



**Phase Two Environmental Site Assessment**

**951 Gladstone Avenue & 145 Loretta Avenue North  
Ottawa, Ontario**

**Prepared for:  
Trinity Development Group Inc.**

**August, 2017**

**DST File No.: TS-SO-029563**

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## **EXECUTIVE SUMMARY**

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DST Consulting Engineers Inc. (DST) was retained by Trinity Development Group Inc. (hereinafter referred to as the “Client”) to conduct a Phase Two Environmental Site Assessment (ESA) for the properties located at 951 Gladstone Avenue and 145 Loretta Avenue North in Ottawa, Ontario (herein referred to as “the Site” or the “Phase Two Property”). DST has performed this Phase Two ESA in accordance with the Ontario Regulation 153/04 Records of Site Condition, as amended.

DST understands that the Client intends to redevelop the Site with a multi-tenant residential and commercial development, including mid and high rise residential buildings, commercial/retail spaces, ground surface parking lot, two levels of below ground parking, sewers and water pipes installation. The proposed new buildings include one 18-storey tower, one 20-storey tower, one building with a 20-storey tower and a 5-storey podium, and one 5-storey building. It should be noted that DST completed a geotechnical investigation for this proposed development concurrently with this Phase Two ESA, and the results of this investigation will be submitted separately.

The Site is an irregular parcel of land approximately 1.1 ha (2.6 acres) in size located in Ottawa, Ontario. The property is bordered by: a commercial property (131 Loretta Avenue North) to the north, a railway corridor to the east, Gladstone Avenue to the south, and Loretta Avenue North followed by an industrial property (975 Gladstone Avenue – former British American Bank Note) to the west. The Site is currently zoned as General Industrial IG (1).

The objective of a Phase Two ESA is to conduct intrusive investigation with sample collection and analyses to confirm the presence or absence of potential contaminants of concern in soils and groundwater, based on Areas of Potential Environmental Concern (APECs) identified within the following report:

- *Phase One Environmental Site Assessment, 951 Gladstone Avenue & 145 Loretta Avenue North, Ottawa, Ontario, July 2017, DST Consulting Engineers Inc., DST File No. TS-SO-029563.*

The field program of the Phase Two ESA consisted of the following activities:

- The advancement of fourteen (14) boreholes (BH2017-01 through BH2017-13 and BH2017-5A) to depths of ranging from approximately 1.8 m below ground surface (bgs) to 16.6 m bgs. It should be noted that BH2017-12 was advanced for geotechnical purposes only;
- Groundwater monitoring wells were installed in ten (10) boreholes (BH2017-02 through BH2017-11);
- The collection of soil samples, including field duplicate samples, from thirteen of the advanced boreholes, for laboratory analysis of contaminants of potential concern (COPCs);

- Twenty-five (25) soil samples, including two (2) field duplicate samples, were analysed for petroleum hydrocarbons (PHC) fractions F1 – F4 (PHCs F1-F4) and benzene, toluene, ethylbenzene, and xylenes (BTEX);
  - Thirteen (13) soil samples, including one (1) field duplicate samples, were analysed for metals;
  - Ten (10) soil samples were analysed for volatile organic compounds (VOCs), metals;
  - Five (5) soil samples were analysed for polycyclic aromatic hydrocarbons (PAHs); and,
  - One (1) soil sample was analysed for pH and four (4) soils samples were analysed for grain size.
- The collection of groundwater samples, including field duplicate samples, from seven (7) newly installed monitoring wells and one existing monitoring well (Unknown 1), for laboratory analysis of COPCs;
    - Eleven (11) ground water samples, including one field duplicate sample for each parameter, were analysed for each of PHCs F1-F4, BTEX, VOCs and metals & inorganics.
  - The submission of one (1) field blank water sample for laboratory analysis of petroleum hydrocarbon (PHC) fractions F1 – F4, benzene, toluene, ethylbenzene and xylenes (BTEX) and volatile organic compounds (VOCs), and one (1) trip blank water sample for laboratory analysis of volatile compounds (PHC F1, BTEX and VOCs).

Based on the field observations and laboratory analytical results, DST noted the following:

- The general stratigraphy at the Site consisted of the following:
  - Asphalt: A layer of asphalt ranging in thickness from 25 mm to 85 mm was present at some of the boreholes;
  - Fill Materials: Sand and gravel fill materials were present within all the boreholes and extended to depths ranging from 0.7 m bgs to 4.3 m bgs;
  - Clay: A layer of clay and silty clay with trace to some sand and gravel was present from a minimum depth of 0.7 m bgs to a maximum depth of 8.3 m bgs;
  - Probable Till: A layer of probable till consisting of sand and gravel was present in some of the boreholes at depths ranging from 7.3 m bgs to 9.0 m bgs; and
  - Bedrock: Bedrock was encountered within some of the boreholes at depths ranging from 6.4 m bgs to 9.0 m bgs.
- Current and historic soil impacts, defined as concentrations of contaminants above the Ontario Ministry of the Environment and Climate Change (MOECC) Table 3 standards for residential/parkland/ institutional property use, coarse textured soils, were identified at the Site as follows:

- Southwest portion of the Site, near the former on-Site retail fuel outlet (RFO). Based on the results of this Phase Two ESA and historical data, the native soils in this area were found to be impacted with PHC F1-F2, BTEX, naphthalene, 1,1,2-trichloroethane and hexane; while fill materials in this area were found to be impacted with lead and zinc;
  - A suspected waste oil tank was encountered within BH2017-05A, which was located to the northeast of the building associated with 951 Gladstone Avenue. Soils near this area were found to be impacted by PHC F1-F3, 1,2-dichloroethane, and vanadium;
  - Northwest portion of the Site, near BH2017-07. The soils were found to be impacted with PHC F2-F3; and,
  - Fill materials at the Site, ranging in maximum depths of 1.4 m bgs to 4.3 m bgs. These fill materials were found to be impacted with 1,2-dichloroethane, vanadium, various PAHs, arsenic, lead, cobalt, and zinc, at varying locations across the Site.
- Current and historic groundwater impacts were identified at the Site as follows:
- Southwest portion of the Site, near the former on-Site retail fuel outlet. The groundwater in this area was found to be impacted with PHC F1-F2, benzene, xylenes, hexane and lead;
  - Northeast of the Site building associated with 951 Gladstone Avenue. Groundwater in this area was found to be impacted 1,2-dichloroethane and methylene t-butyl ether (MTBE); and,
  - East of the Site building associated with 145 Loretta Avenue North. Groundwater in this area was found to be impacted with 1,2-dichloroethane.
- The results from metals in the soil samples collected from BH2017-11 and BH2017-13 indicate the presence of potentially hazardous soil materials. Toxicity Characteristic Leachate Procedures (TCLP) analysis was performed on these soils to confirm if the soil is hazardous. Based on the laboratory analytical test results, the submitted samples were below the applicable O.Reg. 558/00 leachate criteria for all of the analyzed chemical parameters, and therefore the soils would be considered non-hazardous for disposal purposes.

Based on the results of this Phase Two ESA and the historical data available for the Site, to proceed with the proposed redevelopment of the Site, the following will be required:

- 1) A Record of Site Condition (RSC) will need to be filed with the MOECC. To file this RSC, the extents of the identified soil and groundwater contamination at the Site will need to be delineated laterally and vertically. Additionally, all the identified areas of soil or groundwater contamination would be required to be remediated to at or below the applicable site condition standards, and/or a risk assessment be completed for areas where contamination is present above the applicable site condition standards.
- 2) Contaminated media will be required to be managed at the Site during redevelopment activities as follows:

| Location   | Estimated Quantity of Impacted Material | Recommended Action   |
|--|---|--|
| <b>Soils</b>   |   |  |
| Southwest portion of the Site.                                       | 6,350 m <sup>3</sup>                    | Excavate and dispose in a MOECC approved landfill.   |
| East-central portion of the Site                                     | 200 m <sup>3</sup>                      |  |
| West-central portion of the Site                                     | 700 m <sup>3</sup>                      |  |
| Fill Materials over the entire Site (Non-Hazardous Estimate)         | 8,100 m <sup>3</sup>                    |  |
| Fill Materials over the entire Site (potentially Hazardous Estimate) | 100 m <sup>3</sup>                      |  |
| <b>Total</b>   | <b>15,450 m<sup>3</sup></b>             |  |
| <b>Groundwater</b>   |   |  |
| Entire Site  | 5,100,000 L                             | Manage during construction dewatering via pumping, on-Site treatment, and disposal; or via pumping, and off-Site disposal at a treatment facility. |

Further discussion regarding the above mentioned recommended remedial options and estimated quantities will be provided in a remedial options Letter report, which will be submitted separately.

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## 1. INTRODUCTION

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DST Consulting Engineers Inc. (DST) was retained by Trinity Development Group Inc. (herein referred to as the “Client”) to conduct a Phase Two Environmental Site Assessment (ESA) for the properties located at 951 Gladstone Avenue and 145 Loretta Avenue North in Ottawa, Ontario (herein referred to as “the Site”). The Site Location Map and a Site Plan are provided in Figures 1 and 2, respectively (refer to Appendix A).

The objective of a Phase II ESA is to conduct intrusive investigation with sample collection and analyses to confirm the presence or absence of potential contaminants of concern in soils and groundwater, based on Areas of Potential Environmental Concern (APECs) identified within the following report:

- Phase One Environmental Site Assessment, 951 Gladstone Avenue & 145 Loretta Avenue North, Ottawa, Ontario, July 2017, DST Consulting Engineers Inc., DST File No. TS-SO-029563.

The APECs are shown on Figure 2. The investigation was performed in accordance with professional standards and procedures, which generally reflect the guidance provided under Ontario Regulation (O. Reg.) 153/04, as amended. DST understands that this Phase Two ESA was completed for due diligence purposes prior to the potential purchase of the Site and that a Record of Site Condition (RSC) will not be submitted with the Ontario Ministry of the Environment and Climate Change (MOECC) at this time.

### 1.1 Site Description

The Site is an irregular parcel of land approximately 1.1 ha (2.6 acres) in size located in Ottawa, Ontario (refer to Figure 1 – Site Location Map in Appendix A). The Site is bordered by: a commercial property (131 Loretta Avenue North) to the north, a railway corridor to the east, Gladstone Avenue to the south, and Loretta Avenue North to the west. The Site is currently zoned as General Industrial IG (1).

The Site is occupied by two multi-tenant commercial/light industrial buildings (Site buildings). The Site building associated with 145 Loretta Avenue North is a two-storey building with a single-level full basement located on the north portion of the Site, and was constructed in approximately 1952. The Site building associated with 951 Gladstone Avenue consists of three separate sections built in stages located on the south portion of the Site; the north portion of this building consists of a two storey brick building with no basement, which was constructed in approximately 1924; the central portion consists of a single-storey concrete block building with no basement, which was constructed in approximately the early 1950s; and, the east portion consists of a three-storey with a single-level basement/parking garage, which was constructed in approximately 1924. Exterior areas of the Site consisted of asphalt-paved surface parking and driveway areas, concrete walkways, or landscaped areas.

The Site is legally described as:

- 951 Gladstone Avenue: Property Identification Number (PIN) 04107-0276 (LT) – Lots 1-3 (west side of Champagne Avenue), Block C, Plan 73, Lots 1-4 (east side of Loretta Avenue), Block C, Plan 73, & Part of Champagne Avenue, Plan 17, as in N620724; and
- 145 Loretta Avenue North: PIN 04107-0013 (LT) – Lots 5-8, Block C, Plan 73, east side of Loretta Avenue.

## 1.2 Property Ownership

The Site is owned by 2561592 Ontario Inc. and managed by The Regional Group of Companies Inc. The contact information for the property owner's representative is as follows:

- Mr. Tal Scher (Director of Property Services) of The Regional Group of Companies Inc.
  - Telephone: (613) 230-2100 ext. 7219
  - Fax: (613) 230-9880
  - Email: tscher@regionalgroup.com
  - Business Address: 1737 Woodward Drive, 2<sup>nd</sup> Floor, Ottawa, Ontario, K2C 0P9

DST was retained by the Client to complete a Phase One and Phase Two ESA in regards to the potential purchase of the Site by the Client. The contact information for the Client's representative is as follows:

- Mr. Ryan Moore (Senior Development Manager) of Trinity Development Group Inc.
  - Telephone: (416) 255-8800 ext. 255
  - Fax: (416) 255-8355
  - Email: rmoore@trinity-group.com
  - Business Address: Sun Life Financial Tower, 3250 Bloor Street West, Suite 1000, Toronto, Ontario, M8X 2X9

## 1.3 Current and Proposed Future Uses

The Site is currently utilized for commercial and light industrial purposes. The proposed future use of the Site is multi-tenant residential and commercial development, including mid and high rise residential building, commercial/retail spaces, ground surface parking lot, two levels of below ground parking, sewers and water pipes installation. The proposed new buildings include one 18-storey tower, on 20-storey tower, one building with a 20-storey tower and a 5-storey podium, and one 5-storey building. The proposed buildings are as follows:

- 1) Building 1, for residential and commercial use, approximately 160,000 ft<sup>2</sup> and 1,900 ft<sup>2</sup>, respectively.
- 2) Building 2, for residential and commercial use, approximately 177,000 ft<sup>2</sup> and 4,300 ft<sup>2</sup>, respectively.
- 3) Building 3, for residential and commercial use, approximately 216,500 ft<sup>2</sup> and 12,340 ft<sup>2</sup>, respectively.
- 4) Building 4, for residential and commercial use, approximately 33,660 ft<sup>2</sup> and 3,600 ft<sup>2</sup>, respectively.

As the proposed future use of the Site would change the use of the property from commercial/industrial to residential/commercial, section 168.3.1 of the *Environmental Protection*

Act would prohibit the proposed future use of the Site unless a Record of Site Condition is filed with the Ontario Ministry of the Environment and Climate Change (MOECC).

#### 1.4 Applicable Site Condition Standards

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

##### **Soil:**

- Ontario Ministry of the Environment and Climate Change (MOECC) “Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act”, April 2011, Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition. Residential/Parkland/Institutional Property Use, coarse textured soils.

##### **Groundwater:**

- MOECC “Soil, Groundwater and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act”, April 2011, Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition. All Type of Property Use, coarse textured soils.

The rationale for the selection of the above-referenced Site Condition Standards is as follows.

#### 1.4.1 Potable Water Well Locations

The Site and all properties within 250 m of the Site are serviced with potable water via the City of Ottawa municipal system which obtains its water from the Ottawa River. A search of the available MOECC well records indicates no potable water wells were identified within 250 m of the Site.

#### 1.4.2 Environmentally Sensitive Sites

The following conditions may result in a site being considered environmentally sensitive according to O. Reg. 153/04.

##### 1.4.2.1 Areas of Natural Significance

According to O. Reg. 153/04, if a site is within an area of natural significance or is adjacent to or within 30 m of an area of natural significance, it is considered environmentally sensitive. The following table presents the criteria for areas of natural significance as they are defined in O. Reg. 153/04 and the actual site conditions as they relate to the criteria.

**Table 1-4: Areas of Natural Significance Definitions and Site Conditions**

| Definition Under O. Reg. 153/04  | Site Conditions and Characteristics   |
|--|---|
| <i>“area of natural significance” means any of the following:</i>  |   |
| 1. <i>An area reserved or set apart as a provincial park or conservation reserve under the Provincial Parks and Conservation Reserves Act, 2006.</i> | The Site is not located within or adjacent to a provincial park according to the Ontario Ministry of Natural Resources and Forestry (MNRF) nor is it located within or adjacent to a conservation reserve under the <i>Provincial Parks and Conservation Reserves Act, 2006</i> (MNRF, 2014). |

| Definition Under O. Reg. 153/04<br>"area of natural significance" means any of the following:  | Site Conditions and Characteristics  |
|--|--|
| 2. An area of natural and scientific interest (life science or earth science) identified by the Ministry of Natural Resources as having provincial significance.   | The Site is not located within or adjacent to an area of natural and scientific interest (life or earth sciences) (MNRF, 2014).  |
| 3. A wetland identified by the Ministry of Natural Resources and Forestry as having provincial significance.   | The Site is not part of an area or within 30 m of an area identified by the MNRF as being a provincially significant wetland (MNRF, 2014).   |
| 4. An area designated by a municipality in its official plan as environmentally significant, however expressed, including designations of areas as environmentally sensitive, as being of environmental concern and as being ecologically significant. | The Site and surrounding properties are not considered to be environmentally sensitive, of environmental concern or ecologically significant according to the City of Ottawa's Official Plan.                |
| 5. An area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan under the Niagara Escarpment Planning and Development Act.   | The Site and surrounding properties are not part of the Niagara Escarpment natural/protection areas as defined by the Niagara Escarpment Planning and Development Act (Niagara Escarpment Commission, 2008). |
| 6. An area identified by the Ministry of Natural Resources as significant habitat of a threatened or endangered species.   | This Site and surrounding properties are not in an area identified as significant habitat of a threatened or endangered species.   |
| 7. An area which is habitat of a species that is classified under section 7 of the Endangered Species Act, 2007 as a threatened or endangered species.   | The Site and surrounding properties are not in an area that is classified as habitat for a threatened or endangered species.   |
| 8. Property within an area designated as a natural core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan under the Oak Ridges Moraine Conservation Act, 2001 applies.                                    | The Site and surrounding properties are not part of the Oak Ridges Moraine core/linkage areas as defined by the Oak Ridges Moraine Act (MNRF, 2014).   |
| 9. An area set apart as a wilderness area under the Wilderness Areas Act;  | The area is not set apart as a wilderness area under the Wilderness Area Act (MNRF, 2010).   |

Therefore, based on the information provided in the above table, the Site and surrounding properties are not considered to be an area of natural significance according to O. Reg. 153/04.

### 1.4.3 Shallow Soil Conditions

During drilling, bedrock was encountered at depths ranging from approximately 6.4 m below ground surface (bgs) to 9.0 m bgs.

Based on the results of the drilling activities, an area greater than 1/3 of the Site has greater than 2 m of soil (not including fill) overlying the bedrock. Therefore, the Site is not a shallow soil site according to O. Reg. 153/04 (as amended).

### 1.4.4 Surface Water Features

There are no surface water features on Site or on the properties surrounding the Site.

#### **1.4.5 Soil Texture**

Grain size analyses were completed for four soil samples, three samples from fill materials and one sample native materials. The results of the grain size analysis indicate, the fill materials contain 50% or more by mass of particles that are greater than 75 µm in mean diameter, while the native materials contain less than 50% by mass of particles that are greater than 75 µm in mean diameter.

Based on the stratigraphy at the Site (see Section 5.1), it was estimated that coarse textured soils occupy a volume which is marginally greater than one third of the volume of the soils at the property. Therefore, based on the requirements of O. Reg. 153/04, the site condition standards for coarse textured soils were applied for this investigation.

#### **1.4.6 Land Use**

The Site is currently used for commercial/light industrial purposes and DST understands that the proposed future land use of the Site is residential and commercial. Therefore, the land use of the Site for determining standards under O. Reg. 153/04 (as amended) is residential.

