3.04-4.57m | BH 207 3.05-3.40m | BH 208 4.57-5.47m | O. Reg. 153 Tbl. 8 - RPIICC | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27055-2 | B19-27055-4 | B19-27055-5 | B19-27055-6 | | |
| | Date Collected | | 22-Aug-19 | 22-Aug-19 | 22-Aug-19 | 22-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| PHC F2 (>C10-C16) | µg/g | 5 | < 5 | < 6 | < 5 | < 5 | 10 | |
| PHC F3 (>C16-C34) | µg/g | 10 | < 10 | < 10 | < 10 | < 10 | 240 | |
| PHC F4 (>C34-C50) | µg/g | 10 | < 10 | < 10 | < 10 | < 10 | 120 | |
| PHC F4 (Gravimetric) | µg/g | 50 | | | | | 120 | |
| % moisture | % | | 21.3 | 25.0 | 14.6 | 10.8 | | |

**1** . F4 Gravimetric analysis required as chromats did not return to baseline.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (ii)**


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**Caduceon Environmental Laboratories**
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Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | QA/QC 3 | BH 201 3.0-3.7m | BH 202 3.0-3.4m | | O. Reg. 153 Tbl. 8 - RPIICC | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27055-8 | B19-27055-10 | B19-27055-13 | | | |
| | Date Collected | | 22-Aug-19 | 26-Aug-19 | 26-Aug-19 | | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acetone | µg/g | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.5 | |
| Benzene | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.02 | |
| Bromodichloromethane | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Bromoform | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Bromomethane | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Carbon Tetrachloride | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Monochlorobenzene (Chlorobenzene) | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Chloroform | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Dibromochloromethane | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Dichlorobenzene,1,2- | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Dichlorobenzene,1,3- | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Dichlorobenzene,1,4- | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Dichlorodifluoromethane | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Dichloroethane,1,1- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Dichloroethane,1,2- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Dichloroethylene,1,1- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Dichloroethene, cis-1,2- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Dichloroethene, trans-1,2- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Dichloropropane,1,2- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Dichloropropene, cis-1,3- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | | |
| Dichloropropene, trans-1,3- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | | |
| Dichloropropene 1,3-cis+trans | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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CADUCEON ENVIRONMENTAL LABORATORIES
Client committed. Quality assured.

# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (ii)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | QA/QC 3 | BH 201 3.0-3.7m | BH 202 3.0-3.4m | | O. Reg. 153 Tbl. 8 - RPIICC | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27055-8 | B19-27055-10 | B19-27055-13 | | | |
| | Date Collected | | 22-Aug-19 | 26-Aug-19 | 26-Aug-19 | | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Ethylbenzene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Dibromoethane,1,2-(Ethylene Dibromide) | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Hexane | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Methyl Ethyl Ketone | µg/g | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.5 | |
| Methyl Isobutyl Ketone | µg/g | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.5 | |
| Methyl-t-butyl Ether | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Dichloromethane (Methylene Chloride) | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Styrene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Tetrachloroethane,1,1,1,2- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Tetrachloroethane,1,1,2,2- | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Tetrachloroethylene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Toluene | µg/g | 0.2 | < 0.2 | < 0.2 | < 0.2 | | 0.2 | |
| Trichloroethane,1,1,1- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Trichloroethane,1,1,2- | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.05 | |
| Trichloroethylene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.05 | |
| Trichlorofluoromethane | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.25 | |
| Vinyl Chloride | µg/g | 0.02 | < 0.02 | < 0.02 | < 0.02 | | 0.02 | |
| Xylene, m,p- | µg/g | 0.03 | < 0.03 | < 0.03 | < 0.03 | | | |
| Xylene, o- | µg/g | 0.03 | < 0.03 | < 0.03 | < 0.03 | | | |
| Xylene, m,p,o- | µg/g | 0.03 | < 0.03 | < 0.03 | < 0.03 | | 0.05 | |
| PHC F1 (C6-C10) | µg/g | 10 | < 10 | < 10 | < 10 | | 25 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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CADUCEON ENVIRONMENTAL LABORATORIES
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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (ii)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | QA/QC 3 | BH 201 3.0-3.7m | BH 202 3.0-3.4m | | O. Reg. 153 Tbl. 8 - RPIICC | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27055-8 | B19-27055-10 | B19-27055-13 | | | |
| | Date Collected | | 22-Aug-19 | 26-Aug-19 | 26-Aug-19 | | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| PHC F2 (>C10-C16) | µg/g | 5 | < 5 | < 5 | < 5 | | 10 | |
| PHC F3 (>C16-C34) | µg/g | 10 | < 10 | 18 | < 10 | | 240 | |
| PHC F4 (>C34-C50) | µg/g | 10 | < 10 | 47 [1] | < 10 | | 120 | |
| PHC F4 (Gravimetric) | µg/g | 50 | | **260** | | | 120 | |
| % moisture | % | | 21.8 | 18.6 | 16.0 | | | |

**1**. F4 Gravimetric analysis required as chromats did not return to baseline.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (ii)**


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112 Commerce Park Drive
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Tel: 705-252-5743
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DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

## Summary of Exceedances

| Table 8 - Res./Ind./Inst./Commercial/Community | | |
|---|---|---|
| **BH 201 3.0-3.7m** | Found Value | Limit |
| PHC F4 (Gravimetric) (µg/g) | 260 | 120 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

R.L. = Reporting Limit
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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Christine Burke
Lab Manager


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## Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (iii)**


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DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| SVOC | 5 | Kingston | SCG | 03-Sep-19 | C-NAB-S-001 (k) | EPA 8270 |

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg
F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)
F2 C10-C16 hydrocarbons in µg/g, (F2-napth if requested)
F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)
F4 C34-C50 hydrocarbons in µg/g
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
Any deviations from the method are noted and reported for any particular sample.
nC6 and nC10 response factor is within 30% of response factor for toluene:
nC10,nC16 and nC34 response factors within 10% of each other:
C50 response factors within 70% of nC10+nC16+nC34 average:
Linearity is within 15%:
All results expressed on a dry weight basis.
Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met.
If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC
QC will be made available upon request.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
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Test methods may be modified from specified reference method unless indicated by an *
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Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 204 1.50-2.18m | BH 205 0.0-1.52m | BH 203 0.6-1.5m | BH 202 0.6-1.5m | O. Reg. 153 Tbl. 8 - RPIICC | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27055-1 | B19-27055-3 | B19-27055-11 | B19-27055-12 | | |
| | Date Collected | | 22-Aug-19 | 22-Aug-19 | 26-Aug-19 | 26-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acenaphthene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.072 | |
| Acenaphthylene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.093 | |
| Anthracene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.22 | |
| Benzo(a)anthracene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.360 | |
| Benzo(a)pyrene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.3 | |
| Benzo(b)fluoranthene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.47 | |
| Benzo(b+k)fluoranthene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | | |
| Benzo(g,h,i)perylene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.68 | |
| Benzo(k)fluoranthene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.48 | |
| Chrysene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 2.8 | |
| Dibenzo(a,h)anthracene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.1 | |
| Fluoranthene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.69 | |
| Fluorene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.19 | |
| Indeno(1,2,3,-cd)pyrene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.23 | |
| Methylnaphthalene,1- | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.59 | |
| Methylnaphthalene,2- | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.59 | |
| Methylnaphthalene 2-(1-) | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.59 | |
| Naphthalene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.09 | |
| Phenanthrene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 0.69 | |
| Pyrene | µg/g | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 1 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

R.L. = Reporting Limit
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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (iii)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | QA/QC 5 | | | | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27055-14 | | | | Tbl. 8 - RPIICC | |
| | Date Collected | | 26-Aug-19 | | | | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acenaphthene | µg/g | 0.05 | < 0.05 | | | | 0.072 | |
| Acenaphthylene | µg/g | 0.05 | < 0.05 | | | | 0.093 | |
| Anthracene | µg/g | 0.05 | < 0.05 | | | | 0.22 | |
| Benzo(a)anthracene | µg/g | 0.05 | < 0.05 | | | | 0.360 | |
| Benzo(a)pyrene | µg/g | 0.05 | < 0.05 | | | | 0.3 | |
| Benzo(b)fluoranthene | µg/g | 0.05 | < 0.05 | | | | 0.47 | |
| Benzo(b+k)fluoranthene | µg/g | 0.05 | < 0.05 | | | | | |
| Benzo(g,h,i)perylene | µg/g | 0.05 | < 0.05 | | | | 0.68 | |
| Benzo(k)fluoranthene | µg/g | 0.05 | < 0.05 | | | | 0.48 | |
| Chrysene | µg/g | 0.05 | < 0.05 | | | | 2.8 | |
| Dibenzo(a,h)anthracene | µg/g | 0.05 | < 0.05 | | | | 0.1 | |
| Fluoranthene | µg/g | 0.05 | < 0.05 | | | | 0.69 | |
| Fluorene | µg/g | 0.05 | < 0.05 | | | | 0.19 | |
| Indeno(1,2,3,-cd)pyrene | µg/g | 0.05 | < 0.05 | | | | 0.23 | |
| Methylnaphthalene,1- | µg/g | 0.05 | < 0.05 | | | | 0.59 | |
| Methylnaphthalene,2- | µg/g | 0.05 | < 0.05 | | | | 0.59 | |
| Methylnaphthalene 2-(1-) | µg/g | 0.05 | < 0.05 | | | | 0.59 | |
| Naphthalene | µg/g | 0.05 | < 0.05 | | | | 0.09 | |
| Phenanthrene | µg/g | 0.05 | < 0.05 | | | | 0.69 | |
| Pyrene | µg/g | 0.05 | < 0.05 | | | | 1 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

R.L. = Reporting Limit
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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82861-2, G70054** **REPORT No. B19-27055 (iii)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 27-Aug-19
DATE REPORTED: 04-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

**Summary of Exceedances**

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Christine Burke
Lab Manager


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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82754** **REPORT No. B19-28084**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
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Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 05-Sep-19
DATE REPORTED: 11-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| % Moisture | 1 | Richmond Hill | FAL | 05-Sep-19 | A-% moisture RH | |
| PHC(F2-F4) | 1 | Kingston | KPR | 10-Sep-19 | C-PHC-S-001 (k) | CWS Tier 1 |
| PHC(F1) | 1 | Richmond Hill | FAL | 05-Sep-19 | C-VPHS-01 (rh) | CWS Tier 1 |

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg
F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)
F2 C10-C16 hydrocarbons in µg/g, (F2-napth if requested)
F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)
F4 C34-C50 hydrocarbons in µg/g
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
Any deviations from the method are noted and reported for any particular sample.
nC6 and nC10 response factor is within 30% of response factor for toluene:
nC10,nC16 and nC34 response factors within 10% of each other:
C50 response factors within 70% of nC10+nC16+nC34 average:
Linearity is within 15%:
All results expressed on a dry weight basis.
Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met.
If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC
QC will be made available upon request.