## **2. BACKGROUND INFORMATION**

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### **2.1 Physical Setting**

Topographic information obtained from the Ontario Base Map (OBM) series indicated that the elevation of the Site is approximately 64 meters above mean sea level (m.a.s.l.). The regional topography appears to slope downwards towards the northwest. Surface water at the Site evidently drained into on-Site catch basins which discharged to the municipal sewer system, or infiltrated into the on-Site landscaped areas.

There are no surface water bodies within a 250-m radius of the Site. The closest major surface water body to the Site is the Ottawa River, located approximately 1.0 km to the northwest of the Site. Based on the topography. Based on the regional topography and location of the nearest surface water body, the inferred direction of the regional shallow horizontal groundwater flow is to the northwest. Depending on climate conditions and the amount of surface water available, ditching, underground services, and ground surface may affect the shallow groundwater flow on a local level.

According to the Bedrock Geology of Ontario map accessed via Google Earth, the Site and Phase One Study Area are underlain by bedrock consisting of limestone, dolostone, shale, arkose and sandstone from the Ottawa Group, Simcoe Group and Shadow Lake Formation. The Ontario Geological Survey Quaternary Geology of Ontario map accessed via Google Earth, shows the Site as being underlain by Paleozoic bedrock. Based on the subsurface conditions encountered during this Phase Two ESA, the bedrock at the Site was confirmed to be limestone and ranged in elevation from approximately 6.4 m bgs to 9.0 m bgs.

### **2.2 Past Investigation**

Two previous environmental reports were provided by the Client to DST for review.

- *Limited Phase II Environmental Site Assessment and Historical Review, 941-971 Gladstone Avenue, Ottawa, Ontario.* Prepared for The Regional Group of Companies Inc., prepared by DST Consulting Engineers Inc., dated June 2009 (hereinafter referred to as the “2009 DST Phase II ESA”).
- *Phase I Environmental Site Assessment, 145 Loretta Avenue North, Ottawa, Ontario.* Prepared for The Regional Group of Companies Inc., prepared by Pinchin Environmental Ltd. (Pinchin), dated April 2013 (hereinafter referred to as the “2013 Pinchin Phase I ESA”).

#### 2009 DST Phase II ESA

DST completed a limited historical review for the property located at 941 to 971 Gladstone Avenue (referred to in this Phase One ESA report as 951 Gladstone Avenue). The purpose of the limited historical review was to document APECs at the Site caused by current and historical use of the Site or surrounding properties. The limited historical review identified the following pertinent information:

- The east portion of the Site building associated with 951 Gladstone Avenue was constructed in 1924;
- The construction dates of the north and central portions of this building were not listed;
- This portion of the Site was initially constructed for use as a bakery (The Standard Bread Co.);
- The historical records review identified the following potential environmental concerns for this portion of the Site:
  - British American Bank Note printing company (975 Gladstone Avenue) was located to the west of the Site (across Loretta Avenue North). Several groundwater monitoring well were observed at this facility along with an inferred groundwater treatment facility;
  - A Mr. Gas Ltd. Retail Fuel Outlet (RFO) was historically located on the southwest corner of this Site. A brief decommissioning report issued by Mr. Gas Ltd. indicated that two 22,700 L underground storage tanks (USTs) as well as associated piping and pump islands, were removed with 17.5 metric tonnes of impacted soil in 1994. DST noted several concerns with this decommissioning letter and noted that it should not be relied upon to provide an accurate picture of the environmental conditions in this location;
  - A UST was located to the west of the building associated with 145 Loretta Avenue North according to the 1956 Fire Insurance Plan (FIP);
  - Love Printing Services was historically located in the east portion of the building associated with 951 Gladstone Avenue;
  - Printing operations David Berman Typographic Ltd. (950 Gladstone Avenue) were present to the south (across Gladstone Avenue) of the Site;
  - Storage of used cars, drums and miscellaneous debris was located on the southeast portion of the Site;
  - An aboveground storage tank (AST) was potentially historically located within the east portion of the building associated with 951 Gladstone Avenue according to a 1956 FIP;
  - A railway spur line was historically located on the southeast portion of the Site according to a 1956 FIP; and
  - Fuel storage tanks and pumps were located at 175 Loretta Avenue North, to the south (across Gladstone Avenue) of the Site.

A Limited Phase II ESA was completed to investigate the potential environmental concerns associated with the British American Bank Note facility and the former Mr. Gas RFO. The Limited Phase II ESA consisted of drilling three boreholes (BHMW1 to BHMW3) to depths ranging from 8.05 m bgs to 10.54 m bgs, and each borehole was completed with a groundwater monitoring well. The locations of the boreholes/monitoring wells are:

- BHMW1: Northwest exterior corner of the north portion of the Site building associated with 951 Gladstone Avenue;
- BHMW2: Southwest corner of the Site; and
- BHMW3: Southwest corner of the Site.

The generalized soils stratigraphy encountered at the Site consisted of asphalt cover overlying a sand and gravel fill, to an average depth of 1.95 m bgs, underlain by a typically 2.0 m thick clay layer followed by a sandy silt till overlying limestone bedrock. Bedrock was encountered at depths ranging from 5.9 m bgs to 7.3 m bgs.

Groundwater was encountered within two monitoring wells (BHMW2 and BHMW3). BHMW1 was found to be dry. The depth to groundwater ranged from 4.88 m bgs (BHMW3) to 6.39 m bgs (BHMW2).

Ten (10) soil samples and two (2) groundwater samples were collected and submitted for laboratory analysis of petroleum hydrocarbon (PHC) fractions F1 to F4, benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), metals, and volatile organic compounds (VOCs).

Two (2) groundwater samples were collected and submitted for laboratory analysis of PHC fractions F1 to F4, BTEX, PAHs and metals.

Based on the laboratory analytical test results, concentrations of the analyzed parameters exceeded the current applicable 2011 Ontario Ministry of the Environment and Climate Change (MOECC) Table 3 Full depth generic site condition standards in a non-potable ground water condition (residential/parkland/institutional property use – coarse textured soils) (MOECC Table 3 Standards) as follows:

#### BHMW1

- Soils
  - Metals: Antimony and lead (0 to 0.6 m bgs).

#### BHMW2

- Soils
  - BTEX: Benzene, toluene and xylenes (4.9 to 5.5 m bgs);
  - Metals: Lead and zinc (0.6 to 1.2 m bgs); and,
  - PAHs: Naphthalene (4.9 to 5.5 m bgs).
- Groundwater
  - PHCs: F2.

#### BHMW3

- Soils
  - PHCs: F1 (4.2 to 4.8 m bgs);

- BTEX: Benzene, toluene, ethylbenzene and xylenes (4.2 to 4.8 m bgs);
  - PAHs: Naphthalene (4.2 to 4.8 m bgs); and,
  - VOCs: 1,1,2-Trichloroethane (4.2 to 4.8 m bgs). Additionally, the laboratory reportable detection limits (RDLs) were above the current applicable standards for most the analyzed parameters.
- Groundwater
    - PHCs: F2;
    - BTEX: Benzene, ethylbenzene, and xylenes.

Based on the results of the Limited Phase II ESA, DST recommended that a Phase One ESA be completed in accordance with O. Reg. 153/04. Furthermore, DST recommended that a Supplemental Phase Two ESA be completed in accordance with O. Reg. 153/04 to delineate the above-noted impacts and to investigate the remaining APECs. Additionally, DST recommended the remediation of the impacted fill materials, soils, and groundwater at the Site.

#### 2013 Pinchin Phase I ESA

Pinchin completed a Phase I ESA and groundwater sampling program on the property associated with 145 Loretta Avenue North in 2013. The 2013 Pinchin Phase I ESA report contained the following pertinent information:

- The building associated with 145 Loretta Avenue North was constructed in approximately 1952;
- Terra Pro Corporation (landscaping company) occupied the first floor of the building, Digital Pre-Press Integration Inc. (IT outsourcing company) occupied the second floor of the building, and a portion of the basement was utilized for automotive repair and servicing;
- A 990 L steel single-walled AST containing waste oil was located in the basement of this Site building. Evidence of spills was observed near this AST, and a floor drain connected to a sump pit was observed near these stains. An oil sheen was observed on the surface of the water within this sump pit. It was reported to Pinchin that this sump did not drain into the municipal sanitary sewer system;
- A closed-loop parts washer containing Varsol was located in the basement of the Site building;
- A 2,470 L steel double-walled AST containing gasoline was located on the east-central portion of the Site;
- A 1,345 L steel double-walled AST containing diesel was located on the east-central portion of the Site;
- Two ASTs containing gasoline and diesel were located on the east-central portion of the Site;

- A levelometer (indicative of a UST) was observed in the basement boiler room on the north interior wall of the Site building. It was reported to Pinchin that this Site building was formerly heated with furnace oil from a UST located along the north exterior elevation of the Site building;
- Five groundwater monitoring wells were observed within the asphalt paved area to the north of the Site building;
- A railway line was located to the east of the Site;
- According to a 1956 FIP, this portion of the Site was occupied by Bell Telephone Co., and that a UST was located along the west elevation of this Site building;
- British American Bank Note Co. Limited, a printing facility, was located approximately 15 m west of the Site according to a 1956 FIP;
- A gasoline UST was located approximately 10 m north of the Site; and
- A Phase I ESA and a Phase II ESA were completed for this property by AGRA Earth & Environmental Limited (AGRA) in May 2000 and November 2000, respectively. It should be noted that the above-noted reports were not available for DST to review.

According to Pinchin's summary of the AGRA Phase II ESA report, AGRA completed a Phase II ESA to investigate the historical RFO on the property associated with 951 Gladstone Avenue. This Phase II ESA reportedly consisted of drilling three boreholes with each borehole completed with a groundwater monitoring well. Soil samples were collected and submitted for laboratory analysis of total petroleum hydrocarbons (gasoline/diesel and heavy oils) (TPH) and VOCs. Groundwater samples were collected and submitted for laboratory analysis of TPH, VOCs, and alcohols.

The criteria used to compare the soil and groundwater laboratory analytical test results were the Ontario Ministry of the Environment (MOE) generic coarse-grained Table B soils criteria for industrial land use for a non-potable groundwater condition (Table B criteria).

According to Pinchin's summary, all the soil and groundwater samples met the then applicable Table B criteria for all the analyzed parameters, except for one groundwater sample collected near the east elevation of the Site building, which exceeded the criteria for 1, 2-dichloroethane.

Pinchin completed a groundwater monitoring program as part of this Phase I ESA. This groundwater monitoring program consisted of the collection of four groundwater samples from four on-Site monitoring wells to the north of the Site building. The groundwater samples were submitted for laboratory analysis for PHC fractions F1 to F4 and VOCs. Based on the laboratory analytical test results, the submitted groundwater samples were below the current applicable MOECC Table 3 standards for all the analyzed chemical parameters. Pinchin concluded that based on these results, the on-Site USTs, neighbouring printing facility and previously identified 1,2-dichloroethane exceedance "nothing was identified that is likely to result in potential subsurface impacts at this Site." And it was Pinchin's opinion that no further work at the Site was required at that time.

### **3. SCOPE OF THE INVESTIGATION**

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#### **3.1 Overview of Site Investigation**

The objective of a Phase Two ESA is to conduct intrusive investigation with sample collection and analyses to confirm the presence or absence of potential contaminants of concern in specific media, as identified during a Phase I ESA. The soil and groundwater investigation was conducted in accordance with the requirements of O. Reg. 153/04, as amended.

The scope of work of the investigation included the following activities:

1. Obtaining underground utility clearances and locates;
2. The advancement of fourteen (14) boreholes (BH2017-01 through BH2017-13 and BH2017-5A) to depths of ranging from approximately 1.8 m bgs to 16.6 m bgs. It should be noted that BH2017-12 was advanced for geotechnical purposes only;
3. Groundwater monitoring wells were installed in ten (10) boreholes (BH2017-02 through BH2017-11);
4. The collection of soil samples, including field duplicate samples, from thirteen (13) advanced boreholes (excluding BH2017-12), for laboratory analysis of contaminants of potential concern (COPCs):
  - a. Twenty-five (25) soil samples, including one (2) field duplicate samples, were analysed for petroleum hydrocarbons (PHC) fractions F1 – F4 (PHCs F1-F4) and benzene, toluene, ethylbenzene, and xylenes (BTEX);
  - b. Thirteen (13) soil samples, including one (1) field duplicate samples, were analysed for metals;
  - c. Ten (10) soil samples were analysed for volatile organic compounds (VOCs), metals, and polycyclic aromatic hydrocarbons (PAHs);
  - d. Five (5) soil samples were analysed for polycyclic aromatic hydrocarbons (PAHs); and
  - e. One (1) soil sample was analysed for pH and four (4) soils samples were analysed for grain size.
5. The collection of groundwater samples, including field duplicate samples, from seven (7) newly installed monitoring wells and one (1) existing monitoring well (hereinafter referred to as 'Unknown 1'), for laboratory analysis of COPCs:
  - a. Eleven (11) ground water samples, including one field duplicate sample for each parameter, were analysed for each of PHCs F1-F4, BTEX, VOCs and metals & inorganics.
6. The submission of one (1) field blank water sample for laboratory analysis of PHCs F1 – F4, BTEX and VOCs, and one (1) trip blank water sample for laboratory analysis of volatile compounds (PHC F1, BTEX and VOCs);

7. The completion of boreholes/monitoring wells locates using a handheld global positioning system (GPS) unit;
8. The completion of the relative elevation survey of monitoring wells at the Site to establish the local groundwater flow direction; and,
9. The preparation of a Phase Two ESA report documenting field observations and measurements, sampling locations, analytical sample results and subsequent compliance evaluation with environmental guidelines, as well as recommendations regarding further work, as required.

The APECs identified by DST's Phase One ESA see Section 3.3 were investigated through the above-noted sampling locations as follows:

| <b>APEC</b>                         | <b>Location of APEC on Site</b>  | <b>Borehole</b>                            | <b>Monitoring Well</b>   |
|-------------------------------------|----------------------------------|--|--|
| <b>APEC 1</b><br>Fill Materials     | Entire Site                      | BH2017-01 through BH2017-11, and BH2017-13 | -BH2017-02<br>-BH2017-04<br>-BH2017-05<br>-BH2017-06<br>-BH2017-07<br>-BH2017-09<br>-Unknown 1 |
| <b>APEC 2</b><br>On-Site AST        | Northeast portion of the Site    | -BH2017-10<br>-BH2017-11<br>-BH2017-13     | -BH2017-11   |
| <b>APEC 3</b><br>Former On-Site RFO | Southwest portion of the Site    | -BH2017-01<br>-BH2017-02                   | -BH2017-02   |
| <b>APEC 4</b><br>Former On-Site UST | West-central portion of the Site | -BH2017-06<br>-BH2017-08                   | -BH2017-06   |
| <b>APEC 5</b><br>Former On-Site AST | Southeast portion of the Site    | -BH2017-04                                 | -BH2017-04   |

| APEC  | Location of APEC on Site  | Borehole  | Monitoring Well                       |
|---|---------------------------|---|---------------------------------------|
| <b>APEC 6</b><br><br>Former Automobile Service Garage | Central Portion of Site   | -BH2017-05<br>-BH2017-05A<br>-BH2017-08<br>-BH2017-09   | -BH2017-05<br>-BH2017-09              |
| <b>APEC 7</b><br><br>Former Printing Facility         | Southeast Portion of Site | -BH2017-03<br>-BH2017-04<br>-BH2017-05<br>-BH2017-05A   | -BH2017-04<br>-BH2017-05              |
| <b>APEC 8</b><br><br>Former Rail Spur                 | Southeast Portion of Site | -BH2017-04<br>-BH2017-05<br>-BH2017-05A   | -BH2017-04<br>-BH2017-05              |
| <b>APEC 9</b><br><br>Adjacent UST                     | North Portion of the Site | -BH2017-11  | -BH2017-11                            |
| <b>APEC 10</b><br><br>Rail Tracks                     | East Portion of Site      | -BH2017-03<br>-BH2017-04<br>-BH2017-05<br>-BH2017-05A<br>-BH2017-09<br>-BH2017-12<br>-BH2017-13 | -BH2017-04<br>-BH2017-5<br>-BH2017-09 |
| <b>APEC 11</b><br><br>Ordnance Depot                  | East Portion of Site      | -BH2017-03<br>-BH2017-04<br>-BH2017-05<br>-BH2017-05A<br>-BH2017-09<br>-BH2017-12<br>-BH2017-13 | -BH2017-04<br>-BH2017-5<br>-BH2017-09 |

| APEC                                  | Location of APEC on Site  | Borehole   | Monitoring Well  |
|---------------------------------------|---------------------------|--|--|
| <b>APEC 12</b><br>Private Fuel Outlet | Southeast Portion of Site | -BH2017-03<br>-BH2017-04   | -BH2017-04   |
| <b>APEC 13</b><br>Printing Facility   | West Portion of Site      | -BH2017-01<br>-BH2017-02<br>-BH2017-06<br>-BH2017-07<br>-BH2017-08<br>-BH2017-10<br>-BH2017-11 | -BH2017-02<br>-BH2017-06<br>-BH2017-07<br>-BH2017-11<br>-Unknown 1 |

The locations of the APECs are shown on Figure 2.

### 3.2 Media Investigated

Groundwater sampling and analysis was included within this field investigation. The reasons for the inclusion of groundwater is as follows:

- Based on the identified APECs within the DST Phase One ESA report, it is possible for COPCs associated with these APECs to migrate from the sub-surface soils to the groundwater, which would cause contaminant impacts to the groundwater.

Sediment sampling and analysis was not included within this field investigation because no surface water bodies were present on the Site and therefore no sediment was present.

### 3.3 Phase One Conceptual Site Model

The PCAs identified within the Phase One Study Area are provided in the table below:

| PCA Number | Location of PCA                       | PCA   | Description of PCA   | Contributes to Area of Potential Environmental Concern? |
|------------|---------------------------------------|---|--|---|
| 1          | On-Site - Entire Site                 | 30 – Importation of Fill Material of Unknown Quality        | According to the 2009 DST Phase II ESA report, a layer of sand and gravel fill materials underlies the Site to an average depth of approximately 1.95 m. | Yes (On-Site)   |
| 2          | On-Site Northeast portion of the Site | 28 – Gasoline and Associated Products Storage in Fixed Tank | A gasoline AST was located on the northeast portion of the Site  | Yes (On-Site)   |

| PCA Number | Location of PCA                                     | PCA  | Description of PCA  | Contributes to Area of Potential Environmental Concern? |
|------------|---|--|---|---|
| 3          | On-Site Southwest corner of the Site                | 28 – Gasoline and Associated Products Storage in Fixed Tank                                  | A Mr. Gas Retail Fuel Outlet was historically located on the southwest portion of the Site. Soil and groundwater impacts have been identified in this area by the 2009 DST Phase II ESA report. | Yes (On-Site)   |
| 4          | On-Site West-central portion of the Site            | 28 – Gasoline and Associated Products Storage in Fixed Tank                                  | A UST was located on the west exterior side of the building associated with 145 Loretta Avenue North according to a 1956 FIP.   | Yes (On-Site)   |
| 5          | On-Site Southeast portion of the Site               | 28 – Gasoline and Associated Products Storage in Fixed Tank                                  | An AST was potentially historically located within the east portion of the building associated with 951 Gladstone Avenue according to a 1956 FIP.   | Yes (On-Site)   |
| 6          | On-Site Central portion of the Site                 | 27 – Garages and Maintenance and Repairs of Railcars, Marine Vehicles and Aviation Equipment | The basement of the building associated with 145 Loretta Avenue North was historically utilized as an automobile service garage.  | Yes (On-Site)   |
| 7          | On-Site Southeast portion of the Site               | 31 - Ink Manufacturing, Processing and Bulk Storage  | The east portion of the building associated with 951 Gladstone Avenue was historically occupied by a printing facility (Love Printing Services).  | Yes (On-Site)   |
| 8          | On-Site Southeast portion of the Site               | 46 – Rail Yards, Tracks and Spurs  | A rail spur was historically located on the southeast portion of the Site according to a 1956 FIP   | Yes (On-Site)   |
| 9          | Off-Site Adjacent property to the north of the Site | 28 – Gasoline and Associated Products Storage in Fixed Tanks                                 | A UST was located on the south portion of the adjacent property to the north (131 Loretta Avenue North) of the Site according to a 1956 FIP   | Yes (Close Proximity)                                   |
| 10         | Off-Site Adjacent to the east of the Site           | 46 – Rail Yards, Tracks and Spurs  | A rail track was located to the east of the Site.   | Yes (Close Proximity)                                   |

| PCA Number | Location of PCA   | PCA  | Description of PCA  | Contributes to Area of Potential Environmental Concern? |
|------------|---|--|---|---|
| 11         | Off-Site Neighbouring property to the northeast of the Site | 38 – Ordnance Use  | An ordnance depot was historically located to the northeast (across a rail track) of the Site.  | Yes (Close Proximity)                                   |
| 12         | Off-Site Neighbouring property to the south of the Site     | 28 – Gasoline and Associated Products Storage in Fixed Tanks | A private fuel outlet was located on the neighbouring property to the south (175 Loretta Avenue North) of the Site                                  | Yes (Close Proximity)                                   |
| 13         | Off-Site Neighbouring property to the west of the Site      | 31 – Ink Manufacturing, Processing and Bulk Storage          | A bank note printing facility (British American Bank Note) was located on the neighbouring property to the west (975 Gladstone Avenue) of the Site. | Yes (Close Proximity)                                   |

The following APECs were identified on the Site:

| APEC                                | Location of APEC on Site         | Potentially Contaminating Activity (PCA)                     | Location of PCA (on-Site or off-Site) | Contaminants of Potential Environmental Concern | Media Potentially Impacted |
|-------------------------------------|----------------------------------|--|---------------------------------------|---|----------------------------|
| <b>APEC 1</b><br>Fill Materials     | Entire Site                      | 30 – Importation of Fill Material of Unknown Quality         | On-Site                               | - Metals  | Soil, Groundwater          |
| <b>APEC 2</b><br>On-Site AST        | Northeast portion of the Site    | 28 – Gasoline and Associated Products Storage in Fixed Tanks | On-Site                               | - PHCs<br>- BTEX                                | Soil, Groundwater          |
| <b>APEC 3</b><br>Former On-Site RFO | Southwest portion of the Site    | 28 – Gasoline and Associated Products Storage in Fixed Tanks | On-Site                               | - PHCs<br>- BTEX<br>- Metal                     | Soil, Groundwater          |
| <b>APEC 4</b><br>Former On-Site UST | West-central portion of the Site | 28 – Gasoline and Associated Products Storage in Fixed Tanks | On-Site                               | - PHCs<br>- BTEX                                | Soil, Groundwater          |
| <b>APEC 5</b><br>Former On-Site AST | Southeast portion of the Site    | 28 – Gasoline and Associated Products Storage in Fixed Tanks | On-Site                               | - PHCs<br>- BTEX                                | Soil, Groundwater          |

| <b>APEC</b>                                       | <b>Location of APEC on Site</b> | <b>Potentially Contaminating Activity (PCA)</b>   | <b>Location of PCA (on-Site or off-Site)</b> | <b>Contaminants of Potential Environmental Concern</b> | <b>Media Potentially Impacted</b> |
|---|---------------------------------|---|--|--|-----------------------------------|
| <b>APEC 6</b><br>Former Automobile Service Garage | Central Portion of Site         | 27 – Garage and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles | On-Site                                      | - PHCs<br>- VOCs<br>- BTEX                             | Soil,<br>Groundwater              |
| <b>APEC 7</b><br>Former Printing Facility         | Southeast Portion of Site       | 31 – Ink Manufacturing, Processing and Bulk Storage                                       | On-Site                                      | - PHCs<br>- VOCs<br>- BTEX<br>- PAHs<br>- Metals       | Soil,<br>Groundwater              |
| <b>APEC 8</b><br>Former Rail Spur                 | Southeast Portion of Site       | 46 – Rail Yards, Track and Spurs  | On-Site                                      | - PHCs<br>- BTEX<br>- PAHs<br>- Metals                 | Soil,<br>Groundwater              |
| <b>APEC 9</b><br>Adjacent UST                     | North Portion of the Site       | 28 - Gasoline and Associated Products Storage in Fixed Tanks                              | Off-Site                                     | - PHCs<br>- BTEX                                       | Soil,<br>Groundwater              |
| <b>APEC 10</b><br>Rail Tracks                     | East Portion of Site            | 46 – Rail Yards, Track and Spurs  | Off-Site                                     | - PHCs<br>- BTEX<br>- PAHs<br>- Metals                 | Soil,<br>Groundwater              |
| <b>APEC 11</b><br>Ordnance Depot                  | East Portion of Site            | 38 – Ordnance Use   | Off-Site                                     | - PHCs<br>- VOCs<br>- BTEX<br>- PAHs<br>- Metals       | Soil,<br>Groundwater              |
| <b>APEC 12</b><br>Private Fuel Outlet             | Southeast Portion of Site       | 28 - Gasoline and Associated Products Storage in Fixed Tanks                              | Off-Site                                     | - PHCs<br>- BTEX<br>- Metals                           | Soil,<br>Groundwater              |

| APEC                         | Location of APEC on Site | Potentially Contaminating Activity (PCA)            | Location of PCA (on-Site or off-Site) | Contaminants of Potential Environmental Concern  | Media Potentially Impacted |
|------------------------------|--------------------------|---|---------------------------------------|--|----------------------------|
| APEC 13<br>Printing Facility | West Portion of Site     | 31 – Ink Manufacturing, Processing and Bulk Storage | Off-Site                              | <ul style="list-style-type: none"> <li>- PHCs</li> <li>- VOCs</li> <li>- BTEX</li> <li>- PAHs</li> <li>- Metals</li> </ul> | Soil,<br>Groundwater       |

The APECs are shown on Figure 2. No water bodies, areas of natural significance, or drinking water wells were identified within the Phase One Study Area.

The topography of the Site was analyzed using maps and information provided by the Ontario Base Maps series. The Ontario Base Map shows the ground surface elevation for the Site at approximately 64 metres above m.a.s.l. The regional topography appears to slope downwards towards the northwest. Based on visual observations during the Site visit, the Site and surrounding areas are generally flat with a gentle slope towards the railway corridor east.

There are no surface water bodies in the Phase One Study Area. The closest major surface water body to the Site is the Ottawa River, located approximately 1.0 km to the northwest of the Site. Based on the topography. Based on the regional topography and location of the nearest surface water body, the inferred direction of the regional shallow horizontal groundwater flow is to the northwest. Depending on climate conditions and the amount of surface water available, ditching, underground services, and ground surface may affect the shallow groundwater flow on a local level.

According to the Bedrock Geology of Ontario map accessed via Google Earth, the Site and Phase One Study Area are underlain by bedrock consisting of limestone, dolostone, shale, arkose and sandstone from the Ottawa Group, Simcoe Group and Shadow Lake Formation. According to the 2009 DST Phase II ESA, groundwater at the Site ranged from 4.88 m bgs to 6.39 m bgs during that investigation.

The expected shallow groundwater flow direction near the Site is to the north towards the Ottawa River.

The Ontario Geological Survey Quaternary Geology of Ontario map accessed via Google Earth, shows the Phase One Study Area as being underlain by Peleozoic bedrock.

Underground utilities at the Site generally consisted of storm drains within paved areas, catch basins within the service garage and car wash, underground hydro, communication lines, and water and sanitary connections. Based on the reported groundwater depth (at least 4.88 m bgs), it is not anticipated that underground utilities are present near the shallow groundwater table, and therefore it is unlikely that underground utilities will affect contaminant distribution and transport.

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

### **3.4 Deviations from Sampling and Analysis Plan**

No significant deviations from the sampling and analysis plan were made during this Phase Two ESA.

### **3.5 Impediments**

The presence of the Site Buildings represented a physical impediment during this investigation, which limited the location in which the APECs could be investigated. Further subsurface investigations will be required in these areas after the demolition of these building to fully investigate the environmental quality of the soils and groundwater at the Site. No denial of access was encountered during this investigation.

## **4. INVESTIGATION METHOD**

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### **4.1 General**

Four boreholes instrumented with groundwater monitoring wells were completed to investigate and identify the potential sources of contamination on-Site. Soil and groundwater samples were collected from the boreholes / monitoring wells and submitted for laboratory analysis of COPCs, including PHC F1 – F4, BTEX, metals, and PAHs. One soil sample was also collected for pH and grain size analysis. Soil sample selection for laboratory analysis was based on field observations and screening.

### **4.2 Borehole Drilling**

The drilling program took place from June 27, 2017 to July 10, 2017, and consisted of the advancement of fourteen boreholes, seven of which were instrumented with groundwater monitoring wells. The boreholes were advanced by CCC Geotechnical & Environmental Drilling Ltd. (CCC) using a CME 750 drill rig on rubber tires. The boreholes were advanced to depths ranging from approximately 1.8 m bgs to 9.0 m bgs. Bedrock was encountered at boreholes BH2017-03, BH2017-04, BH2017-07 and BH2017-10 at depths ranging from 6.6 m bgs to 9.0 m bgs, and bedrock coring was then completed down to borehole termination depths ranging from 13.5 m bgs to 16.6 m bgs.

Refer to Figure 2 in Appendix A for a Site Plan showing the locations of the boreholes / monitoring wells. Photographs of the drilling activities are provided in Appendix B.

### **4.3 Soil Sampling**

The drilling equipment used during the drilling program was equipped with a split spoon sampling device, which allowed for continuous soil sampling. Representative soil samples were collected in intervals of approximately 0.6 m where possible. Soil samples were placed directly into laboratory-supplied sample jars and vials. The sample jars were filled completely with soil to reduce the amount of headspace vapour within the jars. Samples to be submitted for laboratory analysis of non-volatile components (PHC F2 – F4, metals and PAHs) were placed in unpreserved 120 mL clear glass jars with Teflon lids, while samples to be submitted to the laboratory for analysis of volatile compounds (PHC F1 and VOCs) were collected using disposable soil plug sample collectors supplied by the laboratory. The soil plugs were placed in laboratory-supplied vials charged with measured volumes of methanol for sample preservation.

Soil samples were logged in the field for texture, odour, moisture and visual appearance (staining). The borehole logs are provided in Appendix C.

### **4.4 Field Screening Measurements**

A portion of each collected soil sample was placed in a polyethylene bag and allowed to equilibrate for approximately 15 minutes prior to being tested for combustible vapour concentrations (CVCs). Combustible vapour concentrations of soil samples were measured using an RKI Eagle 2™ portable vapour meter. The RKI Eagle 2™ was equipped with a catalytic combustible gas detector (CCGD), with a detection limit of 5 parts per million (ppm).

The CCGDs were operated in methane elimination mode, and the vapour metres were all calibrated by DST field personnel prior to use.

Based on visual and olfactory observations, CVC measurements, and the position of the collected soil samples with respect to the inferred groundwater table, soil samples were selected from each borehole, and submitted for laboratory analysis of COPCs.

A total of 49 soil samples and four field duplicate samples (DUPs) were collected from boreholes / monitoring wells and submitted for laboratory analysis of PHC F1 – F4, BTEX, metal and PAHs. Additionally, one soil sample was collected for analysis of pH and four soil samples were analyzed for grain size via sieve analysis.

Combustible vapour concentrations of the collected soil samples, as measured by the vapour meter, are provided in the borehole logs in Appendix C. Soil sample locations and analysis are presented in Table 5-1.

**Table 4-1: Soil Sample Locations and Analyses**

| Sampling Date (d/m/y) | Sample ID/Location   | Sample Depth (m bgs) | Analyses Performed                    |
|-----------------------|----------------------|----------------------|---------------------------------------|
| 05/07/2017            | BH2017-01-SS7        | 3.6 – 4.2            | PHC F1 – F4, BTEX, metals             |
| 05/07/2017            | DUP of BH2017-01-SS7 | 3.6 – 4.2            | PHC F1 – F4, BTEX                     |
| 05/07/2017            | BH2017-01-SS12       | 6.6 – 7.2            | PHC F1-F4, BTEX, VOCs                 |
| 06/07/2017            | BH2017-02-SS6        | 3.0 – 3.6            | PHC F1 – F4, BTEX                     |
| 06/07/2017            | BH2017-02-SS9        | 4.8 – 5.4            | PHC F1 – F4, BTEX, VOCs, metals       |
| 06/07/2017            | BH2017-03-SS2        | 1.2 – 1.8            | PHC F1 – F4, BTEX, metals             |
| 06/07/2017            | BH2017-03-SS11       | 6.0 – 6.4            | PHC F1 – F4, BTEX                     |
| 06/07/2017            | BH2017-04-SS4        | 1.8 – 2.4            | PHC F1 – F4, BTEX                     |
| 06/07/2017            | BH2017-04-SS5        | 2.4 – 3.0            | PHC F1 – F4, BTEX, PAHs, VOCs, metals |
| 07/07/2017            | BH2017-05-SS4        | 1.8 – 2.4            | Grain Size                            |
| 07/07/2017            | BH2017-05-SS7        | 3.6 – 4.2            | PHC F1 – F4, BTEX, VOCs, metals       |
| 07/07/2017            | BH2017-05-SS12       | 6.6 – 7.2            | PHC F1 – F4, BTEX                     |
| 07/07/2017            | BH2017-05A-SS3       | 1.2 – 1.8            | PHC F1 – F4, BTEX, VOCs               |
| 07/07/2017            | BH2017-06-SS12       | 6.6 – 7.2            | PHC F1 – F4, BTEX, VOCs, metals       |
| 27/06/2017            | BH2017-07-SS5        | 2.4 – 3.0            | metals                                |
| 27/06/2017            | BH2017-07-SS8        | 4.2 – 4.8            | PHC F1 – F4, BTEX, PAHs               |
| 27/06/2017            | BH2017-07-SS14       | 7.8 – 8.0            | PHC F1 – F4, BTEX                     |
| 10/07/2017            | BH2017-08-SS5        | 2.4 – 3.0            | PHC F1 – F4, BTEX, metals             |
| 10/07/2017            | BH2017-08-SS12       | 6.6 – 7.2            | PHC F1 – F4, BTEX, VOCs               |

| Sampling Date (d/m/y) | Sample ID/Location   | Sample Depth (m bgs) | Analyses Performed                    |
|-----------------------|----------------------|----------------------|---------------------------------------|
| 06/07/2017            | BH2017-09-SS2        | 0.6 – 1.2            | Grain Size                            |
| 06/07/2017            | BH2017-09-SS4        | 1.8 – 2.4            | PHC F1 – F4, BTEX, PAHs, VOCs, metals |
| 06/07/2017            | BH2017-09-SS8        | 4.2 – 4.5            | PHC F1 – F4, BTEX                     |
| 27/06/2017            | BH2017-10-SS4        | 1.8 – 2.4            | Grain Size                            |
| 27/06/2017            | BH2017-10-SS10       | 5.4 – 6.0            | PHC F1 – F4, BTEX, VOCs, pH           |
| 27/06/2017            | BH2017-10-SS11       | 6.0 – 6.6            | PHC F1 – F4, BTEX                     |
| 27/06/2017            | BH2017-10-SS13       | 7.2 – 7.8            | Metals                                |
| 04/07/2017            | BH2017-11-SS3        | 1.2 – 1.8            | PAHs, metals                          |
| 04/07/2017            | BH2017-11-SS6        | 3.0 – 3.6            | Grain Size                            |
| 04/07/2017            | BH2017-11-SS11       | 6.0 – 6.6            | PHC F1 – F4, BTEX                     |
| 04/07/2017            | BH2017-11-SS13       | 7.2 – 7.8            | PHC F1 – F4, BTEX                     |
| 28/06/2017            | BH2017-13-SS3        | 1.2 – 1.8            | PHC F1 – F4, BTEX, PAHs, VOCs, metals |
| 28/06/2017            | DUP of BH2017-13-SS3 | 1.2 – 1.8            | PHC F1 – F4, BTEX, metals             |

#### 4.5 Groundwater: Monitoring Well Installation

Monitoring wells were installed by CCC within the ten (10) of the advanced boreholes from June 27, 2017 to July 10, 2017, using the same drilling equipment described in Section 4.2. The wells were constructed of a 51-mm diameter polyvinyl chloride (PVC) pipe and a #10 slotted PVC well screen, approximately 3 m in length, placed to intercept the inferred groundwater table. A sand-pack consisting of clean silica sand was placed within the annulus space surrounding the screened section of the wells, and a bentonite slurry was injected from the top of the sand layer to within 0.3 m of the surface to minimize the potential for cross-contamination between aquifers. A locking J-Plug cap was placed at the top of each well pipe and a protective flush-mount steel casing was cemented at surface to protect the well in the developed northern areas of the Site. New disposable nitrile gloves were donned prior to the handling of the well materials for each monitoring well. The monitoring wells were installed and registered in accordance with O. Reg. 903 – Wells, made under the Ontario Water Resources Act.

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

Refer to Figure 2 in Appendix A for the borehole / monitoring well locations, and Appendix C for the well installation details.

#### 4.6 Groundwater Level Measurements

DST field personnel collected groundwater level measurements from the installed monitoring wells prior to groundwater sampling activities. The water levels were measured using a Solinst Canada Ltd. Model 122 oil/water interface meter which is also used to confirm the presence/absence and thickness of free (petroleum) product that may potentially be residing on the surface of the groundwater table. The electronic interface probe was decontaminated (washed with phosphorous-free soap and rinsed with distilled water) prior to the collection of each water level measurement.

#### 4.7 Groundwater Sampling

Groundwater samples were collected from monitoring wells BH2017-02, BH2017-04, BH2017-05, BH2017-06, BH2017-07, BH2017-09, BH2017-11 and Unknown 1 utilizing low-flow purging methodology with a peristaltic pump on July 18, 25 and 26, 2017. The low-flow purging methodology was used to ensure the collection of a representative sample of the groundwater. To confirm that a representative groundwater sample was collected, field measurements of several physical and chemical parameters were conducted during the purging. Parameters measured on a continuous basis included: temperature, conductivity, pH, dissolved oxygen, turbidity, total dissolved solids (TDS) and oxidation-reduction potential (ORP). Once the field parameters were confirmed to have stabilized for a minimum of three readings, a groundwater sample was collected directly into laboratory-supplied containers. Groundwater samples collected for dissolved metals were field filtered using dedicated Waterra™ 0.45 micron filters.