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82754** **REPORT No. B19-28084**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 05-Sep-19
DATE REPORTED: 11-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. / Sample I.D. / Date Collected | | BH 201 4.1-4.6m B19-28084-1 26-Aug-19 | | | | O. Reg. 153 Tbl. 8 - RPIICC | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | **R.L.** | | | | | | |
| PHC F1 (C6-C10) | µg/g | 10 | < 10 | | | | 25 | |
| PHC F2 (>C10-C16) | µg/g | 5 | < 5 | | | | 10 | |
| PHC F3 (>C16-C34) | µg/g | 10 | < 10 | | | | 240 | |
| PHC F4 (>C34-C50) | µg/g | 10 | < 10 | | | | 120 | |
| % moisture | % | | 21.9 | | | | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

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Final Report

**C.O.C.: G82754** **REPORT No. B19-28084**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 05-Sep-19
DATE REPORTED: 11-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

**Summary of Exceedances**

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

R.L. = Reporting Limit
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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G79763** **REPORT No. B19-28088**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
110 West Beaver Creek Rd Unit 14
Richmond Hill ON L4B 1J9
Tel: 289-475-5442
Fax: 289-562-1963

DATE RECEIVED: 05-Sep-19
DATE REPORTED: 10-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| Comment | 2 | Default Site | CS | 09-Sep-19 | C-Arochlor Comment | - |
| OC Pesticides | 2 | Kingston | CS | 09-Sep-19 | C-PESTCL-01 K | EPA 8080 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G79763** **REPORT No. B19-28088**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
110 West Beaver Creek Rd Unit 14
Richmond Hill ON L4B 1J9
Tel: 289-475-5442
Fax: 289-562-1963

DATE RECEIVED: 05-Sep-19
DATE REPORTED: 10-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 201 3.0-3.7m | QA/QC 4 | | | O. Reg. 153 Tbl. 8 - RPIICC | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-28088-1 | B19-28088-2 | | | | |
| | Date Collected | | 26-Aug-19 | 26-Aug-19 | | | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Poly-Chlorinated Biphenyls (PCB's) | µg/g | 0.3 | < 0.3 | < 0.3 | | | 0.3 | |
| Aroclor | - | | - | - | | | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G79763** **REPORT No. B19-28088**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
110 West Beaver Creek Rd Unit 14
Richmond Hill ON L4B 1J9
Tel: 289-475-5442
Fax: 289-562-1963

DATE RECEIVED: 05-Sep-19
DATE REPORTED: 10-Sep-19
SAMPLE MATRIX: Soil

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

**Summary of Exceedances**

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - RPIICC - Table 8 - Res./Ind./Inst./Commercial/Community

Christine Burke
Lab Manager

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (i)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| Chromium (VI) | 6 | Holly Lane | LMG | 05-Sep-19 | D-CRVI-01 (o) | MOE E3056 |
| Mercury | 6 | Holly Lane | PBK | 04-Sep-19 | D-HG-02 (o) | SM 3112 B |
| Metals - ICP-OES | 6 | Holly Lane | AHM | 04-Sep-19 | D-ICP-01 (o) | SM 3120 |
| Metals - ICP-MS | 6 | Holly Lane | TPR | 05-Sep-19 | D-ICPMS-01 (o) | EPA 200.8 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (i)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 201 | BH 204 | BH 205 | BH 208 | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-1 | B19-27446-4 | B19-27446-5 | B19-27446-8 | Tbl. 6 - PGW | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Antimony | µg/L | 0.1 | 0.2 | 0.2 | 0.4 | < 0.1 | 6 | |
| Arsenic | µg/L | 0.1 | 0.2 | 0.3 | 0.2 | < 0.1 | 25 | |
| Barium | µg/L | 1 | 62 | 86 | 90 | 525 | 1000 | |
| Beryllium | µg/L | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 4 | |
| Boron | µg/L | 5 | 29 | 31 | 25 | 21 | 5000 | |
| Cadmium | µg/L | 0.015 | < 0.015 | 0.038 | 0.042 | < 0.015 | 2.1 | |
| Chromium | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 50 | |
| Chromium (VI) | µg/L | 10 | < 10 [1] | < 10 [1] | < 10 [1] | < 10 [1] | 25 | |
| Cobalt | µg/L | 0.1 | 0.7 | 0.5 | 0.4 | < 0.1 | 3.8 | |
| Copper | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 69 | |
| Lead | µg/L | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 10 | |
| Mercury | µg/L | 0.02 | < 0.02 | < 0.02 | < 0.02 | < 0.02 | 0.1 | |
| Molybdenum | µg/L | 0.1 | 4.8 | 2.2 | 4.7 | 0.5 | 70 | |
| Nickel | µg/L | 0.2 | 3.7 | 2.8 | 2.1 | 1.8 | 100 | |
| Selenium | µg/L | 1 | < 1 | < 1 | < 1 | < 1 | 10 | |
| Silver | µg/L | 0.1 | < 0.1 | < 0.1 | < 0.1 | < 0.1 | 1.2 | |
| Thallium | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | < 0.05 | 2 | |
| Uranium | µg/L | 0.05 | 0.22 | 0.24 | 0.22 | < 0.05 | 20 | |
| Vanadium | µg/L | 0.1 | 0.3 | 0.3 | 0.6 | < 0.1 | 6.2 | |
| Zinc | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 890 | |

**1** . Chromium (VI) result is based on total chromium

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (i)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | MWBH 2 | QA/QC #2 | | | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-11 | B19-27446-13 | | | Tbl. 6 - PGW | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | | | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Antimony | µg/L | 0.1 | < 0.1 | 0.2 | | | 6 | |
| Arsenic | µg/L | 0.1 | 0.4 | 0.2 | | | 25 | |
| Barium | µg/L | 1 | 150 | 63 | | | 1000 | |
| Beryllium | µg/L | 0.1 | < 0.1 | < 0.1 | | | 4 | |
| Boron | µg/L | 5 | 16 | 30 | | | 5000 | |
| Cadmium | µg/L | 0.015 | 0.022 | 0.015 | | | 2.1 | |
| Chromium | µg/L | 2 | < 2 | < 2 | | | 50 | |
| Chromium (VI) | µg/L | 10 | < 10 [1] | < 10 [1] | | | 25 | |
| Cobalt | µg/L | 0.1 | 0.2 | 0.7 | | | 3.8 | |
| Copper | µg/L | 2 | < 2 | < 2 | | | 69 | |
| Lead | µg/L | 0.02 | 0.10 | < 0.02 | | | 10 | |
| Mercury | µg/L | 0.02 | < 0.02 | < 0.02 | | | 0.1 | |
| Molybdenum | µg/L | 0.1 | 0.8 | 4.7 | | | 70 | |
| Nickel | µg/L | 0.2 | 1.9 | 3.7 | | | 100 | |
| Selenium | µg/L | 1 | < 1 | < 1 | | | 10 | |
| Silver | µg/L | 0.1 | < 0.1 | < 0.1 | | | 1.2 | |
| Thallium | µg/L | 0.05 | < 0.05 | < 0.05 | | | 2 | |
| Uranium | µg/L | 0.05 | 0.17 | 0.22 | | | 20 | |
| Vanadium | µg/L | 0.1 | 0.6 | 0.3 | | | 6.2 | |
| Zinc | µg/L | 5 | < 5 | < 5 | | | 890 | |

**1** . Chromium (VI) result is based on total chromium

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (i)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

**Summary of Exceedances**

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Christine Burke
Lab Manager

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
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DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:

P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| PHC(F2-F4) | 8 | Kingston | KPR | 04-Sep-19 | C-PHC-W-001 (k) | MOE E3421 |
| VOC's | 12 | Richmond Hill | JE | 04-Sep-19 | C-VOC-02 (rh) | EPA 8260 |
| PHC(F1) | 9 | Richmond Hill | JE | 04-Sep-19 | C-VPHW-01 (rh) | MOE E3421 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
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DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 201 | BH 202 | BH 203 | BH 204 | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-1 | B19-27446-2 | B19-27446-3 | B19-27446-4 | Tbl. 6 - PGW | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acetone | µg/L | 30 | < 30 | < 30 | < 30 | < 30 | 2700 | |
| Benzene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Bromodichloromethane | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 16 | |
| Bromoform | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 5 | |
| Bromomethane | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.89 | |
| Carbon Tetrachloride | µg/L | 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 0.2 | |
| Monochlorobenzene (Chlorobenzene) | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 30 | |
| Chloroform | µg/L | 1 | < 1 | < 1 | < 1 | < 1 | 2 | |
| Dibromochloromethane | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 25 | |
| Dichlorobenzene,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 3 | |
| Dichlorobenzene,1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 59 | |
| Dichlorobenzene,1,4- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Dichlorodifluoromethane | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 590 | |
| Dichloroethane,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 5 | |
| Dichloroethane,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Dichloroethylene,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Dichloroethene, cis-1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | **37.4** | 1.6 | |
| Dichloroethene, trans-1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.6 | |
| Dichloropropane,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.58 | |
| Dichloropropene, cis-1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | |
| Dichloropropene, trans-1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 201 | BH 202 | BH 203 | BH 204 | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-1 | B19-27446-2 | B19-27446-3 | B19-27446-4 | Tbl. 6 - PGW | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Dichloropropene 1,3-cis+trans | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Ethylbenzene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 2.4 | |
| Dibromoethane,1,2-(Ethylene Dibromide) | µg/L | 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 0.2 | |
| Hexane | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 5 | |
| Methyl Ethyl Ketone | µg/L | 20 | < 20 | < 20 | < 20 | < 20 | 1800 | |
| Methyl Isobutyl Ketone | µg/L | 20 | < 20 | < 20 | < 20 | < 20 | 640 | |
| Methyl-t-butyl Ether | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 15 | |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 26 | |
| Styrene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 5.4 | |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.1 | |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Tetrachloroethylene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Toluene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 24 | |
| Trichloroethane,1,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 23 | |
| Trichloroethane,1,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Trichloroethylene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | **16.4** | 0.5 | |
| Trichlorofluoromethane | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 150 | |
| Vinyl Chloride | µg/L | 0.2 | < 0.2 | < 0.2 | < 0.2 | **1.7** | 0.5 | |
| Xylene, m,p- | µg/L | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | | |
| Xylene, o- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 201 | BH 202 | BH 203 | BH 204 | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-1 | B19-27446-2 | B19-27446-3 | B19-27446-4 | Tbl. 6 - PGW | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Xylene, m,p,o- | µg/L | 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | 72 | |
| PHC F1 (C6-C10) | µg/L | 50 | < 50 | < 50 | | < 50 | 420 | |
| PHC F2 (>C10-C16) | µg/L | 50 | < 50 | < 50 | | < 50 | 150 | |
| PHC F3 (>C16-C34) | µg/L | 400 | < 400 | < 400 | | < 400 | 500 | |
| PHC F4 (>C34-C50) | µg/L | 400 | < 400 | < 400 | | < 400 | 500 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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## Final Report

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**Report To:**

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**Attention:** Natalie Wright

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Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 205 | BH 206 | BH 207 | BH 208 | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-5 | B19-27446-6 | B19-27446-7 | B19-27446-8 | Tbl. 6 - PGW | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acetone | µg/L | 30 | < 30 | < 30 | < 30 | < 30 | 2700 | |
| Benzene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Bromodichloromethane | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 16 | |
| Bromoform | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 5 | |
| Bromomethane | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.89 | |
| Carbon Tetrachloride | µg/L | 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 0.2 | |
| Monochlorobenzene (Chlorobenzene) | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 30 | |
| Chloroform | µg/L | 1 | < 1 | < 1 | < 1 | < 1 | 2 | |
| Dibromochloromethane | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 25 | |
| Dichlorobenzene,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 3 | |
| Dichlorobenzene,1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 59 | |
| Dichlorobenzene,1,4- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Dichlorodifluoromethane | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 590 | |
| Dichloroethane,1,1- | µg/L | 0.5 | < 0.5 | 1.3 | < 0.5 | < 0.5 | 5 | |
| Dichloroethane,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | **0.8** | 0.5 | |
| Dichloroethylene,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Dichloroethene, cis-1,2- | µg/L | 0.5 | **13.9** | **13.0** | < 0.5 | 1.2 | 1.6 | |
| Dichloroethene, trans-1,2- | µg/L | 0.5 | < 0.5 | **3.9** | < 0.5 | < 0.5 | 1.6 | |
| Dichloropropane,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.58 | |
| Dichloropropene, cis-1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | |
| Dichloropropene, trans-1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 205 | BH 206 | BH 207 | BH 208 | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-5 | B19-27446-6 | B19-27446-7 | B19-27446-8 | Tbl. 6 - PGW | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Dichloropropene 1,3-cis+trans | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Ethylbenzene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 2.4 | |
| Dibromoethane,1,2-(Ethylene Dibromide) | µg/L | 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 0.2 | |
| Hexane | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 5 | |
| Methyl Ethyl Ketone | µg/L | 20 | < 20 | < 20 | < 20 | < 20 | 1800 | |
| Methyl Isobutyl Ketone | µg/L | 20 | < 20 | < 20 | < 20 | < 20 | 640 | |
| Methyl-t-butyl Ether | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 15 | |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 26 | |
| Styrene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 5.4 | |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.1 | |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Tetrachloroethylene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Toluene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 24 | |
| Trichloroethane,1,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 23 | |
| Trichloroethane,1,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Trichloroethylene | µg/L | 0.5 | **8.5** | 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Trichlorofluoromethane | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 150 | |
| Vinyl Chloride | µg/L | 0.2 | **0.7** | < 0.2 | < 0.2 | < 0.2 | 0.5 | |
| Xylene, m,p- | µg/L | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | | |
| Xylene, o- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**

**Report To:**

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74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 205 | BH 206 | BH 207 | BH 208 | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-5 | B19-27446-6 | B19-27446-7 | B19-27446-8 | Tbl. 6 - PGW | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Xylene, m,p,o- | µg/L | 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | 72 | |
| PHC F1 (C6-C10) | µg/L | 50 | < 50 | | < 50 | < 50 | 420 | |
| PHC F2 (>C10-C16) | µg/L | 50 | < 50 | | < 50 | < 50 | 150 | |
| PHC F3 (>C16-C34) | µg/L | 400 | < 400 | | < 400 | < 400 | 500 | |
| PHC F4 (>C34-C50) | µg/L | 400 | < 400 | | < 400 | < 400 | 500 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 102 | MWBH 1 | MWBH 2 | QA/QC #2 | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-9 | B19-27446-10 | B19-27446-11 | B19-27446-13 | Tbl. 6 - PGW | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acetone | µg/L | 30 | | < 30 | < 30 | < 30 | 2700 | |
| Benzene | µg/L | 0.5 | **1.9** | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Bromodichloromethane | µg/L | 2 | | < 2 | < 2 | < 2 | 16 | |
| Bromoform | µg/L | 5 | | < 5 | < 5 | < 5 | 5 | |
| Bromomethane | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 0.89 | |
| Carbon Tetrachloride | µg/L | 0.2 | | < 0.2 | < 0.2 | < 0.2 | 0.2 | |
| Monochlorobenzene (Chlorobenzene) | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 30 | |
| Chloroform | µg/L | 1 | | < 1 | < 1 | < 1 | 2 | |
| Dibromochloromethane | µg/L | 2 | | < 2 | < 2 | < 2 | 25 | |
| Dichlorobenzene,1,2- | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 3 | |
| Dichlorobenzene,1,3- | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 59 | |
| Dichlorobenzene,1,4- | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Dichlorodifluoromethane | µg/L | 2 | | < 2 | < 2 | < 2 | 590 | |
| Dichloroethane,1,1- | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 5 | |
| Dichloroethane,1,2- | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Dichloroethylene,1,1- | µg/L | 0.5 | | **0.9** | < 0.5 | < 0.5 | 0.5 | |
| Dichloroethene, cis-1,2- | µg/L | 0.5 | | **148** | **51.3** | < 0.5 | 1.6 | |
| Dichloroethene, trans-1,2- | µg/L | 0.5 | | 1.6 | 0.6 | < 0.5 | 1.6 | |
| Dichloropropane,1,2- | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 0.58 | |
| Dichloropropene, cis-1,3- | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | | |
| Dichloropropene, trans-1,3- | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 102 | MWBH 1 | MWBH 2 | QA/QC #2 | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-9 | B19-27446-10 | B19-27446-11 | B19-27446-13 | Tbl. 6 - PGW | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Dichloropropene 1,3-cis+trans | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Ethylbenzene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 2.4 | |
| Dibromoethane,1,2-(Ethylene Dibromide) | µg/L | 0.2 | | < 0.2 | < 0.2 | < 0.2 | 0.2 | |
| Hexane | µg/L | 5 | | < 5 | < 5 | < 5 | 5 | |
| Methyl Ethyl Ketone | µg/L | 20 | | < 20 | < 20 | < 20 | 1800 | |
| Methyl Isobutyl Ketone | µg/L | 20 | | < 20 | < 20 | < 20 | 640 | |
| Methyl-t-butyl Ether | µg/L | 2 | | < 2 | < 2 | < 2 | 15 | |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | | < 5 | < 5 | < 5 | 26 | |
| Styrene | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 5.4 | |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 1.1 | |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Tetrachloroethylene | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Toluene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 24 | |
| Trichloroethane,1,1,1- | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 23 | |
| Trichloroethane,1,1,2- | µg/L | 0.5 | | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Trichloroethylene | µg/L | 0.5 | | **70.3** | **39.9** | < 0.5 | 0.5 | |
| Trichlorofluoromethane | µg/L | 5 | | < 5 | < 5 | < 5 | 150 | |
| Vinyl Chloride | µg/L | 0.2 | | **6.2** | **2.5** | < 0.2 | 0.5 | |
| Xylene, m,p- | µg/L | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | | |
| Xylene, o- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 102 | MWBH 1 | MWBH 2 | QA/QC #2 | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-9 | B19-27446-10 | B19-27446-11 | B19-27446-13 | Tbl. 6 - | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | PGW | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Xylene, m,p,o- | µg/L | 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | 72 | |
| PHC F1 (C6-C10) | µg/L | 50 | < 50 | | | < 50 | 420 | |
| PHC F2 (>C10-C16) | µg/L | 50 | < 50 | | | < 50 | 150 | |
| PHC F3 (>C16-C34) | µg/L | 400 | < 400 | | | < 400 | 500 | |
| PHC F4 (>C34-C50) | µg/L | 400 | < 400 | | | < 400 | 500 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Christine Burke
Lab Manager

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | QA/QC #3 | Trip Blank | | | O. Reg. 153 Tbl. 6 - PGW | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-14 | B19-27446-15 | | | | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | | | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acetone | µg/L | 30 | | < 30 | | | 2700 | |
| Benzene | µg/L | 0.5 | **1.8** | < 0.5 | | | 0.5 | |
| Bromodichloromethane | µg/L | 2 | | < 2 | | | 16 | |
| Bromoform | µg/L | 5 | | < 5 | | | 5 | |
| Bromomethane | µg/L | 0.5 | | < 0.5 | | | 0.89 | |
| Carbon Tetrachloride | µg/L | 0.2 | | < 0.2 | | | 0.2 | |
| Monochlorobenzene (Chlorobenzene) | µg/L | 0.5 | | < 0.5 | | | 30 | |
| Chloroform | µg/L | 1 | | < 1 | | | 2 | |
| Dibromochloromethane | µg/L | 2 | | < 2 | | | 25 | |
| Dichlorobenzene,1,2- | µg/L | 0.5 | | < 0.5 | | | 3 | |
| Dichlorobenzene,1,3- | µg/L | 0.5 | | < 0.5 | | | 59 | |
| Dichlorobenzene,1,4- | µg/L | 0.5 | | < 0.5 | | | 0.5 | |
| Dichlorodifluoromethane | µg/L | 2 | | < 2 | | | 590 | |
| Dichloroethane,1,1- | µg/L | 0.5 | | < 0.5 | | | 5 | |
| Dichloroethane,1,2- | µg/L | 0.5 | | < 0.5 | | | 0.5 | |
| Dichloroethylene,1,1- | µg/L | 0.5 | | < 0.5 | | | 0.5 | |
| Dichloroethene, cis-1,2- | µg/L | 0.5 | | < 0.5 | | | 1.6 | |
| Dichloroethene, trans-1,2- | µg/L | 0.5 | | < 0.5 | | | 1.6 | |
| Dichloropropane,1,2- | µg/L | 0.5 | | < 0.5 | | | 0.58 | |
| Dichloropropene, cis-1,3- | µg/L | 0.5 | | < 0.5 | | | | |
| Dichloropropene, trans-1,3- | µg/L | 0.5 | | < 0.5 | | | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | QA/QC #3 | Trip Blank | | | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-14 | B19-27446-15 | | | Tbl. 6 - PGW | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | | | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Dichloropropene 1,3-cis+trans | µg/L | 0.5 | | < 0.5 | | | 0.5 | |
| Ethylbenzene | µg/L | 0.5 | < 0.5 | < 0.5 | | | 2.4 | |
| Dibromoethane,1,2-(Ethylene Dibromide) | µg/L | 0.2 | | < 0.2 | | | 0.2 | |
| Hexane | µg/L | 5 | | < 5 | | | 5 | |
| Methyl Ethyl Ketone | µg/L | 20 | | < 20 | | | 1800 | |
| Methyl Isobutyl Ketone | µg/L | 20 | | < 20 | | | 640 | |
| Methyl-t-butyl Ether | µg/L | 2 | | < 2 | | | 15 | |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | | < 5 | | | 26 | |
| Styrene | µg/L | 0.5 | | < 0.5 | | | 5.4 | |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | | < 0.5 | | | 1.1 | |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | | < 0.5 | | | 0.5 | |
| Tetrachloroethylene | µg/L | 0.5 | | < 0.5 | | | 0.5 | |
| Toluene | µg/L | 0.5 | < 0.5 | < 0.5 | | | 24 | |
| Trichloroethane,1,1,1- | µg/L | 0.5 | | < 0.5 | | | 23 | |
| Trichloroethane,1,1,2- | µg/L | 0.5 | | < 0.5 | | | 0.5 | |
| Trichloroethylene | µg/L | 0.5 | | < 0.5 | | | 0.5 | |
| Trichlorofluoromethane | µg/L | 5 | | < 5 | | | 150 | |
| Vinyl Chloride | µg/L | 0.2 | | < 0.2 | | | 0.5 | |
| Xylene, m,p- | µg/L | 1.0 | < 1.0 | < 1.0 | | | | |
| Xylene, o- | µg/L | 0.5 | < 0.5 | < 0.5 | | | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. / Sample I.D. / Date Collected | | QA/QC #3 B19-27446-14 29-Aug-19 | Trip Blank B19-27446-15 29-Aug-19 | | | O. Reg. 153 Tbl. 6 - PGW | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Xylene, m,p,o- | µg/L | 1.1 | < 1.1 | < 1.1 | | | 72 | |
| PHC F1 (C6-C10) | µg/L | 50 | | < 50 | | | 420 | |
| PHC F2 (>C10-C16) | µg/L | 50 | | | | | 150 | |
| PHC F3 (>C16-C34) | µg/L | 400 | | | | | 500 | |
| PHC F4 (>C34-C50) | µg/L | 400 | | | | | 500 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