Table 4-2, below, summarizes the groundwater samples collected at the Site by DST on July 18, 25 and 26, 2017, as well as the analyses performed for each sample.

**Table 4-2: Groundwater Sample Locations and Analyses**

| Sampling Date | Sample ID/Location           | Analyses Performed              |
|---------------|------------------------------|---------------------------------|
| 18/07/2017    | BH2017-02                    | PHC F1 – F4, BTEX, VOCs, metals |
| 18/07/2017    | BH2017-04                    | PHC F1 – F4, BTEX, VOCs, metals |
| 18/07/2017    | BH2017-05                    | PHC F1 – F4, BTEX, VOCs, metals |
| 18/07/2017    | BHMW-D (DUP of BH2017-05)    | PHC F1 – F4, BTEX, VOCs, metals |
| 26/07/2017    | BH2017-06                    | PHC F1 – F4, BTEX, VOCs, metals |
| 26/07/2017    | BH2017-14 (DUP of BH2017-06) | PHC F1 – F4, BTEX, VOCs, metals |
| 18/07/2017    | BH2017-07                    | PHC F1 – F4, BTEX, VOCs, metals |
| 18/07/2017    | BH2017-09                    | PHC F1 – F4, BTEX, VOCs, metals |
| 18/07/2017    | BH2017-11                    | PHC F1 – F4, BTEX, VOCs         |

| Sampling Date | Sample ID/Location | Analyses Performed              |
|---------------|--------------------|---------------------------------|
| 25/07/2017    | Unknown 1          | PHC F1 – F4, BTEX, VOCs, metals |

#### 4.8 Analytical Testing

Soil and groundwater samples were submitted to Maxxam Analytics Inc. (Maxxam) for chemical analyses. Maxxam is a Canadian Association for Laboratory Accreditation Inc. (CALA) and Standards Council of Canada (SCC) certified laboratory.

#### 4.9 Residue Maintenance

All soil cuttings resulting from drilling activities, purge water resulting from well development and purging activities, and fluids resulting from equipment decontamination were appropriately contained in drums and secured on Site.

#### 4.10 Elevation Surveying

A monitoring well elevation survey was completed at the Site by DST field personnel on July 17, 2017. The survey included the fourteen newly drilled boreholes (BH2017-01 through BH2017-13 and BH2017-05A) used during this investigation to establish regional groundwater flow direction. The results of the survey are provided in Appendix D.

#### 4.11 Quality Assurance and Quality Control Measures

DST maintains a standard Quality Assurance / Quality Control (QA/QC) program for environmental assessments. The field sampling and QA/QC program was completed in accordance with the applicable Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario (MOECC, 1996). All project documentation was maintained and controlled by the appointed field supervisor. All borehole advancement and soil and groundwater sampling was completed in accordance with industry standards, and applicable provincial standards/guidelines. DST operates under a Certificate of Authorization issued by the Professional Engineers of Ontario (PEO) and the Association of Professional Geoscientists of Ontario (APGO), and the work was carried out in accordance with PEO and APGO Standards for professional practice.

Soil and groundwater samples were placed in laboratory-supplied containers and maintained at below 10°C in ice-packed coolers, under a Chain of Custody protocol, prior to being submitted for chemical analysis to a CALA/SCC certified laboratory (Maxxam).

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

As part of the field program, three (3) field duplicate soil samples (DUP), one (1) field duplicate groundwater sample (DUP), one (1) groundwater field blank (Field Blank) and one (1) groundwater trip blank (Trip Blank) were collected to evaluate the sampling methodology and potential influence of analytical methods and Site conditions on the sample results.

## 5. RESULTS AND EVALUATION

### 5.1 Stratigraphy

Based on the soil data collected, the general stratigraphy at the Site consisted of the following:

- Asphalt: A layer of asphalt ranging in thickness from 25 mm to 85 mm was present at some of the boreholes;
- Fill Materials: Sand and gravel fill materials were present within all the boreholes and extended to depths ranging from 0.7 m bgs to 4.3 m bgs;
- Clay: A layer of clay and silty clay with trace to some sand and gravel was present from a minimum depth of 0.7 m bgs to a maximum depth of 8.3 m bgs;
- Probable Till: A layer of probable till consisting of sand and gravel was present in some of the boreholes at depths ranging from 7.3 m bgs to 9.0 m bgs; and
- Bedrock: Bedrock was encounter within some of the boreholes at depths ranging from 6.4 m bgs to 9.0 m bgs.

A detailed description of the soil stratigraphy in each borehole is provided in the borehole logs in Appendix C.

### 5.2 Groundwater Elevations and Flow Direction

Static groundwater level measurements were collected on July 17 and 20, 2017, using a Solinst Canada Ltd. Model 122 oil/water interface meter which is also used to confirm the presence/absence and thickness of free (petroleum) product that may potentially be residing on the surface of the groundwater table. As previously mentioned, no groundwater was detected within BHMW2, BHMW3 and BHMW4.

The static groundwater table elevations within the surveyed overburden monitoring wells ranged from 98.0 m within BH2017-09 to 99.8 m within BH2017-02. The static groundwater table elevations within the surveyed bedrock monitoring wells ranged from 98.2 m bgs within BH2017-05 to 99.4 within BH2017-03. The groundwater elevations were calculated by subtracting the static water level depth from the elevation of the ground surface adjacent to the well. The local groundwater flow direction at the Site appeared to flow towards the northwest (refer to Figure 3). Monitoring well and groundwater elevation data is presented in Tables 5-2.

**Table 5-2: Monitoring Well Elevations and Groundwater Levels**

| Borehole/Well ID        | Ground Surface Elevation (m) | Measured Date | Groundwater Depth (m) | Groundwater Elevation (m) |
|-------------------------|------------------------------|---------------|-----------------------|---------------------------|
| <b>Overburden Wells</b> |                              |               |                       |                           |
| BH2017-02               | 104.2                        | July 17, 2017 | 4.4                   | 99.8                      |
| BH2017-04               | 100.7                        | July 17, 2017 | 2.2                   | 98.5                      |
| BH2017-06               | 104.3                        | July 17, 2017 | 6.0                   | 98.3                      |

| Borehole/Well ID | Ground Surface Elevation (m) | Measured Date | Groundwater Depth (m) | Groundwater Elevation (m) |
|------------------|------------------------------|---------------|-----------------------|---------------------------|
| BH2017-07        | 102.4                        | July 17, 2017 | 4.1                   | 98..3                     |
| BH2017-09        | 99.6                         | July 17, 2017 | 1.7                   | 98.0                      |
| BH2017-11        | 102.1                        | July 17, 2017 | 3.9                   | 98.2                      |
| <b>Bedrock</b>   |                              |               |                       |                           |
| BH2017-03        | 103.4                        | July 20, 2017 | 5.0                   | 98.4                      |
| BH2017-05        | 102.7                        | July 20, 2017 | 3.3                   | 99.4                      |
| BH2017-08        | 103.9                        | July 20, 2017 | 5.6                   | 98.3                      |
| BH2017-10        | 102.3                        | July 20, 2017 | 4.1                   | 98.2                      |

### 5.3 Field Observations

Visual or olfactory evidence of petroleum impacts in the collected samples or soils was noted as follows:

- Petroleum odours were noted from soil samples from BH2017-01 from approximately 3.7 m bgs to approximately 7.6 m bgs;
- Petroleum odours were noted from SS10 from BH2017-02;
- Petroleum odours were noted from SS11 from BH2017-02;
- Petroleum odours were noted from BH2017-05A; and
- Petroleum odours and bubbling were noted during groundwater monitoring activities for BH2017-09.

There was no other visual or olfactory evidence of petroleum impacts observed in any of the collected samples or soils observed during the investigation. A suspect waste oil tank was encountered within BH2017-05A. No waste materials, sheen, or free phase liquid petroleum hydrocarbons were noted during the drilling or sampling activities.

### 5.4 Soil Texture

Grain size analyses were completed by the DST Waterloo Aggregates Laboratory which is accredited by the Canadian Council of Independent Laboratories (CCIL) for soil samples BH2017-05 SS4, BH2017-09 SS2, BH2017-10 SS4 and BH2017-11 SS6. The sieve analysis results indicated that the fill materials at the Site were coarse textured, while the native soil was medium/fine-textured.

The grain size analysis results are presented in Appendix F.

## 5.5 Soil Sample Field Screening

Combustible vapour concentrations, as measured by the CCGD, of the collected soil samples are provided in the boreholes logs in Appendix C. Refer to Section 4.4 for the field screening methods implemented by DST field personnel during the investigation.

## 5.6 Soil Quality

As detailed in Section 2, analytical results of the soil samples submitted for laboratory analyses were compared against the applicable MOECC Table 3: Full Depth Background Site Condition Standards for Residential/Parkland/Institutional Property Use and coarse textured soils.

Based on the laboratory soil analytical results, DST noted the following:

### PHC F1 – F4 & BTEX:

- Concentrations of PHC F1 exceeded the current applicable MOECC Table 3 SCSs (55 µg/g) as follows:
  - BH2017-01 from 3.6 m bgs to 4.2 m bgs (200 µg/g) and 6.6 m bgs to 7.2 m bgs (520 µg/g); and,
  - BH2017-05 from 3.6 m bgs to 4.2 m bgs (60 µg/g).
- Concentrations of PHC F2 exceeded the current applicable MOECC Table 3 SCSs (98 µg/g) as follows:
  - BH2017-01 from 6.6 m bgs to 7.2 m bgs (470 µg/g);
  - BH2017-05 from 3.6 m bgs to 4.2 m bgs (160 µg/g);
  - BH2017-05A from 1.2 m bgs to 1.8 m bgs (260 µg/g); and,
  - BH2017-07 from 4.2 m bgs to 4.8 m bgs (310 µg/g).
- Concentrations of PHC F3 exceeded the current applicable MOECC Table 3 SCSs (300 µg/g) as follows:
  - BH2017-05 from 3.6 m bgs to 4.2 m bgs (340 µg/g);
  - BH2017-05A from 1.2 m bgs to 1.8 m bgs (2300 µg/g); and,
  - BH2017-07 from 4.2 m bgs to 4.8 m bgs (340 µg/g).
- Concentrations of benzene, ethylbenzene and toluene exceeded the current applicable MOECC Table 3 SCSs in BH2017-01 from 6.6 m bgs to 7.2 m bgs as follows:
  - Benzene: 0.93 µg/g (0.21 µg/g standard);
  - Ethylbenzene: 8.1 µg/g (2 µg/g standard); and,
  - Toluene: 11 µg/g (2.3 µg/g standard).
- Concentrations of total xylenes exceeded the applicable MOECC Table 3 SCSs (3.1 µg/g) as follows:
  - BH2017-01 from 3.6 m bgs to 4.2 m bgs (4.9 µg/g); and
  - BH2017-01 from 6.6 m bgs to 7.2 m bgs (41 µg/g).
- No other exceedances above the applicable MOECC Table 3 standards were reported in the submitted soil samples for PHC F1-F4 or BTEX.

## PAHs

- Concentrations of PAHs exceeded the current applicable MOECC Tables 3 SCSs within BH2017-11 from 1.2 m bgs to 1.8 m bgs as follows:
  - Acenaphthylene: 0.84 µg/g (0.15 µg/g standard);
  - Anthracene: 0.73 µg/g (0.67 µg/g standard);
  - Benzo(a)anthracene: 3.5 µg/g (0.5 µg/g standard);
  - Benzo(a)pyrene: 3.2 µg/g (0.3 µg/g standard);
  - Benzo(b/j)fluorathene: 3.9 µg/g (0.78 µg/g standard);
  - Benzo(k)fluoranthene: 1.4 µg/g (0.78 µg/g standard);
  - Dibenz(a,h)anthracene: 0.51 µg/g (0.1 µg/g standard); and,
  - Fluorene: 2.5 µg/g (0.38 µg/g standard).
- No other exceedances above the applicable MOECC Table 3 standards were reported in the submitted soil samples for PAHs.

## VOCs (excluding PHC F1 and BTEX)

- Concentrations of VOCs exceeded the current applicable MOECC Table 3 SCSs as follows:
  - Hexane: 11 µg/g (2.8 µg/g standard) in BH2017-01 from 6.6 m bgs to 7.2 m bgs; and,
  - 1,2-Dichloroethane: 0.2 µg/g (0.05 µg/g standard) in BH2017-05A from 1.2 m bgs to 1.8 m bgs.
- No other exceedances above the applicable MOECC Table 3 standards were reported in the submitted soil samples for VOCs (excluding PHC F1 and BTEX).

## Metals and Inorganics

- Concentrations of arsenic exceeded the current applicable MOECC Table 3 SCSs (18 µg/g) as follows:
  - BH2017-11 from 1.2 m bgs to 1.8 m bgs (33 µg/g).
- Concentrations of cobalt exceeded the current applicable MOECC Table 3 SCSs (22 µg/g) as follows:
  - BH2017-13 from 1.2 m bgs to 1.8 m bgs (23 µg/g).
- Concentrations of lead exceeded the current applicable MOECC Table 3 SCSs (120 µg/g) as follows:
  - BH2017-11 from 1.2 m bgs to 1.8 m bgs (410 µg/g).
- Concentrations of vanadium exceeded the current applicable MOECC Table 3 SCSs (86 µg/g) as follows:
  - BH2017-05 from 3.6 m bgs to 4.2 m bgs (92 µg/g);
  - BH2017-08 from 2.4 m bgs to 3.0 m bgs (90 µg/g); and,
  - BH2017-13 from 1.2 m bgs to 1.8 m bgs (100 µg/g).

- Soil pH was measured at 7.83 in sample BH201-10 from 5.5 m bgs to 6.0 m bgs.
- No other exceedances above the applicable MOECC Table 3 standards were reported in the submitted soil samples for metals.

The results of the soil sample analyses and their respective evaluation criteria are presented in Tables E-1 through E-4 (refer to Appendix E) and Figure 4. Laboratory Certificates of Analysis are included in Appendix F.

Composite soil samples were collected and submitted to Paracel Laboratories Ltd. for analysis of Toxicity Characteristic Leaching Parameters (TCLP) including inorganics and benzo(a)pyrene to assess whether the impacted soils should be managed as hazardous soils. Based on the laboratory analytical test results, the submitted samples were below the applicable O.Reg. 558/00 leachate criteria for all of the analyzed chemical parameters, and therefore the soils would be considered non-hazardous for disposal purposes.

## 5.7 Groundwater Quality

As detailed in Section 2, analytical results of the groundwater samples submitted for laboratory analyses were compared against the applicable MOECC Table 3 standards for All Types of Property Use (MOECC, 2011).

Based on the laboratory groundwater analytical results, DST noted the following:

### PHC F1 – F4 & BTEX:

- Concentrations of PHCs and BTEX exceeded the current applicable MOECC Table 3 SCSs at BH2017-02 as follows:
  - PHC F1: 21,000 µg/L (750 µg/L standard);
  - PHC F1 – BTEX: 12,000 µg/L (750 µg/L standard);
  - PHC F2: 12,000 µg/L (150 µg/L standard); and
  - Total Xylenes: 6,600 µg/L (4,200 µg/L standard).
- No other exceedances above the applicable MOECC Table 3 standards were reported in the submitted soil samples for PHC F1-F4 or BTEX.

### VOCs (excluding PHC F1 and BTEX)

- Concentrations of 1,2-dichloroethane exceeded the MOECC Table 3 SCSs (1.6 µg/L) as follows:
  - BH2017-05 (6.6 µg/L); and
  - BH2017-09 (20 µg/L).
- Concentrations of hexane exceeded the MOECC Table 3 SCSs (51 µg/L) as follows:
  - BH2017-02 (280 µg/L).
- Concentrations of methyl t-butyl ether (MTBE) exceeded the MOECC Table 3 SCSs (190 µg/L) as follows:

- BH2017-05 (240 µg/L).
- No other exceedances above the applicable MOECC Table 3 standards were reported in the submitted soil samples for VOCs (excluding PHC F1 and BTEX).

### Metals & Inorganics

Concentrations of the analyzed metal and inorganic parameters were below the applicable MOECC Table 3 SCSs for all the submitted groundwater samples.

The results of the groundwater sample analyses and their respective evaluation criteria are presented in Tables E-5 to E-8 (refer to Appendix E). Laboratory Certificates of Analysis are included in Appendix F.

### **5.8 Quality Assurance and Quality Control Results**

As noted in Section 5.11, the field program included the submission of three (3) QA/QC samples for laboratory analysis:

- DUP, four field duplicates of soil samples:
  - DUP of BH2017-01 SS7 for PHCs and BTEX; and,
  - DUP of BH2017-13 SS3 for PCHs and BTEX, and metals.
- DUP, two field duplicates of groundwater samples BH2017-05 and BH2017-06;
- Field Blank, groundwater field blank; and,
- Trip Blank, groundwater trip blank.

The analytical results of an original (parent) sample and its corresponding field duplicate are generally quantitatively comparable. Relative percent differences (RPDs) between analytical results from field duplicate samples are calculated using the following formula:

$$RPD = \frac{(\text{Sample Result} - \text{Duplicate Result}) \times 100}{(\text{Sample Result} + \text{Duplicate Result}) / 2}$$

Relative percent differences are only calculated for a parameter when both sample concentrations (the original and the duplicate) are greater than five (5) times the reportable detection limit (RDL).

All calculable RPDs were below the respective alert limits listed in the Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario (MOECC, 1996) for soil field duplicates and for groundwater field duplicates analyzed for Metals, PAHs, PHC F1 – F4 and VOCs.

The analytical results of the groundwater field and trip blanks were below laboratory reportable detection limits (RDLs), indicating that Site conditions and analytical procedures did not have any impact on the results of the samples collected during the investigation.

No quality control issues that would affect the conclusions of this report were identified. Therefore, based on this information, the analytical results are considered reproducible.

Laboratory quality control data is included with the laboratory certificates of analysis in Appendix F.

## 6. CONCLUSIONS AND RECOMMENDATIONS

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### 6.1 Conclusions

DST, on behalf of Trinity Development Group Inc., conducted a Phase Two ESA for the properties located at 951 Gladstone Avenue and 145 Loretta Avenue North in Ottawa, Ontario (Site). DST has performed this Phase Two ESA in accordance with the Ontario Regulation 153/04 Records of Site Condition, as amended.

The Site is an irregular parcel of land approximately 1.1 ha (2.6 acres) in size located in Ottawa, Ontario. The property is bordered by: a commercial property (131 Loretta Avenue North) to the north, a railway corridor to the east, Gladstone Avenue to the south, and Loretta Avenue North followed by an industrial property (975 Gladstone Avenue – former British American Bank Note) to the west. The Site is currently zoned as General Industrial IG (1).

DST understands that the Client intends to redevelop the Site with a multi-tenant residential and commercial development, including mid and high rise residential buildings, commercial/retail spaces, ground surface parking lot, two levels of below ground parking, sewers and water pipes installation. The proposed new buildings include one 18-storey tower, on 20-storey tower, one building with a 20-storey tower and a 5-storey podium, and one 5-storey building. It should be noted that DST completed a geotechnical investigation for this proposed development concurrently with this Phase Two ESA, and the results of this investigation will be submitted under a separate cover.