## Summary of Exceedances

**Table 6 - Potable Ground Water**

| **BH 204** | Found Value | Limit |
|---|---|---|
| Vinyl Chloride (µg/L) | 1.7 | 0.5 |
| Dichloroethene, cis-1,2- (µg/L) | 37.4 | 1.6 |
| Trichloroethylene (µg/L) | 16.4 | 0.5 |
| **BH 205** | Found Value | Limit |
| Vinyl Chloride (µg/L) | 0.7 | 0.5 |
| Dichloroethene, cis-1,2- (µg/L) | 13.9 | 1.6 |
| Trichloroethylene (µg/L) | 8.5 | 0.5 |
| **BH 206** | Found Value | Limit |
| Dichloroethene, trans-1,2- (µg/L) | 3.9 | 1.6 |
| Dichloroethene, cis-1,2- (µg/L) | 13.0 | 1.6 |
| **BH 208** | Found Value | Limit |
| Dichloroethane,1,2- (µg/L) | 0.8 | 0.5 |
| **BH 102** | Found Value | Limit |
| Benzene (µg/L) | 1.9 | 0.5 |
| **MWBH 1** | Found Value | Limit |
| Dichloroethene, cis-1,2- (µg/L) | 148 | 1.6 |
| Dichloroethylene,1,1- (µg/L) | 0.9 | 0.5 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (ii)**

**Report To:**

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Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

**Table 6 - Potable Ground Water**

| **MWBH 1** | Found Value | Limit |
|---|---|---|
| Trichloroethylene (µg/L) | 70.3 | 0.5 |
| Vinyl Chloride (µg/L) | 6.2 | 0.5 |
| **MWBH 2** | Found Value | Limit |
| Vinyl Chloride (µg/L) | 2.5 | 0.5 |
| Trichloroethylene (µg/L) | 39.9 | 0.5 |
| Dichloroethene, cis-1,2- (µg/L) | 51.3 | 1.6 |
| **QA/QC #3** | Found Value | Limit |
| Benzene (µg/L) | 1.8 | 0.5 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (iii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| SVOC | 3 | Kingston | SCG | 05-Sep-19 | C-NAB-W-001 (k) | EPA 8270 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (iii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 204 | MWBH 1 | QA/QC #1 | | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-27446-4 | B19-27446-10 | B19-27446-12 | | Tbl. 6 - PGW | |
| | Date Collected | | 29-Aug-19 | 29-Aug-19 | 29-Aug-19 | | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acenaphthene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 4.1 | |
| Acenaphthylene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 1 | |
| Anthracene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 1.0 | |
| Benzo(a)anthracene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 1 | |
| Benzo(a)pyrene | µg/L | 0.01 | < 0.01 | < 0.01 | < 0.01 | | 0.01 | |
| Benzo(b)fluoranthene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.1 | |
| Benzo(b+k)fluoranthene | µg/L | 0.1 | < 0.1 | < 0.1 | < 0.1 | | | |
| Benzo(g,h,i)perylene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.2 | |
| Benzo(k)fluoranthene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.1 | |
| Chrysene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.1 | |
| Dibenzo(a,h)anthracene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.2 | |
| Fluoranthene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.41 | |
| Fluorene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 120 | |
| Indeno(1,2,3,-cd)pyrene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 0.2 | |
| Methylnaphthalene,1- | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 3.2 | |
| Methylnaphthalene,2- | µg/L | 0.08 | < 0.08 | < 0.08 | < 0.08 | | 3.2 | |
| Methylnaphthalene 2-(1-) | µg/L | 1 | < 1 | < 1 | < 1 | | 3.2 | |
| Naphthalene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 7 | |
| Phenanthrene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 1 | |
| Pyrene | µg/L | 0.05 | < 0.05 | < 0.05 | < 0.05 | | 4.1 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27446 (iii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 30-Aug-19
DATE REPORTED: 06-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

**Summary of Exceedances**

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

R.L. = Reporting Limit
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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Christine Burke
Lab Manager

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27448**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 11-Sep-19
DATE REPORTED: 13-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| Comment | 2 | Default Site | CS | 13-Sep-19 | C-Arochlor Comment | - |
| PCB's | 2 | Kingston | CS | 13-Sep-19 | C-PCB-03 K | EPA 8082 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82863-4** **REPORT No. B19-27448**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

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112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 11-Sep-19
DATE REPORTED: 13-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. / Sample I.D. / Date Collected | | BH 201 B19-27448-1 29-Aug-19 | QA/QC #2 B19-27448-5 29-Aug-19 | | | O. Reg. 153 Tbl. 6 - PGW | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Poly-Chlorinated Biphenyls (PCB's) | µg/L | 0.05 | < 0.05 | < 0.05 | | | 0.2 | |
| Aroclor | - | | - | - | | | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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Final Report

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Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
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Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 11-Sep-19
DATE REPORTED: 13-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

**Summary of Exceedances**

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Christine Burke
Lab Manager

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82755** **REPORT No. B19-29080 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 12-Sep-19
DATE REPORTED: 18-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| SVOC | 1 | Kingston | sge | 17-Sep-19 | C-NAB-W-001 (k) | EPA 8270 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82755** **REPORT No. B19-29080 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 12-Sep-19
DATE REPORTED: 18-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 201 | | | | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-29080-1 | | | | Tbl. 6 - PGW | |
| | Date Collected | | 12-Sep-19 | | | | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acenaphthene | µg/L | 0.05 | < 0.05 | | | | 4.1 | |
| Acenaphthylene | µg/L | 0.05 | < 0.05 | | | | 1 | |
| Anthracene | µg/L | 0.05 | < 0.05 | | | | 1.0 | |
| Benzo(a)anthracene | µg/L | 0.05 | < 0.05 | | | | 1 | |
| Benzo(a)pyrene | µg/L | 0.01 | < 0.01 | | | | 0.01 | |
| Benzo(b)fluoranthene | µg/L | 0.05 | < 0.05 | | | | 0.1 | |
| Benzo(b+k)fluoranthene | µg/L | 0.1 | < 0.1 | | | | | |
| Benzo(g,h,i)perylene | µg/L | 0.05 | < 0.05 | | | | 0.2 | |
| Benzo(k)fluoranthene | µg/L | 0.05 | < 0.05 | | | | 0.1 | |
| Chrysene | µg/L | 0.05 | < 0.05 | | | | 0.1 | |
| Dibenzo(a,h)anthracene | µg/L | 0.05 | < 0.05 | | | | 0.2 | |
| Fluoranthene | µg/L | 0.05 | < 0.05 | | | | 0.41 | |
| Fluorene | µg/L | 0.05 | < 0.05 | | | | 120 | |
| Indeno(1,2,3,-cd)pyrene | µg/L | 0.05 | < 0.05 | | | | 0.2 | |
| Methylnaphthalene,1- | µg/L | 0.05 | < 0.05 | | | | 3.2 | |
| Methylnaphthalene,2- | µg/L | 0.08 | < 0.08 | | | | 3.2 | |
| Methylnaphthalene 2-(1-) | µg/L | 1 | < 1 | | | | 3.2 | |
| Naphthalene | µg/L | 0.05 | < 0.05 | | | | 7 | |
| Phenanthrene | µg/L | 0.05 | < 0.05 | | | | 1 | |
| Pyrene | µg/L | 0.05 | < 0.05 | | | | 4.1 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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Final Report

**C.O.C.: G82755** **REPORT No. B19-29080 (ii)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 12-Sep-19
DATE REPORTED: 18-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

**Summary of Exceedances**

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82755** **REPORT No. B19-29080 (i)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 12-Sep-19
DATE REPORTED: 18-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| VOC's | 3 | Richmond Hill | JE | 16-Sep-19 | C-VOC-02 (rh) | EPA 8260 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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Final Report

**C.O.C.: G82755** **REPORT No. B19-29080 (i)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
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**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 12-Sep-19
DATE REPORTED: 18-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. / Sample I.D. / Date Collected | | BH 208 B19-29080-2 12-Sep-19 | QA/QC B19-29080-3 12-Sep-19 | Trip Blank B19-29080-4 12-Sep-19 | | O. Reg. 153 Tbl. 6 - PGW | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acetone | µg/L | 30 | < 30 | < 30 | < 30 | | 2700 | |
| Benzene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.5 | |
| Bromodichloromethane | µg/L | 2 | < 2 | < 2 | < 2 | | 16 | |
| Bromoform | µg/L | 5 | < 5 | < 5 | < 5 | | 5 | |
| Bromomethane | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.89 | |
| Carbon Tetrachloride | µg/L | 0.2 | < 0.2 | < 0.2 | < 0.2 | | 0.2 | |
| Monochlorobenzene (Chlorobenzene) | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 30 | |
| Chloroform | µg/L | 1 | < 1 | < 1 | < 1 | | 2 | |
| Dibromochloromethane | µg/L | 2 | < 2 | < 2 | < 2 | | 25 | |
| Dichlorobenzene,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 3 | |
| Dichlorobenzene,1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 59 | |
| Dichlorobenzene,1,4- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.5 | |
| Dichlorodifluoromethane | µg/L | 2 | < 2 | < 2 | < 2 | | 590 | |
| Dichloroethane,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 5 | |
| Dichloroethane,1,2- | µg/L | 0.5 | **0.8** | **0.7** | < 0.5 | | 0.5 | |
| Dichloroethylene,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.5 | |
| Dichloroethene, cis-1,2- | µg/L | 0.5 | 1.2 | 0.9 | < 0.5 | | 1.6 | |
| Dichloroethene, trans-1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 1.6 | |
| Dichloropropane,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.58 | |
| Dichloropropene, cis-1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | | |
| Dichloropropene, trans-1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82755** **REPORT No. B19-29080 (i)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 12-Sep-19
DATE REPORTED: 18-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. / Sample I.D. / Date Collected | | BH 208 B19-29080-2 12-Sep-19 | QA/QC B19-29080-3 12-Sep-19 | Trip Blank B19-29080-4 12-Sep-19 | | O. Reg. 153 Tbl. 6 - PGW | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Dichloropropene 1,3-cis+trans | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.5 | |
| Ethylbenzene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 2.4 | |
| Dibromoethane,1,2-(Ethylene Dibromide) | µg/L | 0.2 | < 0.2 | < 0.2 | < 0.2 | | 0.2 | |
| Hexane | µg/L | 5 | < 5 | < 5 | < 5 | | 5 | |
| Methyl Ethyl Ketone | µg/L | 20 | < 20 | < 20 | < 20 | | 1800 | |
| Methyl Isobutyl Ketone | µg/L | 20 | < 20 | < 20 | < 20 | | 640 | |
| Methyl-t-butyl Ether | µg/L | 2 | < 2 | < 2 | < 2 | | 15 | |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | < 5 | < 5 | < 5 | | 26 | |
| Styrene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 5.4 | |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 1.1 | |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.5 | |
| Tetrachloroethylene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.5 | |
| Toluene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 24 | |
| Trichloroethane,1,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 23 | |
| Trichloroethane,1,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.5 | |
| Trichloroethylene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | 0.5 | |
| Trichlorofluoromethane | µg/L | 5 | < 5 | < 5 | < 5 | | 150 | |
| Vinyl Chloride | µg/L | 0.2 | < 0.2 | < 0.2 | < 0.2 | | 0.5 | |
| Xylene, m,p- | µg/L | 1.0 | < 1.0 | < 1.0 | < 1.0 | | | |
| Xylene, o- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82755** **REPORT No. B19-29080 (i)**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 12-Sep-19
DATE REPORTED: 18-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. / Sample I.D. / Date Collected | | BH 208 B19-29080-2 12-Sep-19 | QA/QC B19-29080-3 12-Sep-19 | Trip Blank B19-29080-4 12-Sep-19 | | O. Reg. 153 Tbl. 6 - PGW | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Xylene, m,p,o- | µg/L | 1.1 | < 1.1 | < 1.1 | < 1.1 | | 72 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 12-Sep-19
DATE REPORTED: 18-Sep-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

## Summary of Exceedances

**Table 6 - Potable Ground Water**

| **BH 208** | Found Value | Limit |
|---|---|---|
| Dichloroethane,1,2- (µg/L) | 0.8 | 0.5 |
| **QA/QC** | Found Value | Limit |
| Dichloroethane,1,2- (µg/L) | 0.7 | 0.5 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G82756** **REPORT No. B19-32768**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
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Tel: 705-252-5743
Fax: 705-252-5746


DATE RECEIVED: 10-Oct-19
DATE REPORTED: 18-Oct-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| Chromium (VI) | 2 | Holly Lane | JGC | 17-Oct-19 | D-CRVI-01 (o) | MOE E3056 |
| Mercury | 2 | Holly Lane | PBK | 16-Oct-19 | D-HG-02 (o) | SM 3112 B |
| Metals - ICP-OES | 2 | Holly Lane | AHM | 16-Oct-19 | D-ICP-01 (o) | SM 3120 |
| Metals - ICP-MS | 2 | Holly Lane | TPR | 15-Oct-19 | D-ICPMS-01 (o) | EPA 200.8 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - GW - Table 8 - Ground Water Standards

Steve Garrett
Director of Laboratory Services

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82756** **REPORT No. B19-32768**

**Report To:**

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**Attention:** Natalie Wright

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Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 10-Oct-19
DATE REPORTED: 18-Oct-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH2 | BH102 | | | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-32768-1 | B19-32768-2 | | | Tbl. 8 - GW | |
| | Date Collected | | 10-Oct-19 | 10-Oct-19 | | | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Antimony | µg/L | 0.1 | < 0.1 | < 0.1 | | | 6 | |
| Arsenic | µg/L | 0.1 | 0.5 | 0.3 | | | 25 | |
| Barium | µg/L | 1 | 176 | 808 | | | 1000 | |
| Beryllium | µg/L | 0.1 | < 0.1 | < 0.1 | | | 4 | |
| Boron | µg/L | 5 | 15 | 30 | | | 5000 | |
| Cadmium | µg/L | 0.015 | < 0.015 | < 0.015 | | | 2.1 | |
| Chromium | µg/L | 1 | < 1 | < 1 | | | 50 | |
| Chromium (VI) | µg/L | 10 | < 10 [1] | < 10 [1] | | | 25 | |
| Cobalt | µg/L | 0.1 | 0.2 | < 0.1 | | | 3.8 | |
| Copper | µg/L | 2 | < 2 | < 2 | | | 69 | |
| Lead | µg/L | 0.02 | < 0.02 | 0.03 | | | 10 | |
| Mercury | µg/L | 0.02 | < 0.02 | < 0.02 | | | 0.29 | |
| Molybdenum | µg/L | 0.1 | 0.8 | 0.3 | | | 70 | |
| Nickel | µg/L | 0.2 | 0.5 | 0.3 | | | 100 | |
| Selenium | µg/L | 1 | < 1 | < 1 | | | 10 | |
| Silver | µg/L | 0.1 | < 0.1 | < 0.1 | | | 1.2 | |
| Sodium | µg/L | 200 | 190000 | 113000 | | | 490000 | |
| Thallium | µg/L | 0.05 | < 0.05 | < 0.05 | | | 2 | |
| Uranium | µg/L | 0.05 | 0.17 | 0.08 | | | 20 | |
| Vanadium | µg/L | 0.1 | 0.6 | 0.1 | | | 6.2 | |
| Zinc | µg/L | 5 | < 5 | < 5 | | | 890 | |

**1**. Chromium (VI) result is based on total chromium

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - GW - Table 8 - Ground Water Standards

Steve Garrett
Director of Laboratory Services

R.L. = Reporting Limit
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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G82756** **REPORT No. B19-32768**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
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Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 10-Oct-19
DATE REPORTED: 18-Oct-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

**Summary of Exceedances**

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 8 - GW - Table 8 - Ground Water Standards

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Steve Garrett
Director of Laboratory Services

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G85508** **REPORT No. B19-34508**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

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Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 24-Oct-19
DATE REPORTED: 25-Oct-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| VOC's | 2 | Richmond Hill | JE | 25-Oct-19 | C-VOC-02 (rh) | EPA 8260 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

R.L. = Reporting Limit
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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Christine Burke
Lab Manager

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G85508** **REPORT No. B19-34508**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

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DATE RECEIVED: 24-Oct-19
DATE REPORTED: 25-Oct-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. / Sample I.D. / Date Collected | | BH 301 B19-34508-1 24-Oct-19 | Trip Blank B19-34508-2 | | | O. Reg. 153 Tbl. 6 - PGW | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acetone | µg/L | 30 | < 30 | < 30 | | | 2700 | |
| Benzene | µg/L | 0.5 | < 0.5 | < 0.5 | | | 0.5 | |
| Bromodichloromethane | µg/L | 2 | < 2 | < 2 | | | 16 | |
| Bromoform | µg/L | 5 | < 5 | < 5 | | | 5 | |
| Bromomethane | µg/L | 0.5 | < 0.5 | < 0.5 | | | 0.89 | |
| Carbon Tetrachloride | µg/L | 0.2 | < 0.2 | < 0.2 | | | 0.2 | |
| Monochlorobenzene (Chlorobenzene) | µg/L | 0.5 | < 0.5 | < 0.5 | | | 30 | |
| Chloroform | µg/L | 1 | < 1 | < 1 | | | 2 | |
| Dibromochloromethane | µg/L | 2 | < 2 | < 2 | | | 25 | |
| Dichlorobenzene,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | | | 3 | |
| Dichlorobenzene,1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | | | 59 | |
| Dichlorobenzene,1,4- | µg/L | 0.5 | < 0.5 | < 0.5 | | | 0.5 | |
| Dichlorodifluoromethane | µg/L | 2 | < 2 | < 2 | | | 590 | |
| Dichloroethane,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | | | 5 | |
| Dichloroethane,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | | | 0.5 | |
| Dichloroethylene,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | | | 0.5 | |
| Dichloroethene, cis-1,2- | µg/L | 0.5 | 0.9 | < 0.5 | | | 1.6 | |
| Dichloroethene, trans-1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | | | 1.6 | |
| Dichloropropane,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | | | 0.58 | |
| Dichloropropene, cis-1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | | | | |
| Dichloropropene, trans-1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | | | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

Christine Burke
Lab Manager


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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G85508** **REPORT No. B19-34508**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
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Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 24-Oct-19
DATE REPORTED: 25-Oct-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. / Sample I.D. / Date Collected | | BH 301 B19-34508-1 24-Oct-19 | Trip Blank B19-34508-2 | | | O. Reg. 153 Tbl. 6 - PGW | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Dichloropropene 1,3-cis+trans | µg/L | 0.5 | < 0.5 | < 0.5 | | | 0.5 | |
| Ethylbenzene | µg/L | 0.5 | < 0.5 | < 0.5 | | | 2.4 | |
| Dibromoethane,1,2-(Ethylene Dibromide) | µg/L | 0.2 | < 0.2 | < 0.2 | | | 0.2 | |
| Hexane | µg/L | 5 | < 5 | < 5 | | | 5 | |
| Methyl Ethyl Ketone | µg/L | 20 | < 20 | < 20 | | | 1800 | |
| Methyl Isobutyl Ketone | µg/L | 20 | < 20 | < 20 | | | 640 | |
| Methyl-t-butyl Ether | µg/L | 2 | < 2 | < 2 | | | 15 | |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | < 5 | < 5 | | | 26 | |
| Styrene | µg/L | 0.5 | < 0.5 | < 0.5 | | | 5.4 | |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | | | 1.1 | |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | < 0.5 | < 0.5 | | | 0.5 | |
| Tetrachloroethylene | µg/L | 0.5 | < 0.5 | < 0.5 | | | 0.5 | |
| Toluene | µg/L | 0.5 | < 0.5 | < 0.5 | | | 24 | |
| Trichloroethane,1,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | | | 23 | |
| Trichloroethane,1,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | | | 0.5 | |
| Trichloroethylene | µg/L | 0.5 | **1.0** | < 0.5 | | | 0.5 | |
| Trichlorofluoromethane | µg/L | 5 | < 5 | < 5 | | | 150 | |
| Vinyl Chloride | µg/L | 0.2 | < 0.2 | < 0.2 | | | 0.5 | |
| Xylene, m,p- | µg/L | 1.0 | < 1.0 | < 1.0 | | | | |
| Xylene, o- | µg/L | 0.5 | < 0.5 | < 0.5 | | | | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

R.L. = Reporting Limit
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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G85508** **REPORT No. B19-34508**