The objective of the Phase Two ESA was to conduct intrusive investigation of the APECs identified during the Phase One ESA conducted by DST in July 2017. The Phase Two ESA field program consisted of:

- The advancement of fourteen (14) boreholes (BH2017-01 through BH2017-13 and BH2017-5A) to depths of ranging from approximately 1.8 m bgs to 16.6 m bgs. It should be noted that BH2017-12 was advanced for geotechnical purposes only;
- Groundwater monitoring wells were installed in ten (10) boreholes (BH2017-02 through BH2017-11);
- The collection of soil samples, including field duplicate samples, from thirteen of the advanced boreholes, for laboratory analysis of contaminants of potential concern (COPCs);
  - Twenty-five (25) soil samples, including one (2) field duplicate samples, were analysed for petroleum hydrocarbons (PHC) fractions F1 – F4 (PHCs F1-F4) and benzene, toluene, ethylbenzene, and xylenes (BTEX);
  - Thirteen (13) soil samples, including one (1) field duplicate samples, were analysed for metals;
  - Ten (10) soil samples were analysed for volatile organic compounds (VOCs), metals, and polycyclic aromatic hydrocarbons (PAHs);

- Five (5) soil samples were analysed for polycyclic aromatic hydrocarbons (PAHs); and,
- One (1) soil sample was analysed for pH and four (4) soils samples were analysed for grain size.
- The collection of groundwater samples, including field duplicate samples, from seven (7) newly installed monitoring wells and one existing monitoring well (Unknown 1), for laboratory analysis of COPCs;
  - Eleven (11) ground water samples, including one field duplicate sample for each parameter, were analysed for each of PHCs F1-F4, BTEX, VOCs and metals & inorganics.
- The submission of one (1) field blank water sample for laboratory analysis of petroleum hydrocarbon (PHC) fractions F1 – F4, benzene, toluene, ethylbenzene and xylenes (BTEX) and volatile organic compounds (VOCs), and one (1) trip blank water sample for laboratory analysis of volatile compounds (PHC F1, BTEX and VOCs).

Based on the field observations and laboratory analytical results, DST noted the following:

- The general stratigraphy at the Site consisted of the following:
  - Asphalt: A layer of asphalt ranging in thickness from 25 mm to 85 mm was present at some of the boreholes;
  - Fill Materials: Sand and gravel fill materials were present within all the boreholes and extended to depths ranging from 0.7 m bgs to 4.3 m bgs;
  - Clay: A layer of clay and silty clay with trace to some sand and gravel was present from a minimum depth of 0.7 m bgs to a maximum depth of 8.3 m bgs;
  - Probable Till: A layer of probable till consisting of sand and gravel was present in some of the boreholes at depths ranging from 7.3 m bgs to 9.0 m bgs; and
  - Bedrock: Bedrock was encounter within some of the boreholes at depths ranging from 6.4 m bgs to 9.0 m bgs.
- Soil impacts (concentrations of contaminants above the Ontario Ministry of the Environment and Climate Change (MOECC) Table 3 standards for residential/parkland/institutional property use, coarse textured soils) were identified at the Site as follows:
  - Southwest portion of the Site, near the former on-Site retail fuel outlet (RFO). Based on the results of this Phase Two ESA and historical data, the native soils in this area were found to be impacted with PHC F1-F2, BTEX, naphthalene, 1,1,2-trichloroethane and hexane; while fill materials in this area were found to be impacted with lead and zinc;
  - A suspected waste oil tank was encountered within BH2017-05A, which was located to the northeast of the building associated with 951 Gladstone Avenue. Soils near this area were found to be impacted by PHC F1-F3, 1,2-dichloroethane, and vanadium;

- Northwest portion of the Site, near BH2017-07. The soils were found to be impacted with PHC F2-F3; and,
  - Fill materials at the Site, ranging in maximum depths of 1.4 m bgs to 4.3 m bgs. These fill materials were found to be impacted with 1,2-dichloroethane, vanadium, various PAHs, arsenic, lead, cobalt, and zinc, at varying locations across the Site.
- Groundwater impacts were identified at the Site as follows:
- Southwest portion of the Site, near the former on-Site retail fuel outlet. The groundwater in this area was found to be impacted with PHC F1-F2, benzene, xylenes, hexane and lead;
  - Northeast of the Site building associated with 951 Gladstone Avenue. Groundwater in this area was found to be impacted 1,2-dichloroethane and methylene t-butyl ether (MTBE); and,
  - East of the Site building associated with 145 Loretta Avenue North. Groundwater in this area was found to be impacted with 1,2-dichloroethane.
- Soil and groundwater samples from the remaining locations met the current applicable Table 3 SCSs for all the analyzed chemical parameters.
- Composite soil samples were submitted for TCLP analysis to assess if the impacted soils are considered hazardous for disposal purposes. Based on the laboratory analytical test results, the submitted samples were below the applicable O.Reg. 558/00 leachate criteria for all of the analyzed chemical parameters, and therefore the soils would be considered non-hazardous for disposal purposes.

## 6.2 Recommendations

Based on the results of this Phase Two ESA and the historical data available for the Site, to proceed with the proposed redevelopment of the Site, the following will be required:

- 1) A Record of Site Condition (RSC) will need to be filed with the MOECC. To file this RSC, the extents of the identified soil and groundwater contamination at the Site will need to be delineated laterally and vertically. Additionally, all of the identified areas of soil or groundwater contamination would be required to be remediated to at or below the applicable site condition standards, and/or a risk assessment be completed for areas where contamination is present above the applicable site condition standards.
- 2) Contaminated media will be required to be managed at the Site during redevelopment activities as follows:

| Location                         | Estimated Quantity of Impacted Material | Recommended Action                                 |
|----------------------------------|---|--|
| <b>Soils</b>                     |   |  |
| Southwest portion of the Site.   | 6,350 m <sup>3</sup>                    | Excavate and dispose in a MOECC approved landfill. |
| East-central portion of the Site | 200 m <sup>3</sup>                      |  |

| Location   | Estimated Quantity of Impacted Material | Recommended Action   |
|--|---|--|
| West-central portion of the Site                                     | 700 m <sup>3</sup>                      |  |
| Fill Materials over the entire Site (Non-Hazardous Estimate)         | 8,100 m <sup>3</sup>                    |  |
| Fill Materials over the entire Site (potentially Hazardous Estimate) | 100 m <sup>3</sup>                      |  |
| <b>Total</b>   | <b>15,450 m<sup>3</sup></b>             |  |
| <b>Groundwater</b>   |   |  |
| Entire Site  | 5,100,000 L                             | Manage during construction dewatering via pumping, on-Site treatment, and disposal; or via pumping, and off-Site disposal at a treatment facility. |

Further discussion regarding the above mentioned recommended remedial options and estimated quantities will be provided in a remedial options Letter report, which will be submitted under a separate cover.

## 7. CLOSURE

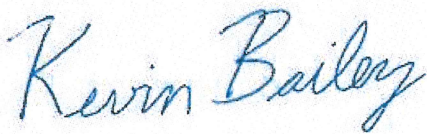
---

We trust that the above meets your present requirements; should you have any questions or concerns regarding this report, please feel free to contact the undersigned at your convenience.

DST confirms that the completion of the Soil and Groundwater Investigation has been supervised and approved by Sam Voore, P. Eng., a Qualified Person as defined by O.Reg. 153/04 (as amended), and further confirms the findings and conclusions of this report.

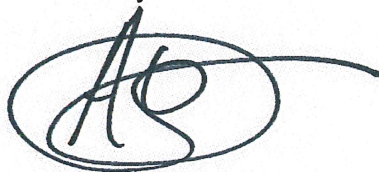
We appreciate this opportunity to provide environmental consulting services to you. If you have any questions or comments, please contact the undersigned.

For **DST CONSULTING ENGINEERS INC.**



Kevin Bailey, M.A.Sc, EIT  
Intermediate Engineer-In-Training

Reviewed By:



Ali Williams, B.Sc., P.Eng.  
Senior Project Manager

Approved By:



Sam Voore, M.Eng., P.Eng.  
Regional Manager, Technical Services Group



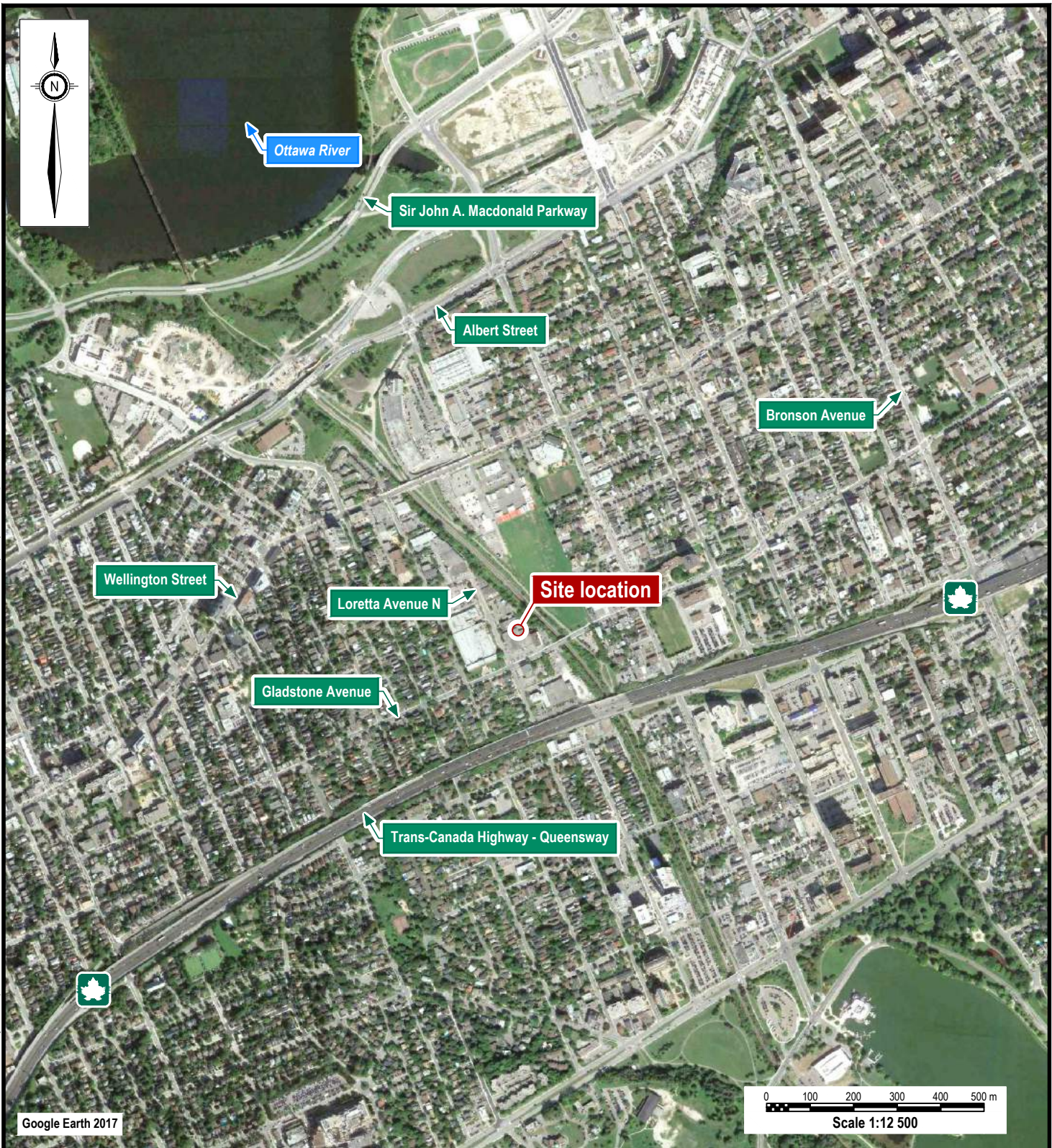
## **8. REFERENCES**

---

1. City of Ottawa's Official Plan, Amendment #150, as approved April 24, 2014.
2. DST Consulting Engineers Inc., July 2017. Phase One Environmental Site Assessment, 951 Gladstone Avenue & 145 Loretta Avenue North, Ottawa, Ontario.
3. DST Consulting Engineers Inc., June 2009. Limited Phase II Environmental Site Assessment and Historical Review, 941-971 Gladstone Avenue, Ottawa, Ontario.
4. Maxxam Analytics Inc., May 2012. "National QA/QC Interpretation Guide – Environmental Services".
5. Ontario Ministry of the Environment and Climate Change, December 1996. "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario".
6. Ontario Ministry of the Environment, 2011. *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*.
7. Ontario Ministry of Natural Resources and Forestry, 2014. *Oak Ridges Moraine Atlas*. Queen's Printer for Ontario.
8. Ontario Ministry of the Environment and Climate Change, as amended January 2014. *Ontario Resources Act R.R.O. 1990, Regulation 903 – Wells*.
9. Ontario Ministry of Natural Resources and Forestry, 2014. *Biodiversity Explorer*. Updated 2014. Queen's Printer for Ontario. Available from:  
<http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html> [Accessed July 2017].
10. Pinchin Environmental Ltd., April 2013. Phase I Environmental Site Assessment, 145 Loretta Avenue North, Ottawa, Ontario.
11. Ontario Ministry of the Environment and Climate Change, Map: Well Records, updated March 2017.

## **APPENDIX A FIGURES**


Folder: L:\ITS\CAD\Projects\TS\ts-so-029563\_trinity development\AutoCAD\DWGs\2017 Phase II ESA - 951 Gladstone and 145 Loretta Ave N  
 Thursday, July 27, 2017 @ 12:52 by Rob Wesson  
 Drawing: 1 site location map.dwg



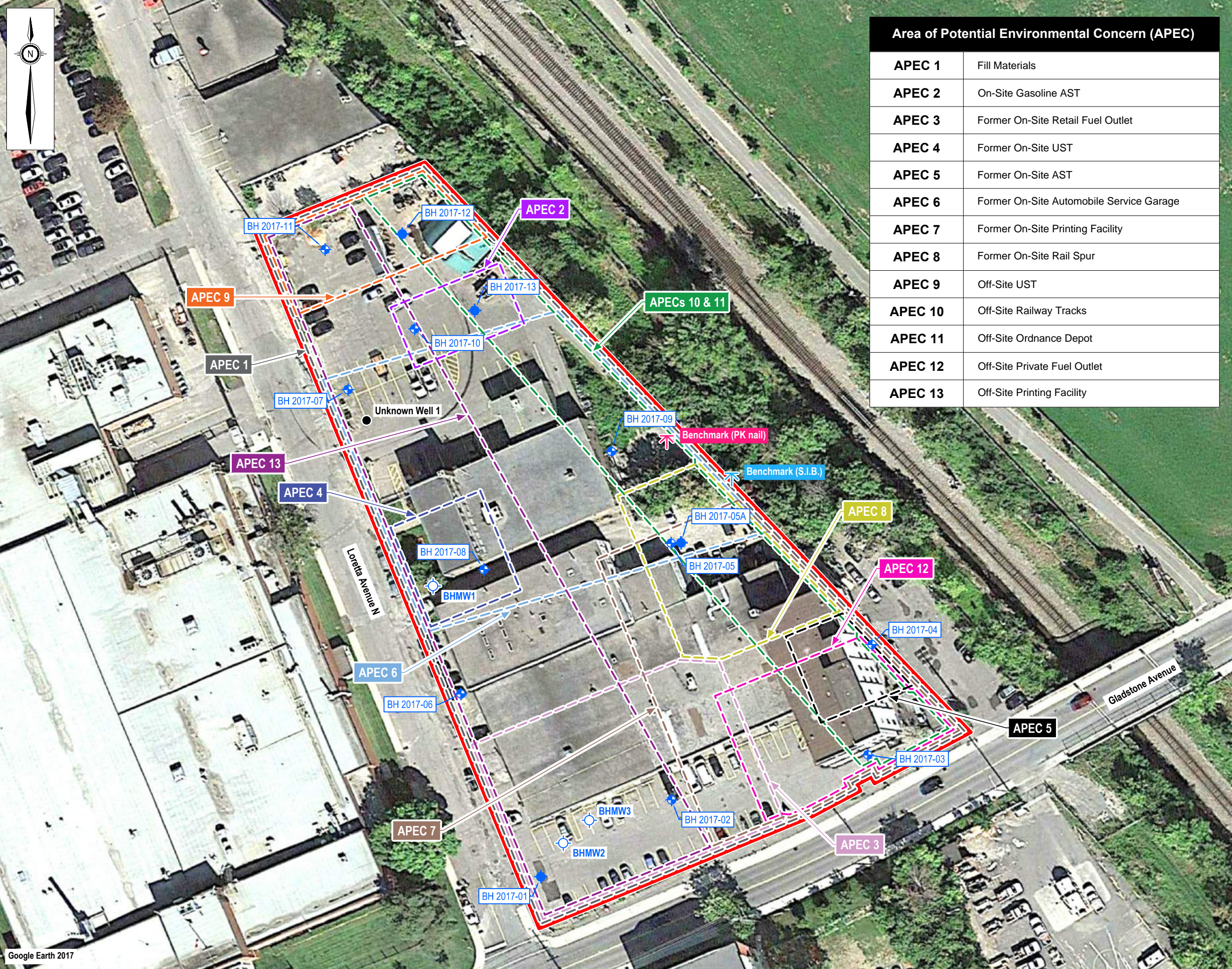
**Note**

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

|          |          |             |          |
|----------|----------|-------------|----------|
| A        | 27.07.17 | Preliminary | S.V.     |
| Revision | Date     | Issue       | Approval |

|   |               |   |  |
|---|---------------|---|--|
| Client<br><b>Trinity Development Group Inc.</b>                                     |               | Site<br><b>951 Gladstone Ave. &amp; 145 Loreta Ave., Ottawa, ON</b> |  |
|  | Report Title  | Designed By   | Date   |
|   | Drawing Title | <b>Phase Two Environmental Site Assessment</b>                      |  |
|   |               | <b>Site location Map</b>  |  |
|   |               | S.V.<br>R.W.<br>S.V.<br>As shown                                    | July 2017<br>Project No.<br>TS-SO-029563<br>Figure No.<br><b>1</b> |

Folder: L:\TISCAD\Projects\TISs-sc-029563 trinity development\AutoCAD\DWGs\2017 Phase II ESA - 951 Gladstone and 145 Loretta Ave N  
 Wednesday, August 02, 2017 @ 15:43 by Rob Wesson  
 Drawing: 2 site and borehole location plan.dwg  
 Google Earth 2017



| Area of Potential Environmental Concern (APEC) |  |
|--|--|
| APEC 1   | Fill Materials                           |
| APEC 2   | On-Site Gasoline AST                     |
| APEC 3   | Former On-Site Retail Fuel Outlet        |
| APEC 4   | Former On-Site UST                       |
| APEC 5   | Former On-Site AST                       |
| APEC 6   | Former On-Site Automobile Service Garage |
| APEC 7   | Former On-Site Printing Facility         |
| APEC 8   | Former On-Site Rail Spur                 |
| APEC 9   | Off-Site UST                             |
| APEC 10  | Off-Site Railway Tracks                  |
| APEC 11  | Off-Site Ordnance Depot                  |
| APEC 12  | Off-Site Private Fuel Outlet             |
| APEC 13  | Off-Site Printing Facility               |

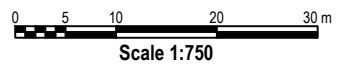


**Notes**

- This drawing shall be read in conjunction with the associated technical report.
- Do not scale drawing.

**Legend**

|  |  |
|--|--|
|  | Property boundary                                |
|  | Borehole location                                |
|  | Monitoring well location                         |
|  | Approximate monitoring well location (DST, 2007) |
|  | Benchmark  |



| Revision | Date     | Issue       | Approval |
|----------|----------|-------------|----------|
| A        | 27.07.17 | Preliminary | S.V.     |

Client: Trinity Development Group Inc.

Site: 951 Gladstone Ave. & 145 Loretta Ave., Ottawa, ON

Report Title: Phase Two Environmental Site Assessment

Drawing Title: Site Plan

|             |      |             |              |
|-------------|------|-------------|--------------|
| Designed By | S.V. | Scale       | As shown     |
| Drawn By    | R.W. | Date        | July 2017    |
| Approved By | S.V. | Project No. | TS-SO-029563 |

Figure No. 2

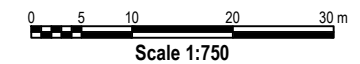


**Notes**

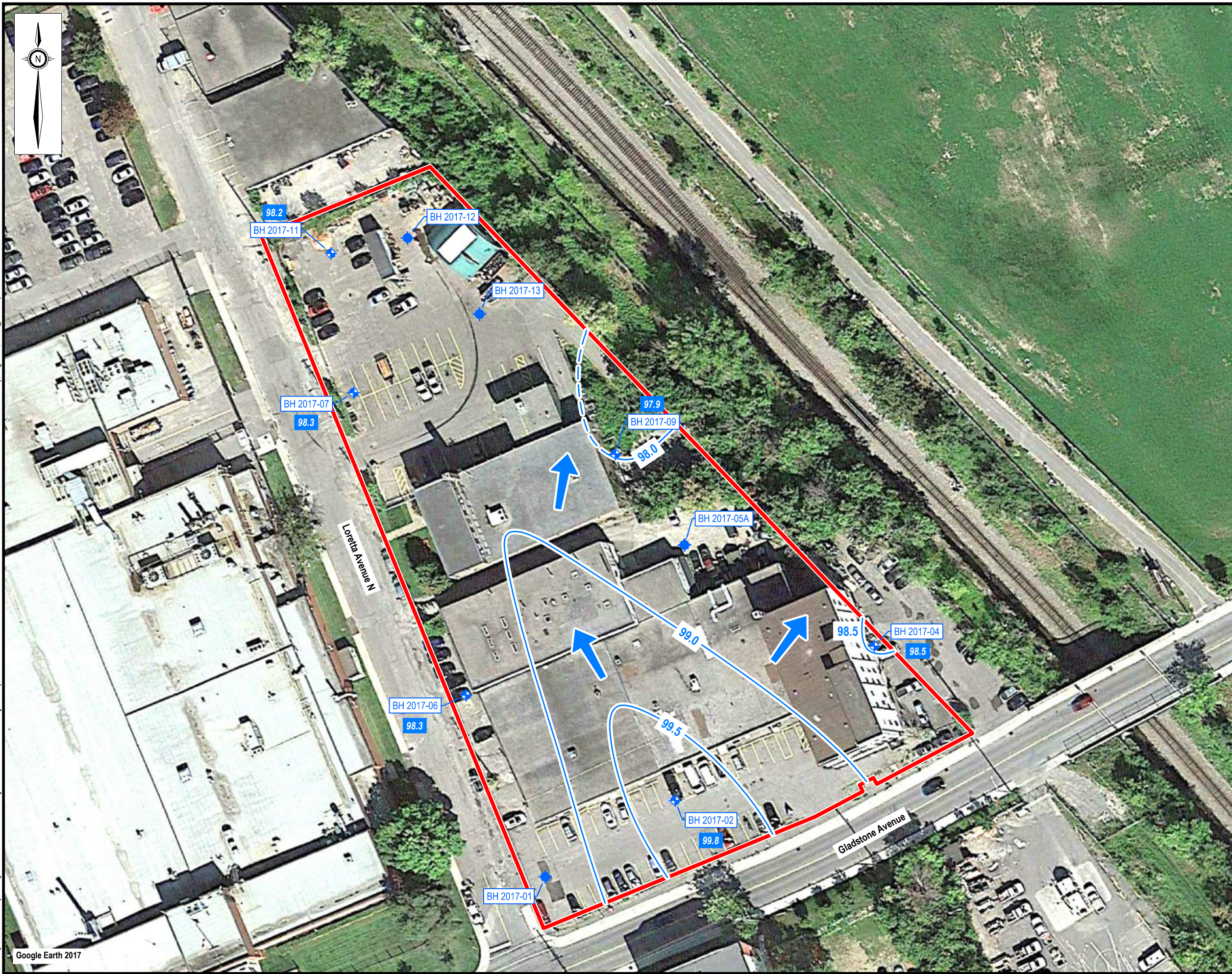
1. This drawing shall be read in conjunction with the associated technical report.
2. Do not scale drawing.

**Legend**

- Property boundary
- Borehole location
- ⊕ Monitoring well location
- 99.8 Groundwater contour (m)
- 97.9 Groundwater elevation (m)
- ➔ Direction of groundwater flow



Drawing: 3 GW contour plan.dwg Folder: L:\ITS\CAD\Projects\ITS-so-029563 trinity development\AutoCAD\DWGs\2017 Phase II ESA - 951 Gladstone and 145 Loreta Ave N Wednesday, August 02, 2017 @ 17:38 by Rob Wesson



|          |          |             |          |
|----------|----------|-------------|----------|
| A        | 27.07.17 | Preliminary | S.V.     |
| Revision | Date     | Issue       | Approval |

Client  
**Trinity Development Group Inc.**

Site  
**951 Gladstone Ave. & 145 Loreta Ave., Ottawa, ON**

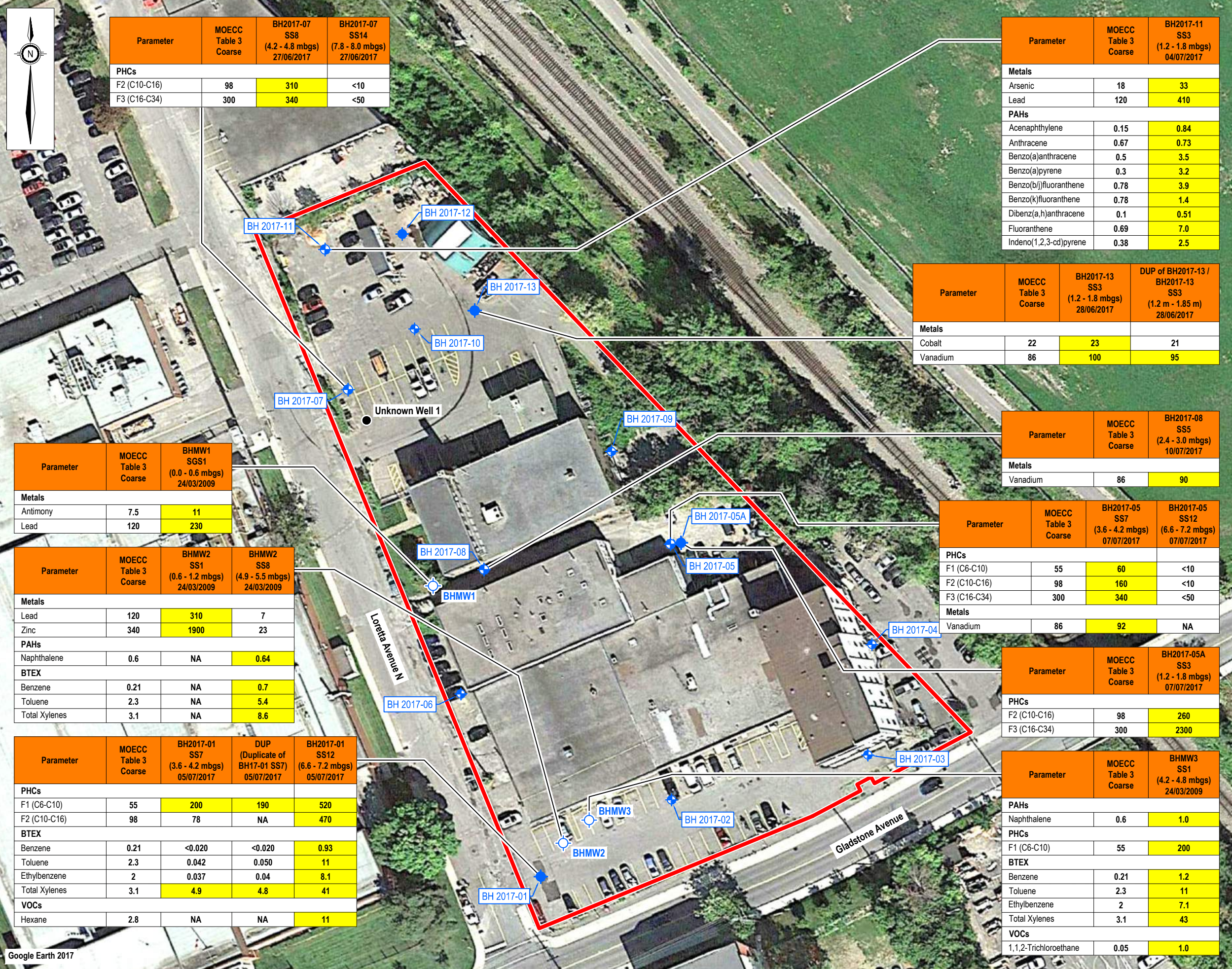
Report Title  
**Phase Two  
Environmental Site Assessment**

Drawing Title  
**Overburden Groundwater Contour Map**

|             |      |             |              |
|-------------|------|-------------|--------------|
| Designed By | S.V. | Scale       | As shown     |
| Drawn By    | R.W. | Date        | July 2017    |
| Approved By | S.V. | Project No. | TS-SO-029563 |

Figure No. **3**

Drawing: 4 soil exceedances.dwg Folder: L:\ITS\CAD\Projects\TS-so-029563 trinity development\AutoCAD\DWGs\2017 Phase II ESA - 951 Gladstone and 145 Loreta Ave N Wednesday, August 02, 2017 @ 16:42 by Rob Wesson



| Parameter    | MOECC Table 3 Coarse | BH2017-07 SS8 (4.2 - 4.8 mbgs) 27/06/2017 | BH2017-07 SS14 (7.8 - 8.0 mbgs) 27/06/2017 |
|--------------|----------------------|---|--|
| <b>PHCs</b>  |                      |   |  |
| F2 (C10-C16) | 98                   | 310                                       | <10  |
| F3 (C16-C34) | 300                  | 340                                       | <50  |

| Parameter              | MOECC Table 3 Coarse | BH2017-11 SS3 (1.2 - 1.8 mbgs) 04/07/2017 |
|------------------------|----------------------|---|
| <b>Metals</b>          |                      |   |
| Arsenic                | 18                   | 33  |
| Lead                   | 120                  | 410                                       |
| <b>PAHs</b>            |                      |   |
| Acenaphthylene         | 0.15                 | 0.84                                      |
| Anthracene             | 0.67                 | 0.73                                      |
| Benzo(a)anthracene     | 0.5                  | 3.5                                       |
| Benzo(a)pyrene         | 0.3                  | 3.2                                       |
| Benzo(b)fluoranthene   | 0.78                 | 3.9                                       |
| Benzo(k)fluoranthene   | 0.78                 | 1.4                                       |
| Dibenz(a,h)anthracene  | 0.1                  | 0.51                                      |
| Fluoranthene           | 0.69                 | 7.0                                       |
| Indeno(1,2,3-cd)pyrene | 0.38                 | 2.5                                       |

| Parameter     | MOECC Table 3 Coarse | BH2017-13 SS3 (1.2 - 1.8 mbgs) 28/06/2017 | DUP of BH2017-13 / BH2017-13 SS3 (1.2 m - 1.85 m) 28/06/2017 |
|---------------|----------------------|---|--|
| <b>Metals</b> |                      |   |  |
| Cobalt        | 22                   | 23  | 21   |
| Vanadium      | 86                   | 100                                       | 95   |

| Parameter     | MOECC Table 3 Coarse | BHMW1 SGS1 (0.0 - 0.6 mbgs) 24/03/2009 |
|---------------|----------------------|--|
| <b>Metals</b> |                      |  |
| Antimony      | 7.5                  | 11                                     |
| Lead          | 120                  | 230                                    |

| Parameter     | MOECC Table 3 Coarse | BH2017-08 SS5 (2.4 - 3.0 mbgs) 10/07/2017 |
|---------------|----------------------|---|
| <b>Metals</b> |                      |   |
| Vanadium      | 86                   | 90  |

| Parameter     | MOECC Table 3 Coarse | BHMW2 SS1 (0.6 - 1.2 mbgs) 24/03/2009 | BHMW2 SS8 (4.9 - 5.5 mbgs) 24/03/2009 |
|---------------|----------------------|---------------------------------------|---------------------------------------|
| <b>Metals</b> |                      |                                       |                                       |
| Lead          | 120                  | 310                                   | 7                                     |
| Zinc          | 340                  | 1900                                  | 23                                    |
| <b>PAHs</b>   |                      |                                       |                                       |
| Naphthalene   | 0.6                  | NA                                    | 0.64                                  |
| <b>BTEX</b>   |                      |                                       |                                       |
| Benzene       | 0.21                 | NA                                    | 0.7                                   |
| Toluene       | 2.3                  | NA                                    | 5.4                                   |
| Total Xylenes | 3.1                  | NA                                    | 8.6                                   |

| Parameter     | MOECC Table 3 Coarse | BH2017-05 SS7 (3.6 - 4.2 mbgs) 07/07/2017 | BH2017-05 SS12 (6.6 - 7.2 mbgs) 07/07/2017 |
|---------------|----------------------|---|--|
| <b>PHCs</b>   |                      |   |  |
| F1 (C6-C10)   | 55                   | 60  | <10  |
| F2 (C10-C16)  | 98                   | 160                                       | <10  |
| F3 (C16-C34)  | 300                  | 340                                       | <50  |
| <b>Metals</b> |                      |   |  |
| Vanadium      | 86                   | 92  | NA   |

| Parameter     | MOECC Table 3 Coarse | BH2017-01 SS7 (3.6 - 4.2 mbgs) 05/07/2017 | DUP (Duplicate of BH17-01 SS7) 05/07/2017 | BH2017-01 SS12 (6.6 - 7.2 mbgs) 05/07/2017 |
|---------------|----------------------|---|---|--|
| <b>PHCs</b>   |                      |   |   |  |
| F1 (C6-C10)   | 55                   | 200                                       | 190                                       | 520  |
| F2 (C10-C16)  | 98                   | 78  | NA  | 470  |
| <b>BTEX</b>   |                      |   |   |  |
| Benzene       | 0.21                 | <0.020                                    | <0.020                                    | 0.93                                       |
| Toluene       | 2.3                  | 0.042                                     | 0.050                                     | 11   |
| Ethylbenzene  | 2                    | 0.037                                     | 0.04                                      | 8.1  |
| Total Xylenes | 3.1                  | 4.9                                       | 4.8                                       | 41   |
| <b>VOCs</b>   |                      |   |   |  |
| Hexane        | 2.8                  | NA  | NA  | 11   |

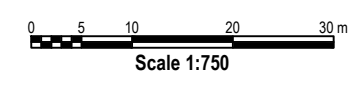
| Parameter    | MOECC Table 3 Coarse | BH2017-05A SS3 (1.2 - 1.8 mbgs) 07/07/2017 |
|--------------|----------------------|--|
| <b>PHCs</b>  |                      |  |
| F2 (C10-C16) | 98                   | 260  |
| F3 (C16-C34) | 300                  | 2300                                       |

| Parameter             | MOECC Table 3 Coarse | BHMW3 SS1 (4.2 - 4.8 mbgs) 24/03/2009 |
|-----------------------|----------------------|---------------------------------------|
| <b>PAHs</b>           |                      |                                       |
| Naphthalene           | 0.6                  | 1.0                                   |
| <b>PHCs</b>           |                      |                                       |
| F1 (C6-C10)           | 55                   | 200                                   |
| <b>BTEX</b>           |                      |                                       |
| Benzene               | 0.21                 | 1.2                                   |
| Toluene               | 2.3                  | 11                                    |
| Ethylbenzene          | 2                    | 7.1                                   |
| Total Xylenes         | 3.1                  | 43                                    |
| <b>VOCs</b>           |                      |                                       |
| 1,1,2-Trichloroethane | 0.05                 | 1.0                                   |



- Notes**
- This drawing shall be read in conjunction with the associated technical report.
  - Do not scale drawing.