**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

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Fax: 705-252-5746


DATE RECEIVED: 24-Oct-19
DATE REPORTED: 25-Oct-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH 301 | Trip Blank | | | O. Reg. 153 Tbl. 6 - PGW | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B19-34508-1 | B19-34508-2 | | | | |
| | Date Collected | | 24-Oct-19 | | | | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Xylene, m,p,o- | µg/L | 1.1 | < 1.1 | < 1.1 | | | 72 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie


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Tel: 705-252-5743
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DATE RECEIVED: 24-Oct-19
DATE REPORTED: 25-Oct-19
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

## Summary of Exceedances

**Table 6 - Potable Ground Water**

| **BH 301** | Found Value | Limit |
|---|---|---|
| Trichloroethylene (µg/L) | 1.0 | 0.5 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Christine Burke
Lab Manager

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# CERTIFICATE OF ANALYSIS

## Final Report

**C.O.C.: G92205** **REPORT No. B20-04290**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
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Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 13-Feb-20
DATE REPORTED: 19-Feb-20
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| Parameter | Qty | Site Analyzed | Analyst Initials | Date Analyzed | Lab Method | Reference Method |
|---|---|---|---|---|---|---|
| VOC's | 4 | Richmond Hill | JE | 14-Feb-20 | C-VOC-02 (rh) | EPA 8260 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

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Steve Garrett
Director of Laboratory Services

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G92205** **REPORT No. B20-04290**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

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Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 13-Feb-20
DATE REPORTED: 19-Feb-20
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. | | BH401 | BH402 | QA/QC | Trip Blank | O. Reg. 153 | |
|---|---|---|---|---|---|---|---|---|
| | Sample I.D. | | B20-04290-1 | B20-04290-2 | B20-04290-3 | B20-04290-4 | Tbl. 6 - PGW | |
| | Date Collected | | 12-Feb-20 | 12-Feb-20 | 12-Feb-20 | 12-Feb-20 | | |
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Acetone | µg/L | 30 | < 30 | < 30 | < 30 | < 30 | 2700 | |
| Benzene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Bromodichloromethane | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 16 | |
| Bromoform | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 5 | |
| Bromomethane | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.89 | |
| Carbon Tetrachloride | µg/L | 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 0.2 | |
| Monochlorobenzene (Chlorobenzene) | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 30 | |
| Chloroform | µg/L | 1 | < 1 | < 1 | < 1 | < 1 | 2 | |
| Dibromochloromethane | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 25 | |
| Dichlorobenzene,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 3 | |
| Dichlorobenzene,1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 59 | |
| Dichlorobenzene,1,4- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Dichlorodifluoromethane | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 590 | |
| Dichloroethane,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 5 | |
| Dichloroethane,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Dichloroethylene,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Dichloroethene, cis-1,2- | µg/L | 0.5 | **2.0** | **63.7** | **57.8** | < 0.5 | 1.6 | |
| Dichloroethene, trans-1,2- | µg/L | 0.5 | < 0.5 | **18.8** | **17.1** | < 0.5 | 1.6 | |
| Dichloropropane,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.58 | |
| Dichloropropene, cis-1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | |
| Dichloropropene, trans-1,3- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | |
| Dichloropropene 1,3-cis+trans | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Ethylbenzene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 2.4 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Steve Garrett
Director of Laboratory Services

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G92205** **REPORT No. B20-04290**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

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Tel: 705-252-5743
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DATE RECEIVED: 13-Feb-20
DATE REPORTED: 19-Feb-20
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

| | Client I.D. / Sample I.D. / Date Collected | | BH401 B20-04290-1 12-Feb-20 | BH402 B20-04290-2 12-Feb-20 | QA/QC B20-04290-3 12-Feb-20 | Trip Blank B20-04290-4 12-Feb-20 | O. Reg. 153 Tbl. 6 - PGW | |
|---|---|---|---|---|---|---|---|---|
| **Parameter** | **Units** | **R.L.** | | | | | | |
| Dibromoethane,1,2- (Ethylene Dibromide) | µg/L | 0.2 | < 0.2 | < 0.2 | < 0.2 | < 0.2 | 0.2 | |
| Hexane | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 5 | |
| Methyl Ethyl Ketone | µg/L | 20 | < 20 | < 20 | < 20 | < 20 | 1800 | |
| Methyl Isobutyl Ketone | µg/L | 20 | < 20 | < 20 | < 20 | < 20 | 640 | |
| Methyl-t-butyl Ether | µg/L | 2 | < 2 | < 2 | < 2 | < 2 | 15 | |
| Dichloromethane (Methylene Chloride) | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 26 | |
| Styrene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 5.4 | |
| Tetrachloroethane,1,1,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 1.1 | |
| Tetrachloroethane,1,1,2,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Tetrachloroethylene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Toluene | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 24 | |
| Trichloroethane,1,1,1- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 23 | |
| Trichloroethane,1,1,2- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | 0.5 | |
| Trichloroethylene | µg/L | 0.5 | **29.7** | **5.4** | **5.3** | < 0.5 | 0.5 | |
| Trichlorofluoromethane | µg/L | 5 | < 5 | < 5 | < 5 | < 5 | 150 | |
| Vinyl Chloride | µg/L | 0.2 | < 0.2 | **2.6** | **2.3** | < 0.2 | 0.5 | |
| Xylene, m,p- | µg/L | 1.0 | < 1.0 | < 1.0 | < 1.0 | < 1.0 | | |
| Xylene, o- | µg/L | 0.5 | < 0.5 | < 0.5 | < 0.5 | < 0.5 | | |
| Xylene, m,p,o- | µg/L | 1.1 | < 1.1 | < 1.1 | < 1.1 | < 1.1 | 72 | |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Steve Garrett
Director of Laboratory Services

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

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# CERTIFICATE OF ANALYSIS

Final Report

**C.O.C.: G92205** **REPORT No. B20-04290**

**Report To:**

**Cambium Environmental**
74 Cedar Pointe Drive, Unit 1009
Barrie ON L4N 5R7
**Attention:** Natalie Wright

**Caduceon Environmental Laboratories**
112 Commerce Park Drive
Barrie ON L4N 8W8
Tel: 705-252-5743
Fax: 705-252-5746

DATE RECEIVED: 13-Feb-20
DATE REPORTED: 19-Feb-20
SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.:
P.O. NUMBER: 9326-001
WATERWORKS NO.

## Summary of Exceedances

**Table 6 - Potable Ground Water**

| **BH401** | Found Value | Limit |
|---|---|---|
| Trichloroethylene (µg/L) | 29.7 | 0.5 |
| Dichloroethene, cis-1,2- (µg/L) | 2.0 | 1.6 |
| **BH402** | Found Value | Limit |
| Vinyl Chloride (µg/L) | 2.6 | 0.5 |
| Trichloroethylene (µg/L) | 5.4 | 0.5 |
| Dichloroethene, trans-1,2- (µg/L) | 18.8 | 1.6 |
| Dichloroethene, cis-1,2- (µg/L) | 63.7 | 1.6 |
| **QA/QC** | Found Value | Limit |
| Vinyl Chloride (µg/L) | 2.3 | 0.5 |
| Trichloroethylene (µg/L) | 5.3 | 0.5 |
| Dichloroethene, trans-1,2- (µg/L) | 17.1 | 1.6 |
| Dichloroethene, cis-1,2- (µg/L) | 57.8 | 1.6 |

O. Reg. 153 - Soil, Ground Water and Sediment Standards
Tbl. 6 - PGW - Table 6 - Potable Ground Water

Steve Garrett
Director of Laboratory Services

R.L. = Reporting Limit
Test methods may be modified from specified reference method unless indicated by an *
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill,B-Barrie

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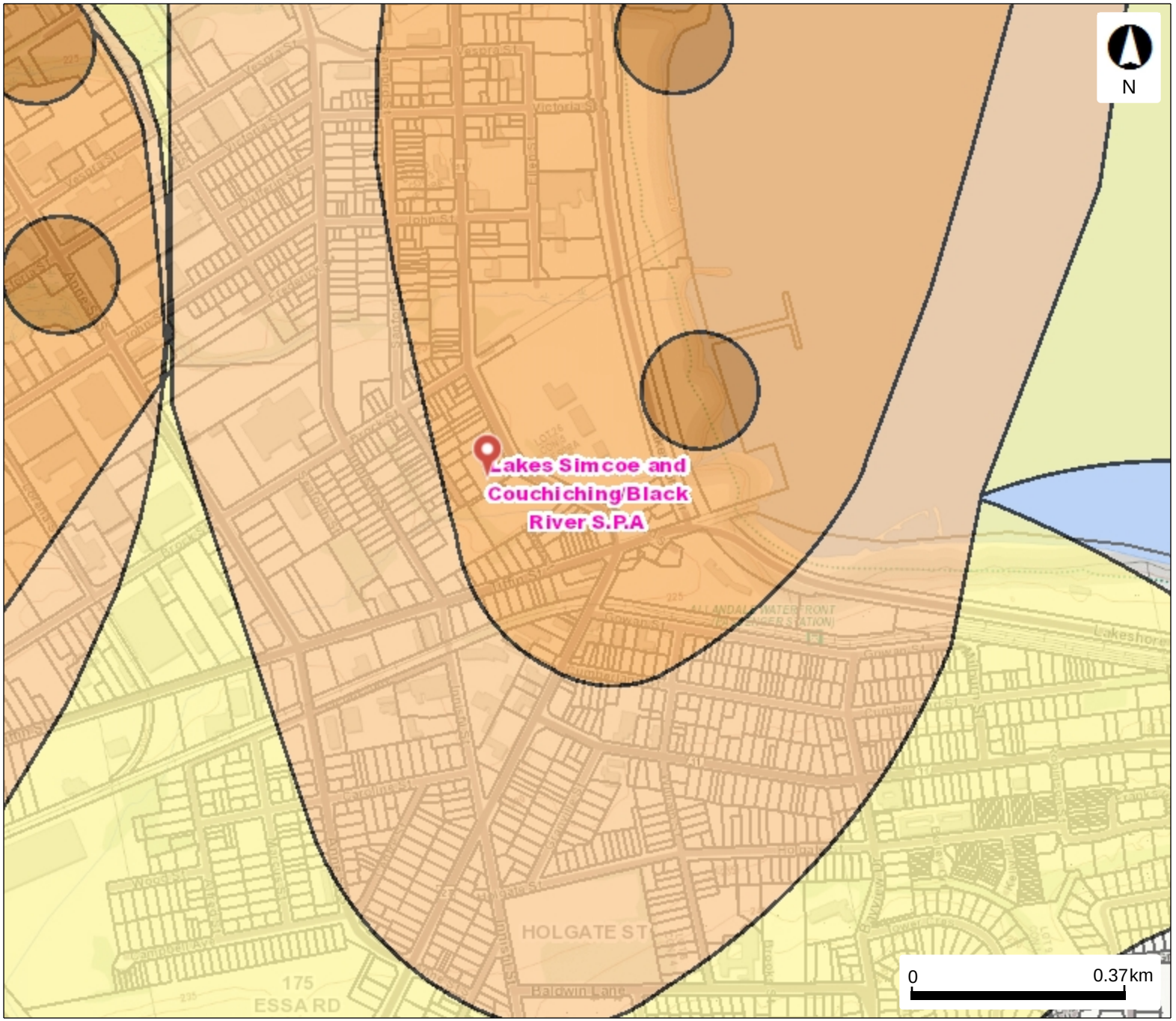
# Appendix G
# Source Protection Mapping

# WHPA - 220 Bradford Street, Barrie, Ontario




Legend

- Source Protection Areas
- Intake Protection Zone Q
- Wellhead Protection Area Q1
- Wellhead Protection Area
  - A
  - B
  - C
  - C1
  - D
  - F
- Event Based Areas
- Intake Protection Zone 2
- Assessment Parcel

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Environment, Conservation and Parks (MECP) shall not be liable in any way for the use or any information on this map. of, or reliance upon, this map.

Ontario

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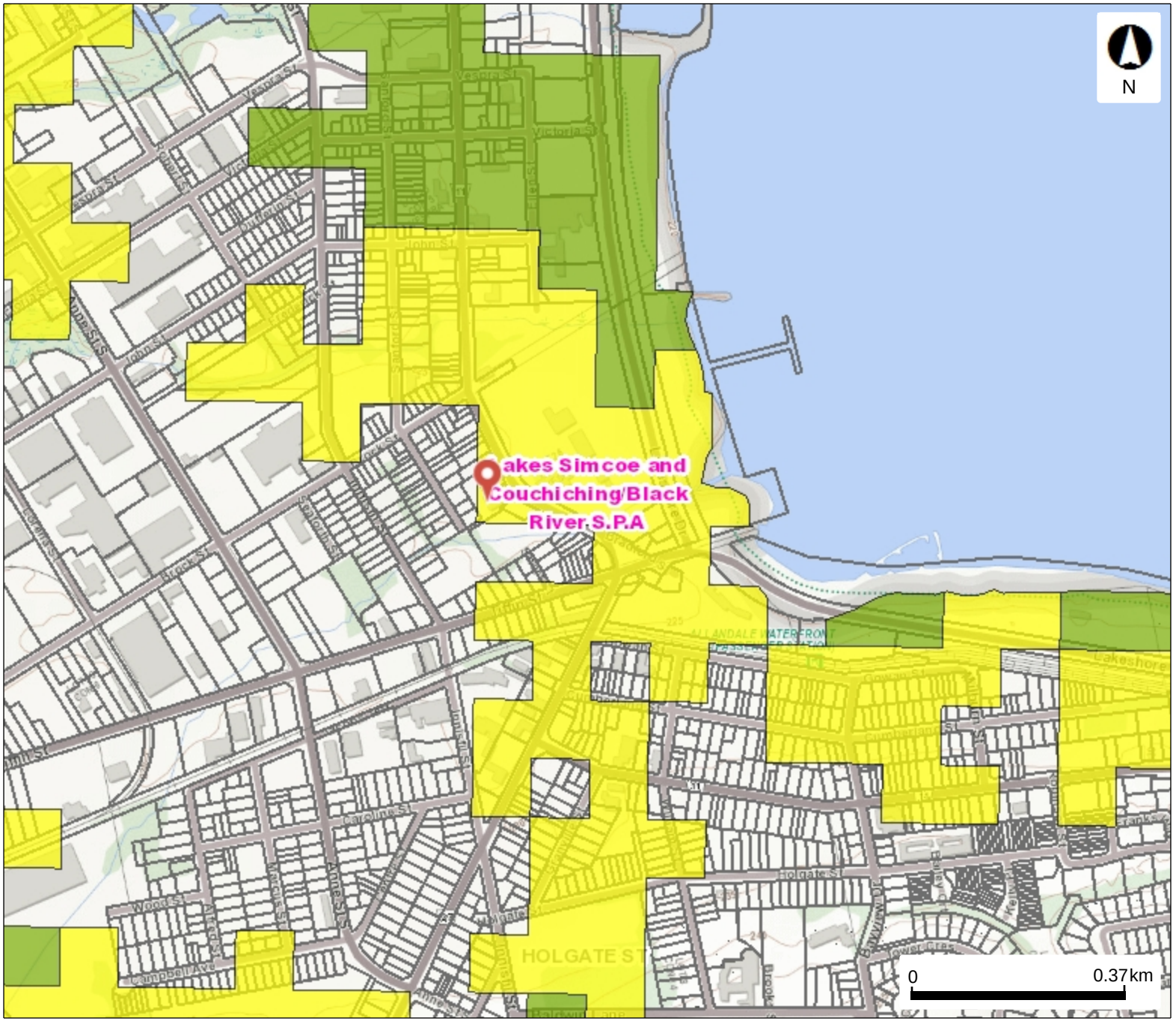
Map Created: 10/15/2019
Map Center: 44.37522 N, -79.69094 W

# Significant Groundwater Recharge Area - 220 Bradford Street, Barrie, Ontario




Legend

- Source Protection Areas
- Intake Protection Zone Q
- Wellhead Protection Area Q1
- Significant Groundwater Recharge Area
  - 2
  - 4
  - 6
- Event Based Areas
- Assessment Parcel

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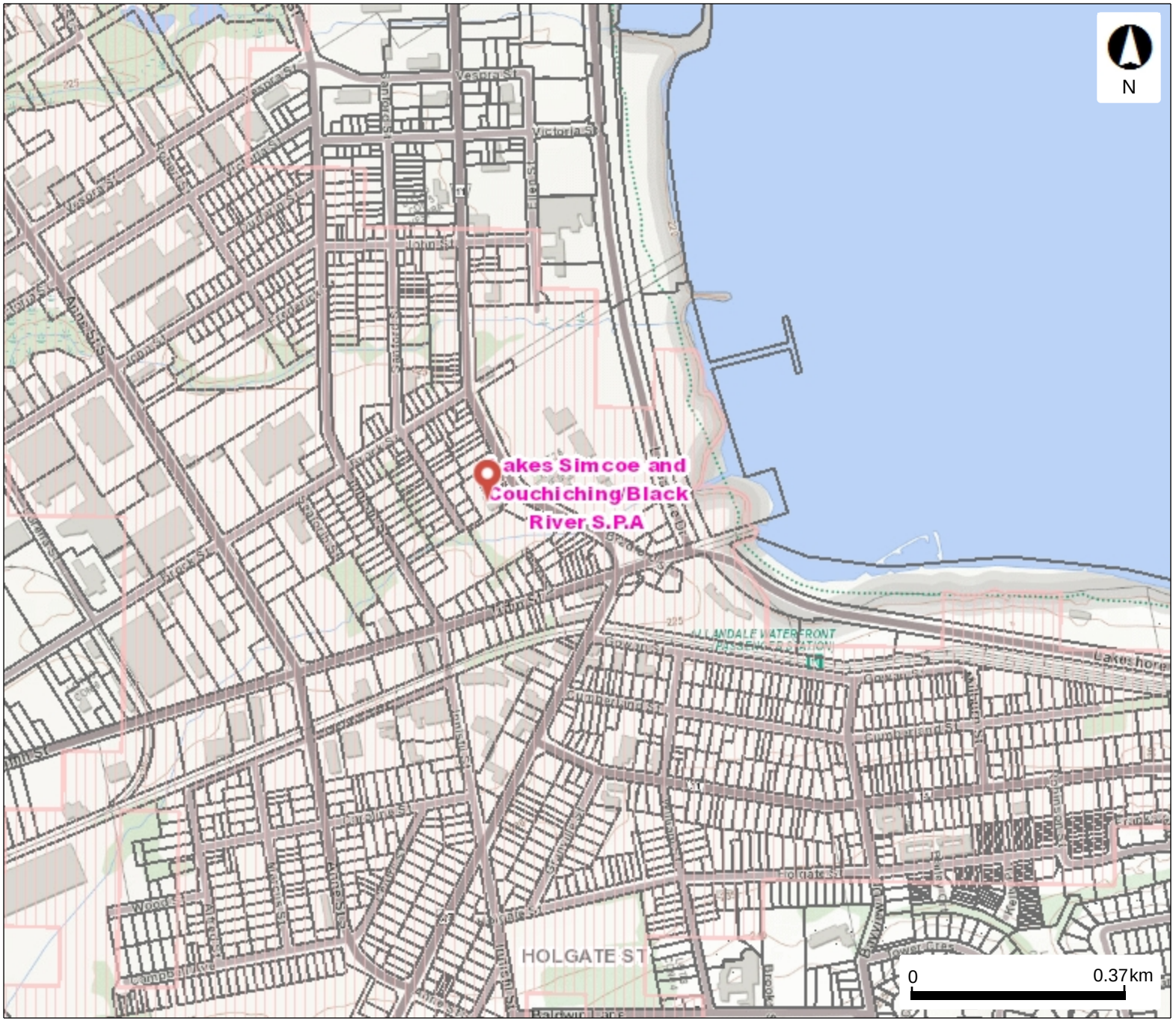
Map Created: 10/15/2019
Map Center: 44.3756 N, -79.69094 W

# Highly Vulnerable Aquifer Area - 220 Bradford Street, Barrie, Ontario




Legend

- Source Protection Areas
- Intake Protection Zone Q
- Wellhead Protection Area Q1
- Highly Vulnerable Aquifers
- Event Based Areas
- Assessment Parcel