- Legend**
- Property boundary
  - Borehole location
  - Monitoring well location
  - Approximate monitoring well location (DST, 2007)



| Revision | Date     | Issue       | Approval |
|----------|----------|-------------|----------|
| A        | 27.07.17 | Preliminary | S.V.     |

Client: Trinity Development Group Inc.  
 Site: 951 Gladstone Ave. & 145 Loreta Ave., Ottawa, ON

Report Title: Phase Two Environmental Site Assessment

Drawing Title: Soil Exceedances





|             |      |             |              |
|-------------|------|-------------|--------------|
| Designed By | S.V. | Scale       | As shown     |
| Drawn By    | R.W. | Date        | July 2017    |
| Approved By | S.V. | Project No. | TS-SO-029563 |

Figure No. 4

**Notes**

1. This drawing shall be read in conjunction with the associated technical report.
2. Do not scale drawing.

**Legend**

-  Property boundary
-  Borehole location
-  Monitoring well location
-  Approximate monitoring well location (DST, 2007)



|          |          |             |          |
|----------|----------|-------------|----------|
| A        | 27.07.17 | Preliminary | S.V.     |
| Revision | Date     | Issue       | Approval |

Client  
**Trinity Development Group Inc.**

Site  
**951 Gladstone Ave. & 145 Loreta Ave., Ottawa, ON**

Report Title  
**Phase Two  
Environmental Site Assessment**

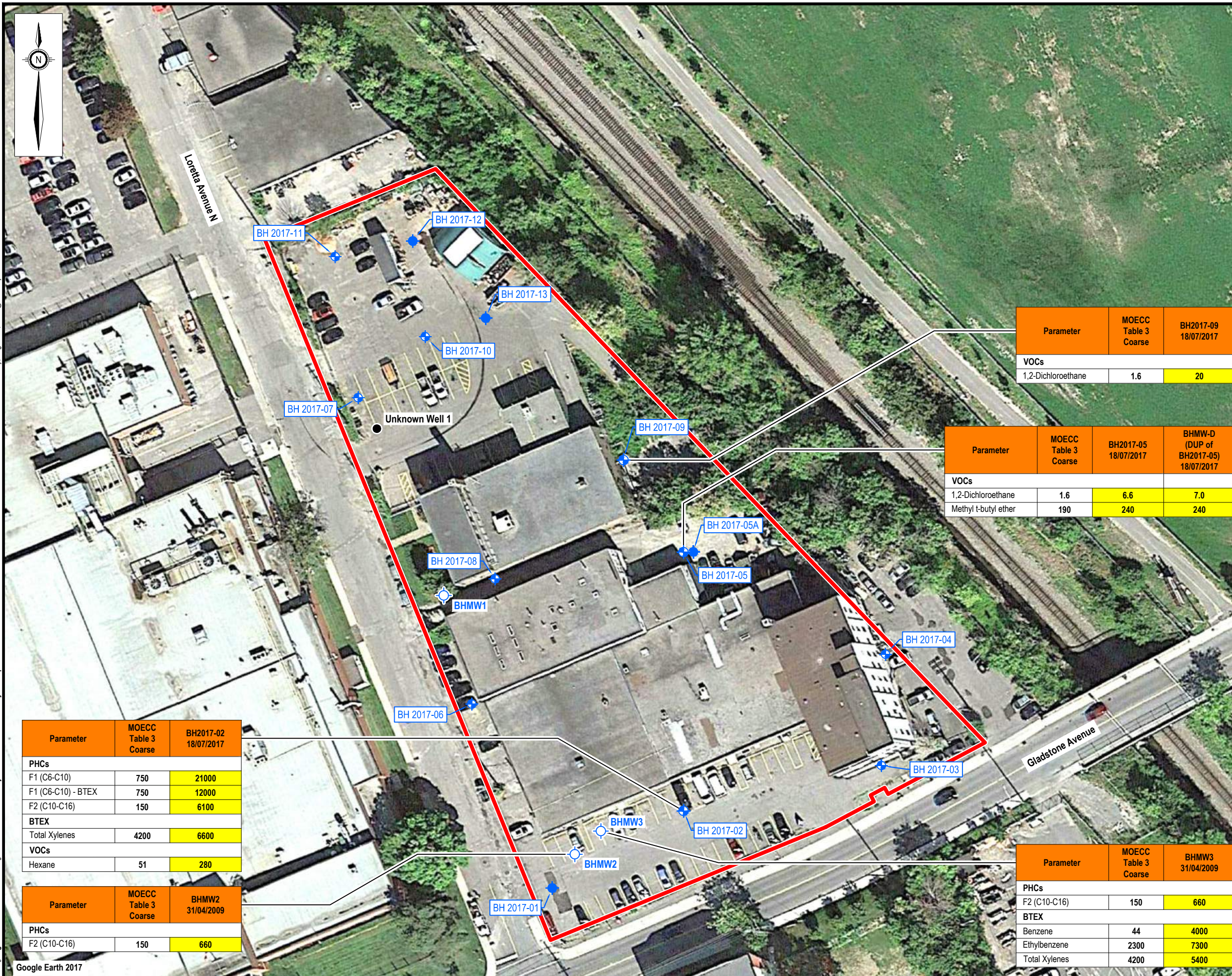
Drawing Title  
**Groundwater Exceedances**

Designed By  
**S.V.** Scale  
**As shown**

Drawn By  
**R.W.** Date  
**July 2017**

Approved By  
**S.V.** Project No.  
**TS-SO-029563**

Figure No.  
**5**



| Parameter          | MOECC Table 3 Coarse | BH2017-09 18/07/2017 |
|--------------------|----------------------|----------------------|
| <b>VOCs</b>        |                      |                      |
| 1,2-Dichloroethane | 1.6                  | 20                   |

| Parameter            | MOECC Table 3 Coarse | BH2017-05 18/07/2017 | BHMW-D (DUP of BH2017-05) 18/07/2017 |
|----------------------|----------------------|----------------------|--------------------------------------|
| <b>VOCs</b>          |                      |                      |                                      |
| 1,2-Dichloroethane   | 1.6                  | 6.6                  | 7.0                                  |
| Methyl t-butyl ether | 190                  | 240                  | 240                                  |

| Parameter     | MOECC Table 3 Coarse | BHMW3 31/04/2009 |
|---------------|----------------------|------------------|
| <b>PHCs</b>   |                      |                  |
| F2 (C10-C16)  | 150                  | 660              |
| <b>BTEX</b>   |                      |                  |
| Benzene       | 44                   | 4000             |
| Ethylbenzene  | 2300                 | 7300             |
| Total Xylenes | 4200                 | 5400             |

| Parameter          | MOECC Table 3 Coarse | BH2017-02 18/07/2017 |
|--------------------|----------------------|----------------------|
| <b>PHCs</b>        |                      |                      |
| F1 (C6-C10)        | 750                  | 21000                |
| F1 (C6-C10) - BTEX | 750                  | 12000                |
| F2 (C10-C16)       | 150                  | 6100                 |
| <b>BTEX</b>        |                      |                      |
| Total Xylenes      | 4200                 | 6600                 |
| <b>VOCs</b>        |                      |                      |
| Hexane             | 51                   | 280                  |

| Parameter    | MOECC Table 3 Coarse | BHMW2 31/04/2009 |
|--------------|----------------------|------------------|
| <b>PHCs</b>  |                      |                  |
| F2 (C10-C16) | 150                  | 660              |

Drawing: 5 groundwater exceedances.dwg Folder: L:\TISCAD\Projects\TISC-so-029563 trinity development\AutoCAD\DWGs\2017 Phase I\ESA - 951 Gladstone and 145 Loreta Ave N Wednesday, August 02, 2017 @ 17:36 by Rob Wesson

## **APPENDIX B SITE PHOTOGRAPHS**

# DST - Photo Log - Trinity - TSSO-029563

1.1 BH2017-1 Location looking direction North.



1.2 BH2017-1 Location looking direction South



1.3 BH2017-1 SS7 (submitted)



1.4 BH2017-1 SS12 (submitted)

# DST - Photo Log - Trinity - TSSO-029563

2.1 BH2017 – 2 Location, looking East.



2.2 BH2017 – 2 location, looking North.



2.3 BH2017 – 2 SS9 (submitted)

# DST - Photo Log - Trinity - TSSO-029563

3.1 BH2017-3 Location looking North East.



3.2 BH2017-3 Location Looking East



3.3 BH2017-3 SS10 showing transition in the soil color, from brown to grey.

## DST - Photo Log - Trinity - TSSO-029563

4.1 BH2017-4 Location, looking West. Actual location moved two meters West to side of staircase and closer to the wall because of overhead hazard.



4.2 BH2017-4 SS5 (submitted)

# DST - Photo Log - Trinity - TSSO-029563

5.1 BH2017-5 Location moved three meters West



5.2 BH2017-5 SS7 (submitted)



5.3 BH2017-5 SS12 (submitted)

## DST - Photo Log - Trinity - TSSO-029563

6.1 BH2017-6 Location changed further East du to overhead hazard.



6.2 BH2017-6 SS9 showing transition in the soil.

# DST - Photo Log - Trinity - TSSO-029563

7.1 BH2017-7 location



7.2 BH2017-7 SS8 (Submitted)



8.1 BH2017-8 Location



8.2 BH2017-8 SS12 (Submitted)



# DST - Photo Log - Trinity - TSSO-029563

9.1 BH2017-9 Location



9.2 BH2017-9 SS7



10.1 BH2017-10 Location



10.2 BH2017-10 SS13 (Submitted)

# DST - Photo Log - Trinity - TSSO-029563

11.1 BH2017-11 Location



11.2 BH2017-11 SS11 (Submitted)



12.1 BH2017-12 Location



12.2 BH2017-12 SS7 Geotechnical BH Only

## DST - Photo Log - Trinity - TSSO-029563

13.1 BH2017-13 Location moved 2 meters West to avoid underground cables.



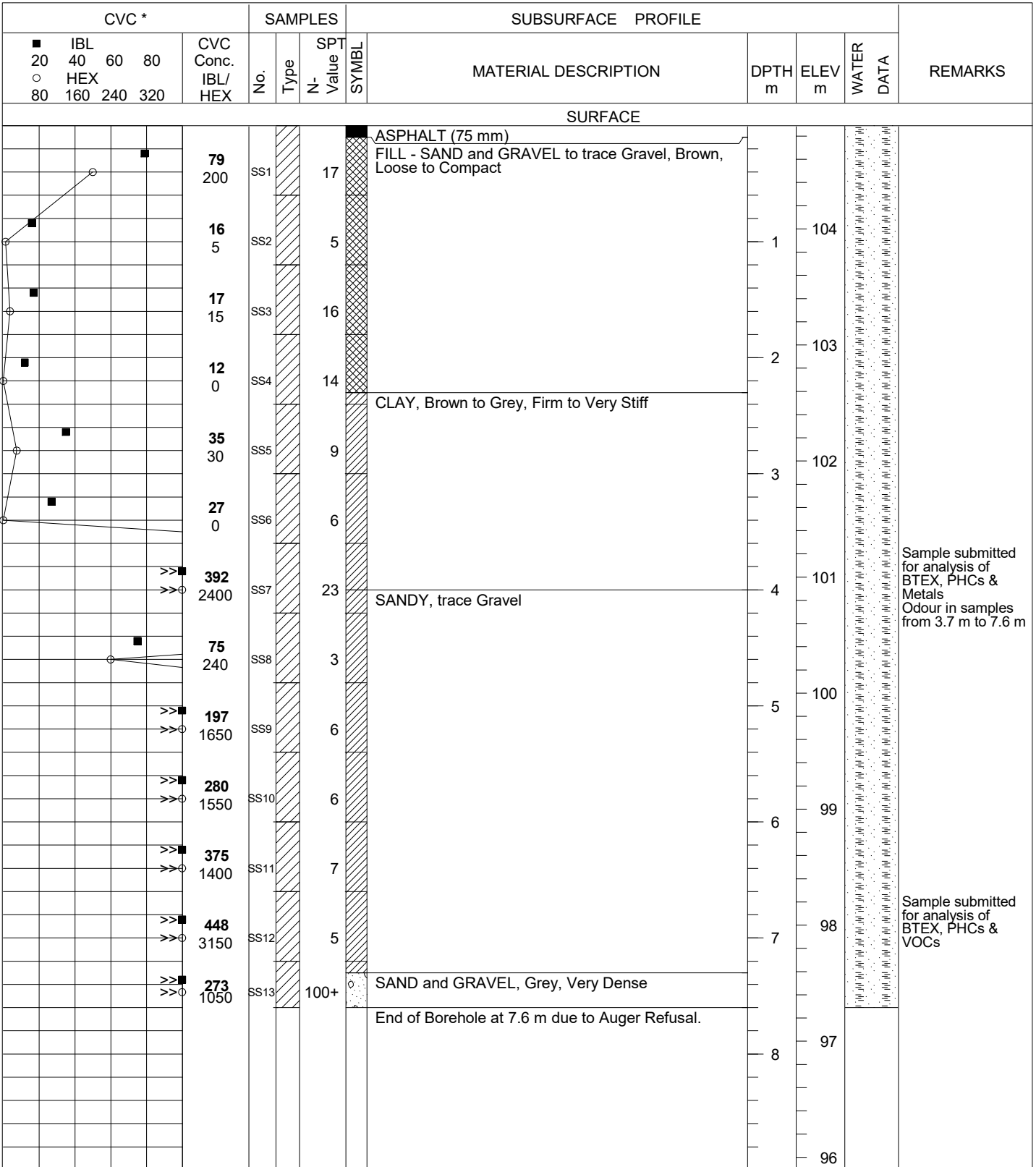
13.2 BH2017-13 SS3 and duplicate sample BH2017-31 SS3 (Submitted)

## **APPENDIX C**

### **BOREHOLE LOGS**

# LOG OF BOREHOLE BH2017-01

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 104.89 metres (Assumed Benchmark)        | DATE:                                |



Sample submitted for analysis of BTEX, PHCs & Metals  
Odour in samples from 3.7 m to 7.6 m

Sample submitted for analysis of BTEX, PHCs & VOCs

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



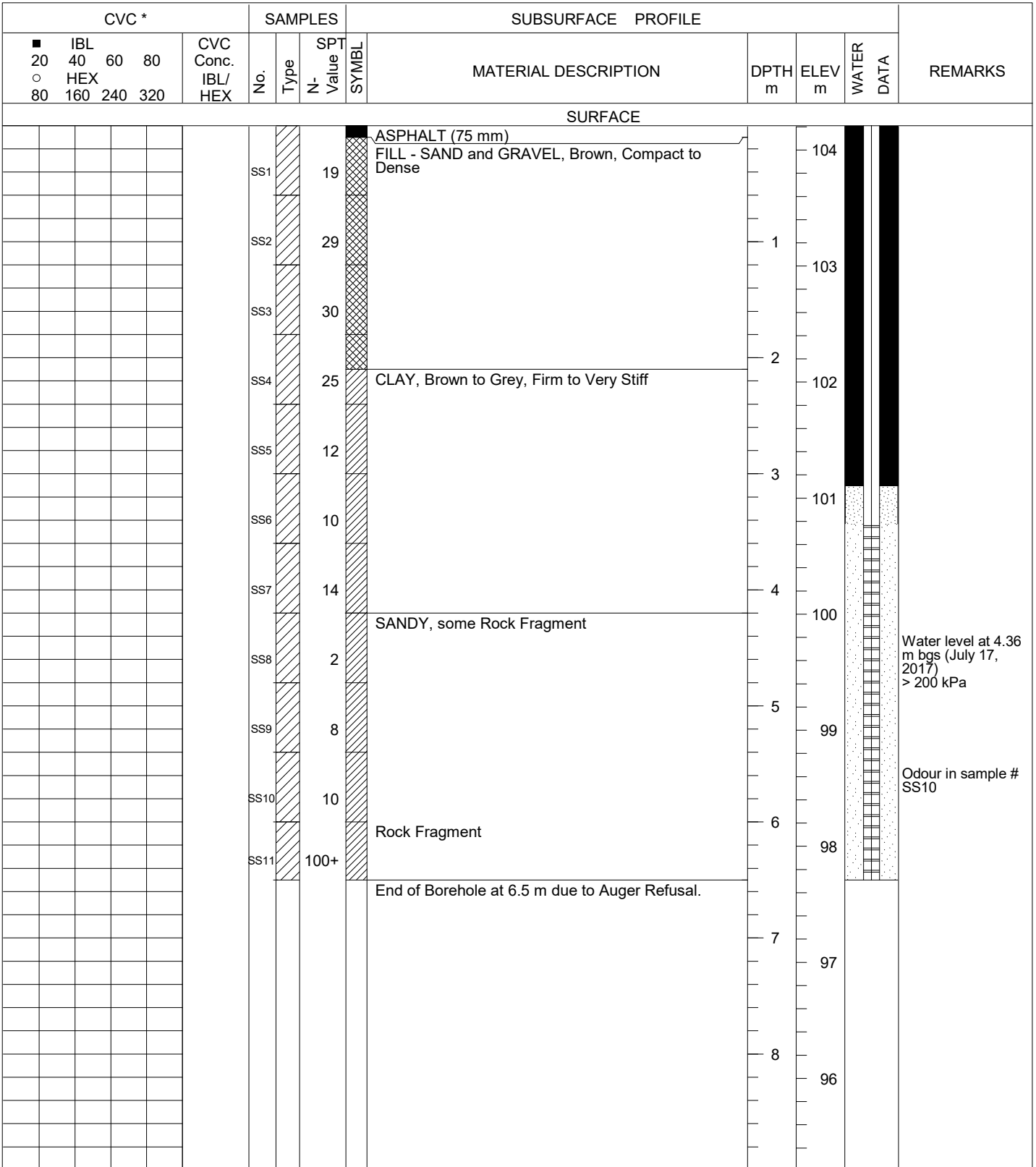
Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

# LOG OF BOREHOLE BH2017-02

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 104.21 metres (Assumed Benchmark)        | DATE:                                |



GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



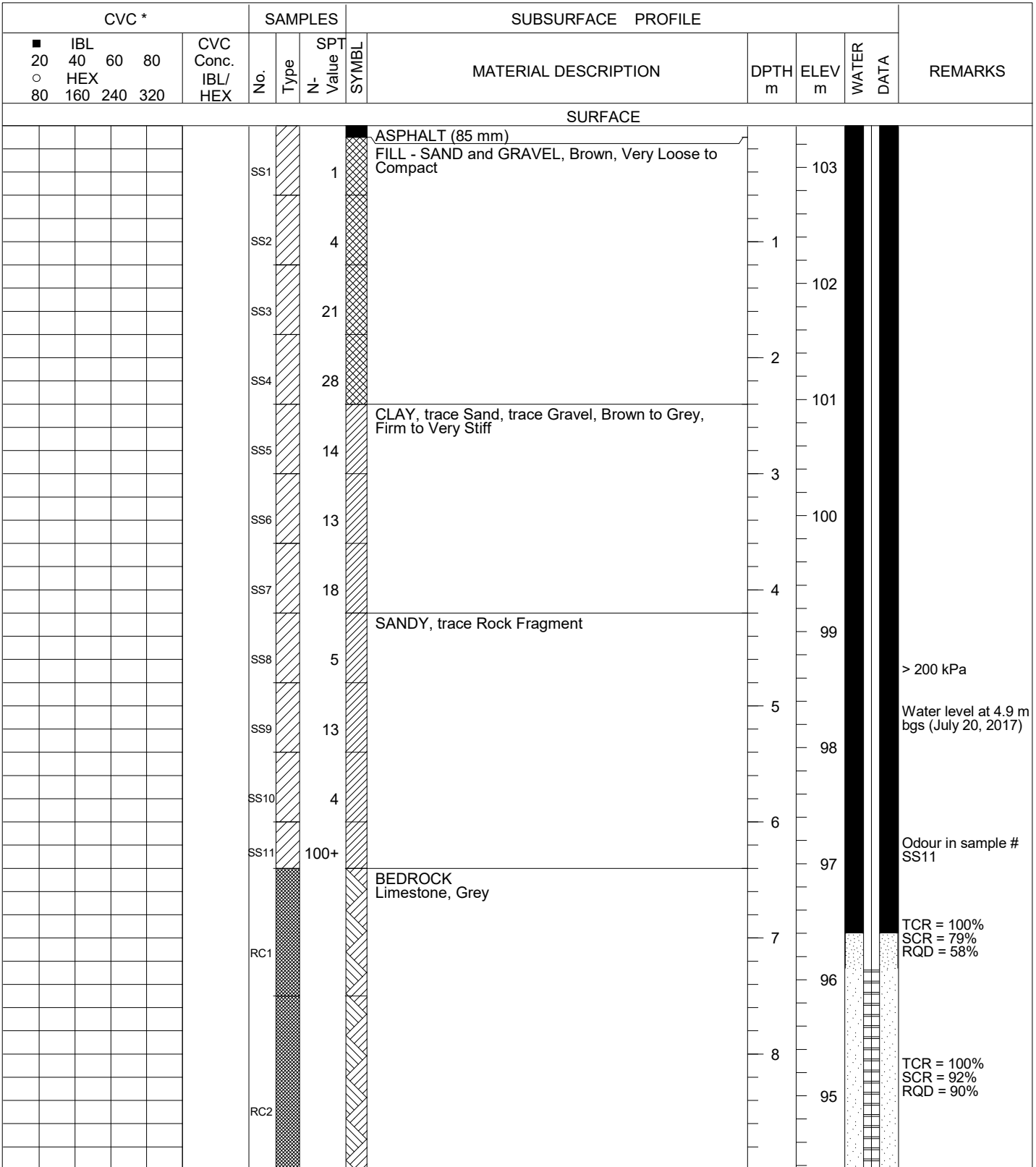
Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