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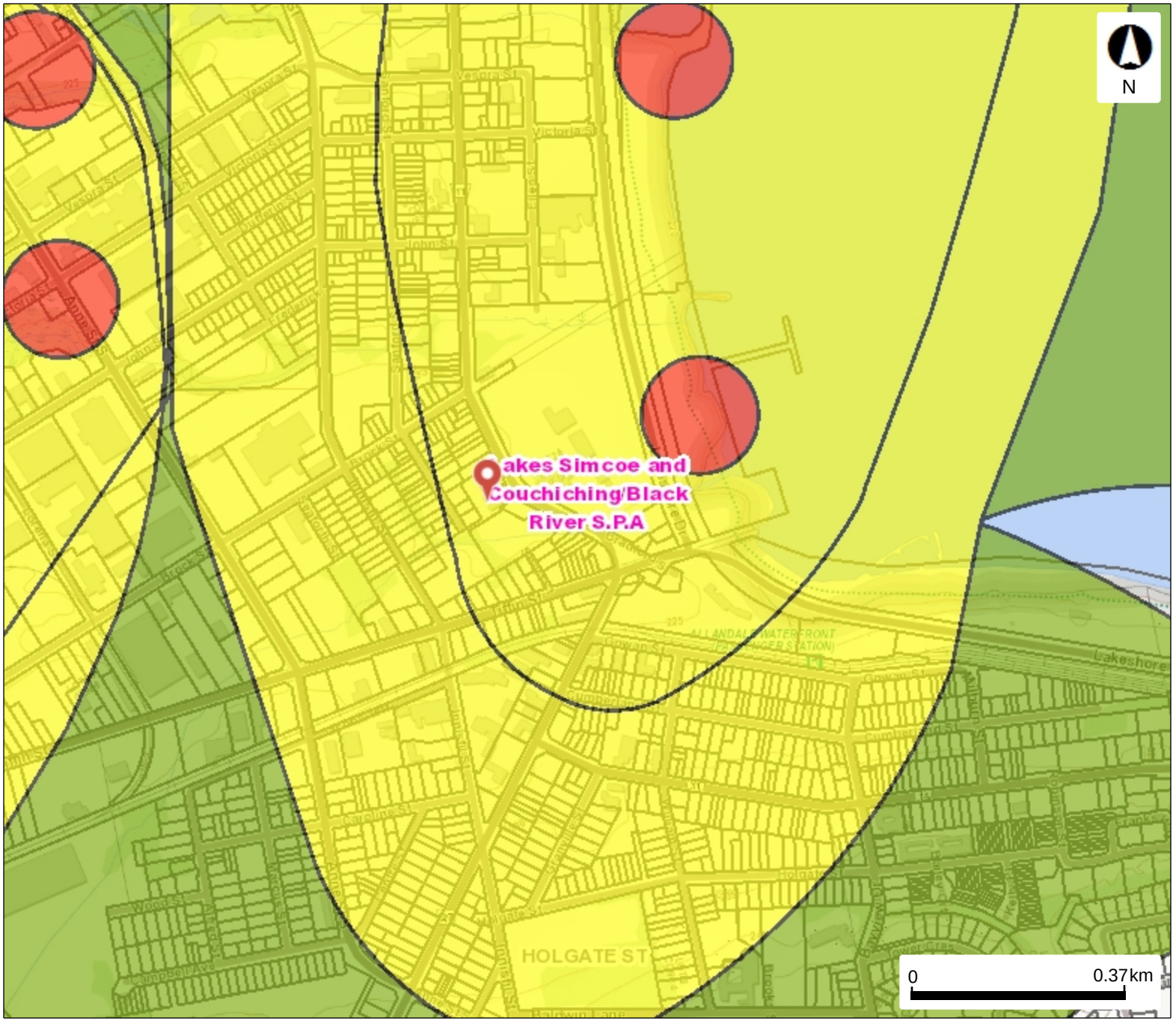
Map Created: 10/15/2019
Map Center: 44.3756 N, -79.69094 W

# Vulnerable Scoring Area - 220 Bradford Street, Barrie, Ontario




Legend

- Source Protection Areas
- Intake Protection Zone Q
- Wellhead Protection Area Q1
- Event Based Areas
- Intake Protection Zone 2
- Vulnerable Scoring Area - Groundwater
  - 2
  - 4
  - 6
  - 8
  - 10
- Assessment Parcel

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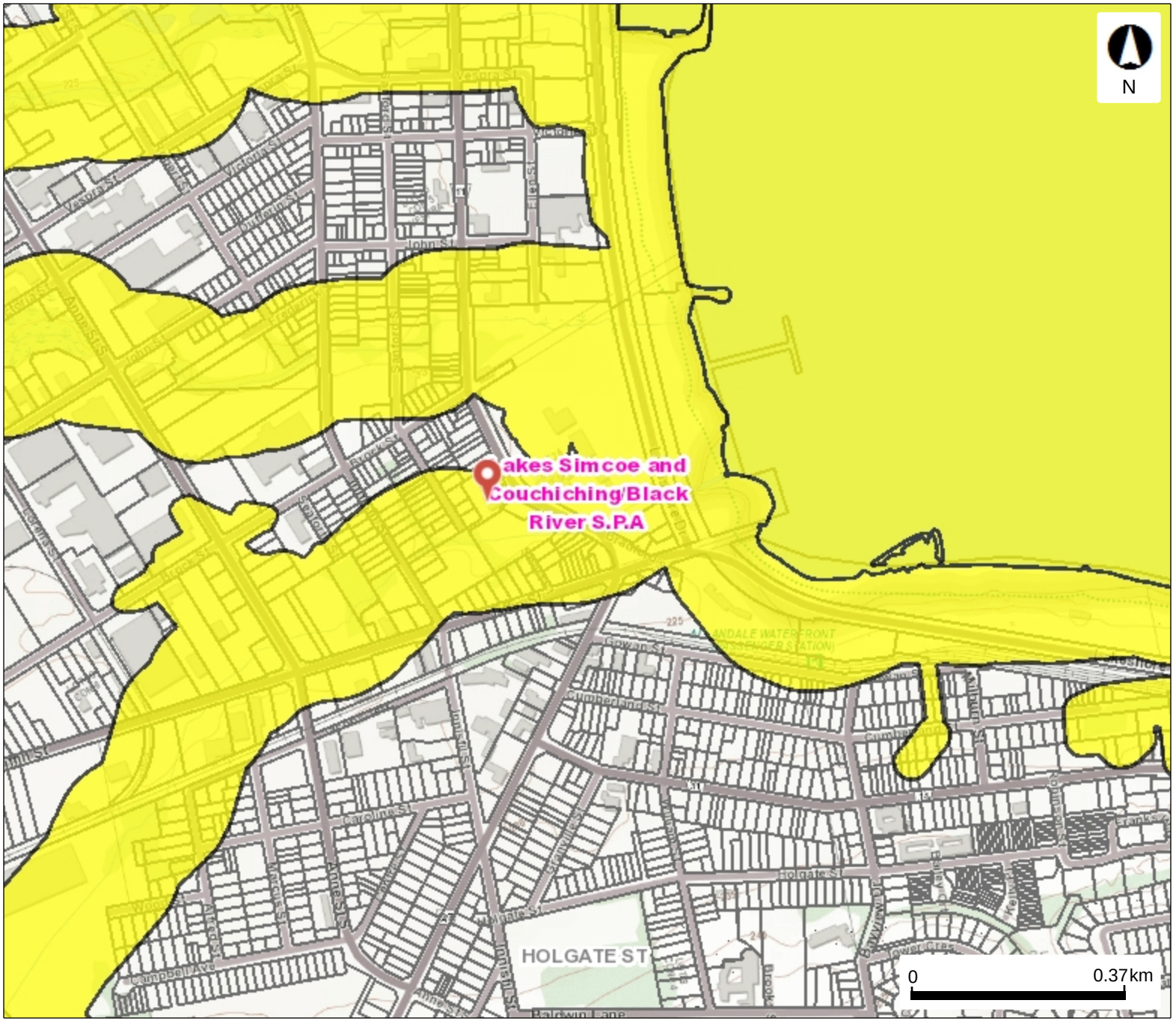
# Vulnerable Scoring Area - 220 Bradford Street, Barrie, Ontario




Legend

- Source Protection Areas
- Intake Protection Zone Q
- Wellhead Protection Area Q1
- Event Based Areas
- Vulnerable Scoring Area - Surface Water
  - 0 - 3.9
  - 4 - 7.9
  - 8 - 8.9
  - 9 - 10
- Assessment Parcel

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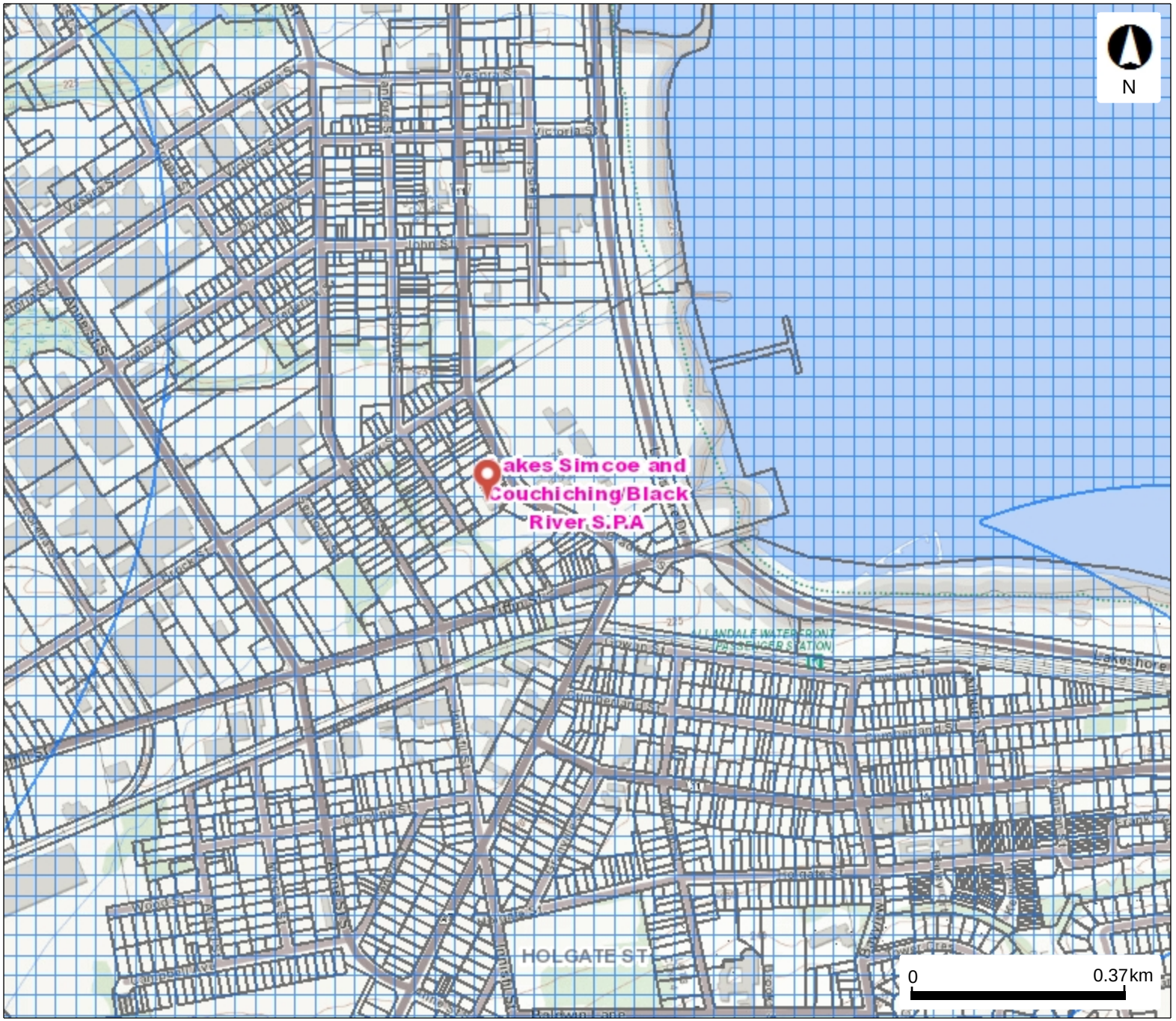
# Issue Contributing Area - 220 Bradford Street, Barrie, Ontario




Legend

- Source Protection Areas
- Intake Protection Zone Q
- Wellhead Protection Area Q1
- Issue Contributing Areas
- Event Based Areas
- Assessment Parcel

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# IPZ - 220 Bradford Street, Barrie, Ontario


Legend

- Source Protection Areas
- Intake Protection Zone Q
- Wellhead Protection Area Q1
- Event Based Areas
- Intake Protection Zone 3
- Assessment Parcel

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