# LOG OF BOREHOLE BH2017-03

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 103.36 metres (Assumed Benchmark)        | DATE:                                |



GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



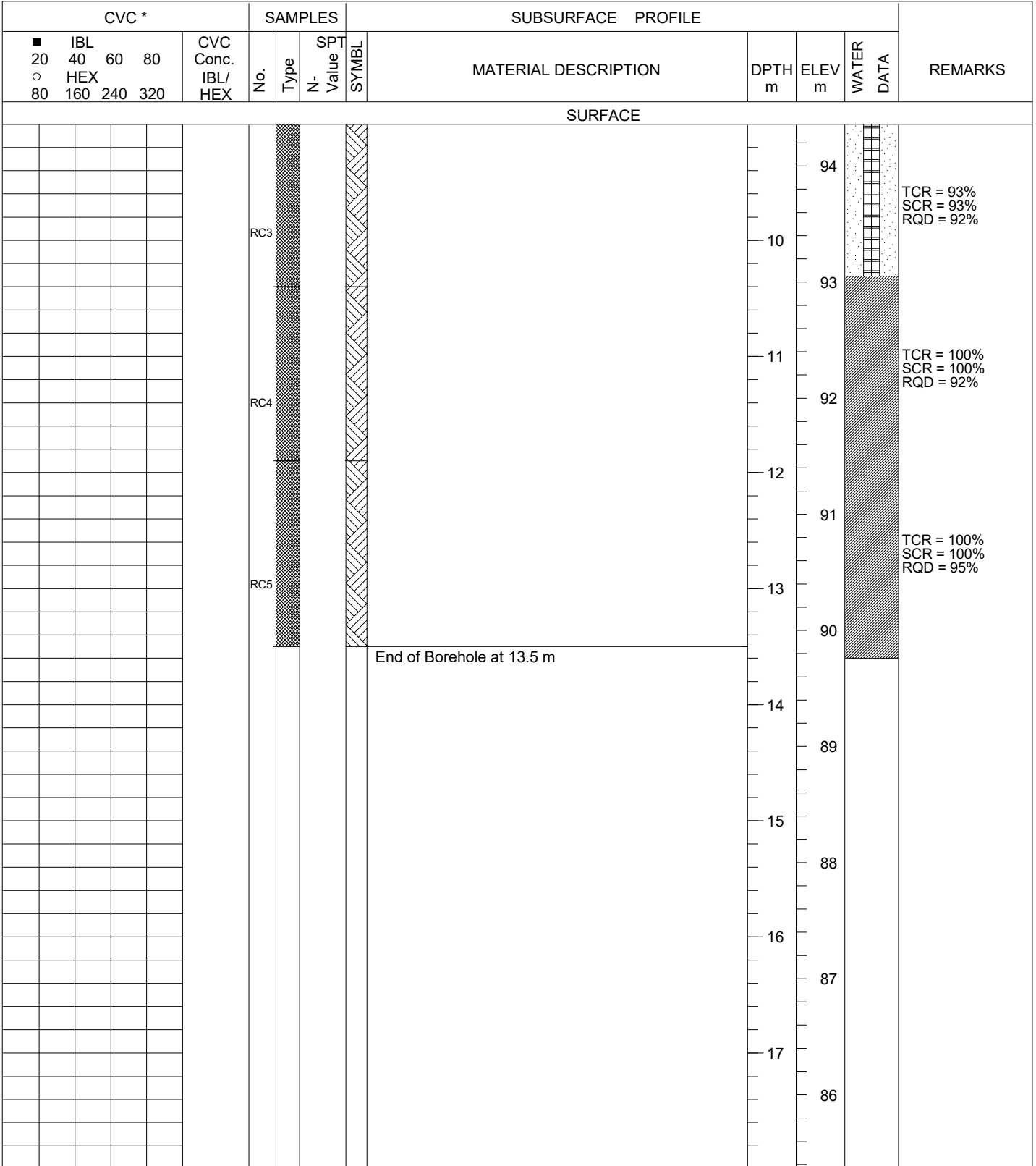
Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

# LOG OF BOREHOLE BH2017-03

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 103.36 metres (Assumed Benchmark)        | DATE:                                |



GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



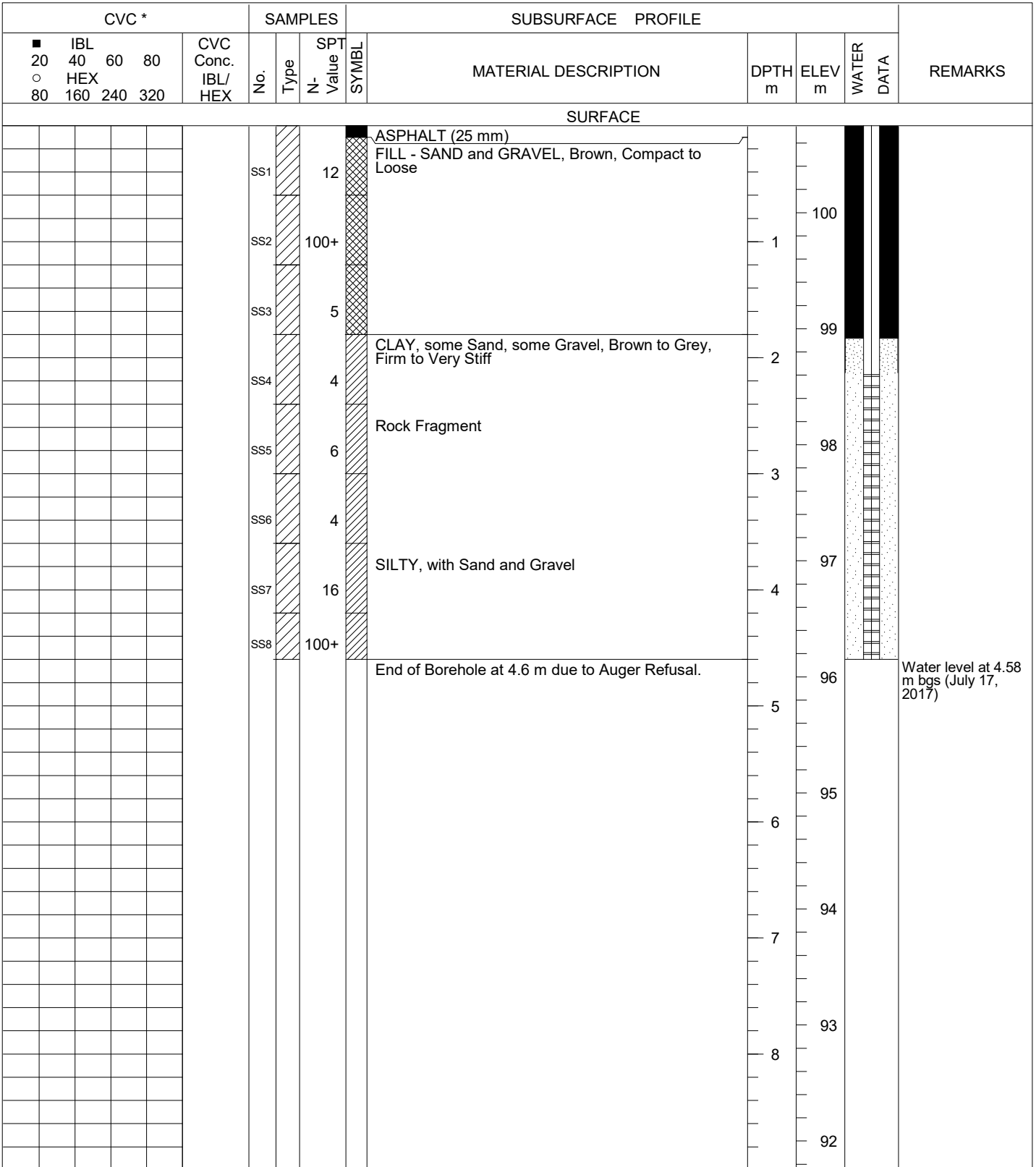
Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

# LOG OF BOREHOLE BH2017-04

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 100.75 metres (Assumed Benchmark)        | DATE:                                |



GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



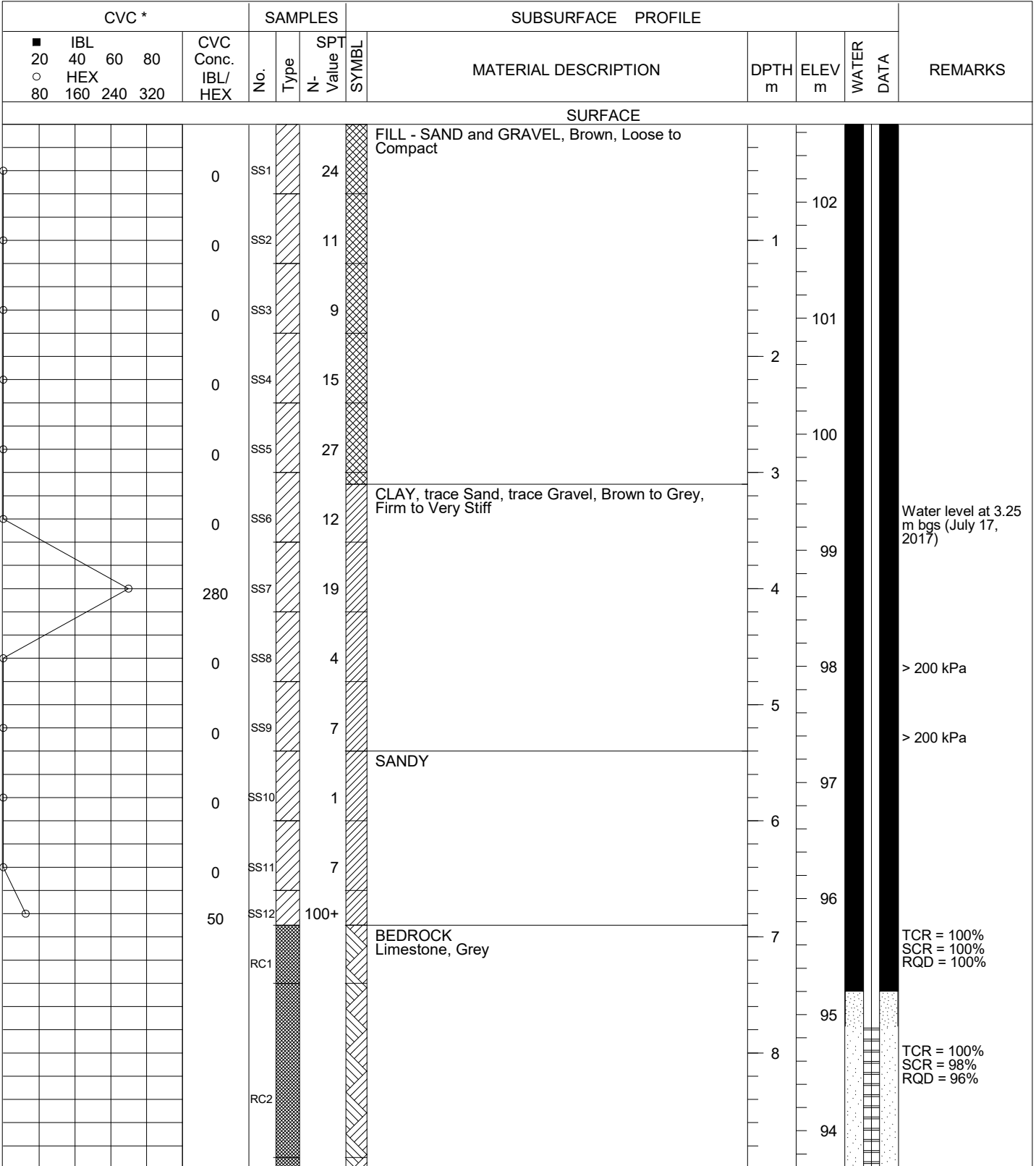
Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

# LOG OF BOREHOLE BH2017-05

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 102.67 metres (Assumed Benchmark)        | DATE:                                |



GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



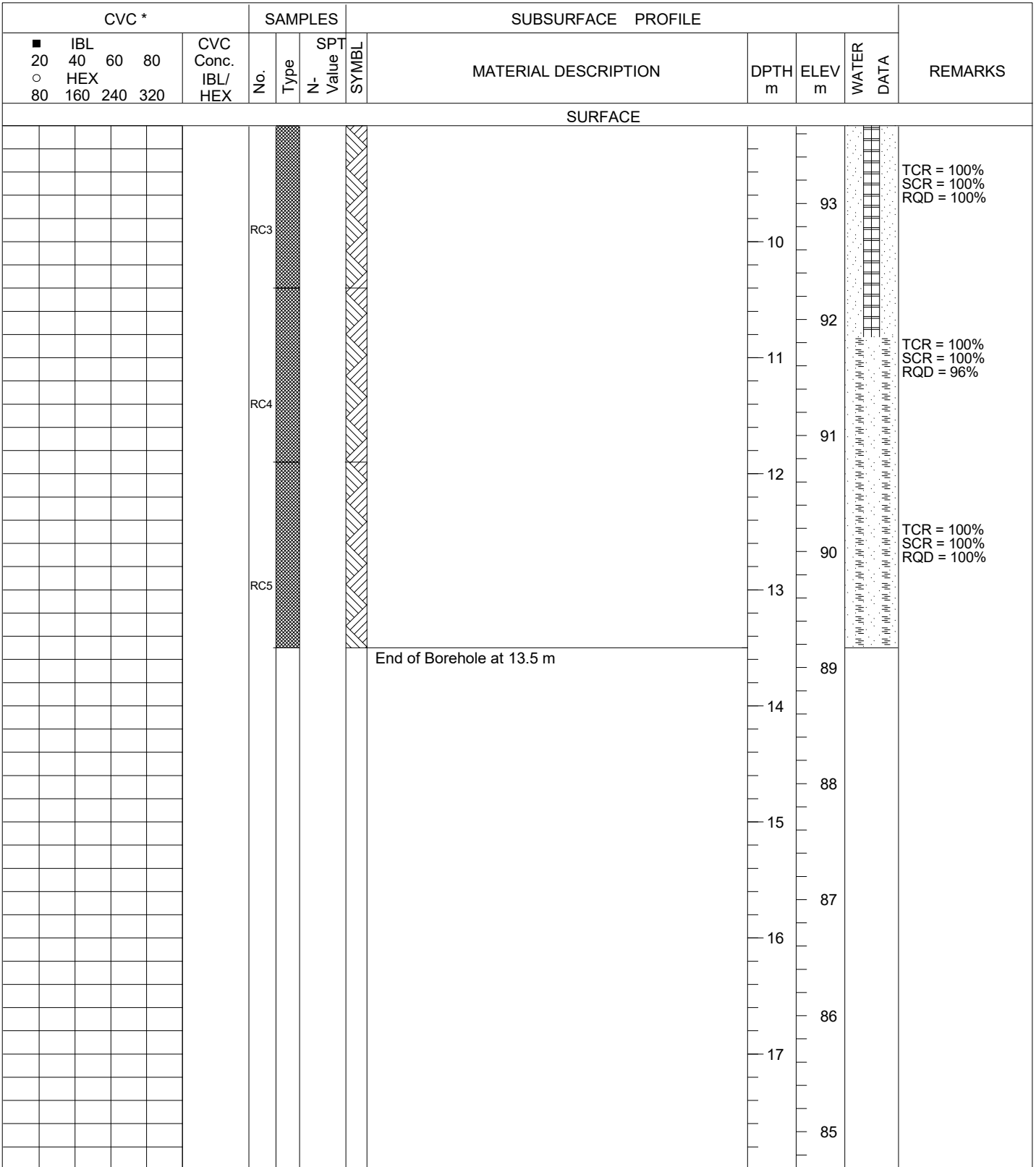
Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

# LOG OF BOREHOLE BH2017-05

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 102.67 metres (Assumed Benchmark)        | DATE:                                |



GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



- Auger Sample
- Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

- Bentonite & Riser
- Sand Pack & Screen

# LOG OF BOREHOLE BH2017-05A

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 102.66 metres (Assumed Benchmark)        | DATE:                                |

| CVC *   |    |     |     | SAMPLES |           |     |      | SUBSURFACE PROFILE |       |   |        | REMARKS |        |            |
|---------|----|-----|-----|---------|-----------|-----|------|--------------------|-------|---|--------|---------|--------|------------|
| ■ IBL   | 20 | 40  | 60  | 80      | CVC Conc. | No. | Type | SPT Value          | SYMBL | MATERIAL DESCRIPTION                            | DPTH m |         | ELEV m | WATER DATA |
| ○ HEX   | 80 | 160 | 240 | 320     | IBL/HEX   |     |      |                    |       |   |        |         |        |            |
| SURFACE |    |     |     |         |           |     |      |                    |       |   |        |         |        |            |
|         |    |     |     |         |           |     |      |                    |       | FILL - SAND and GRAVEL, Brown, Loose to Compact |        | 102     |        |            |
|         |    |     |     |         |           | 0   | SS1  | 11                 |       |   |        |         |        |            |
|         |    |     |     |         |           | 0   | SS2  | 12                 |       |   | 1      |         |        |            |
|         |    |     |     |         |           | 5   | SS3  | 4                  |       |   |        | 101     |        |            |
|         |    |     |     |         |           |     |      |                    |       | End of Borehole at 1.8 m due to Auger Refusal.  | 2      |         |        |            |
|         |    |     |     |         |           |     |      |                    |       |   |        | 100     |        |            |
|         |    |     |     |         |           |     |      |                    |       |   | 3      |         |        |            |
|         |    |     |     |         |           |     |      |                    |       |   |        | 99      |        |            |
|         |    |     |     |         |           |     |      |                    |       |   | 4      |         |        |            |
|         |    |     |     |         |           |     |      |                    |       |   |        | 98      |        |            |
|         |    |     |     |         |           |     |      |                    |       |   | 5      |         |        |            |
|         |    |     |     |         |           |     |      |                    |       |   |        | 97      |        |            |
|         |    |     |     |         |           |     |      |                    |       |   | 6      |         |        |            |
|         |    |     |     |         |           |     |      |                    |       |   |        | 96      |        |            |
|         |    |     |     |         |           |     |      |                    |       |   | 7      |         |        |            |
|         |    |     |     |         |           |     |      |                    |       |   |        | 95      |        |            |
|         |    |     |     |         |           |     |      |                    |       |   | 8      |         |        |            |
|         |    |     |     |         |           |     |      |                    |       |   |        | 94      |        |            |

Sample submitted for analysis of BTEX, PHCs & VOCs

Hit possibly old engine tank; smells like engine oil

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



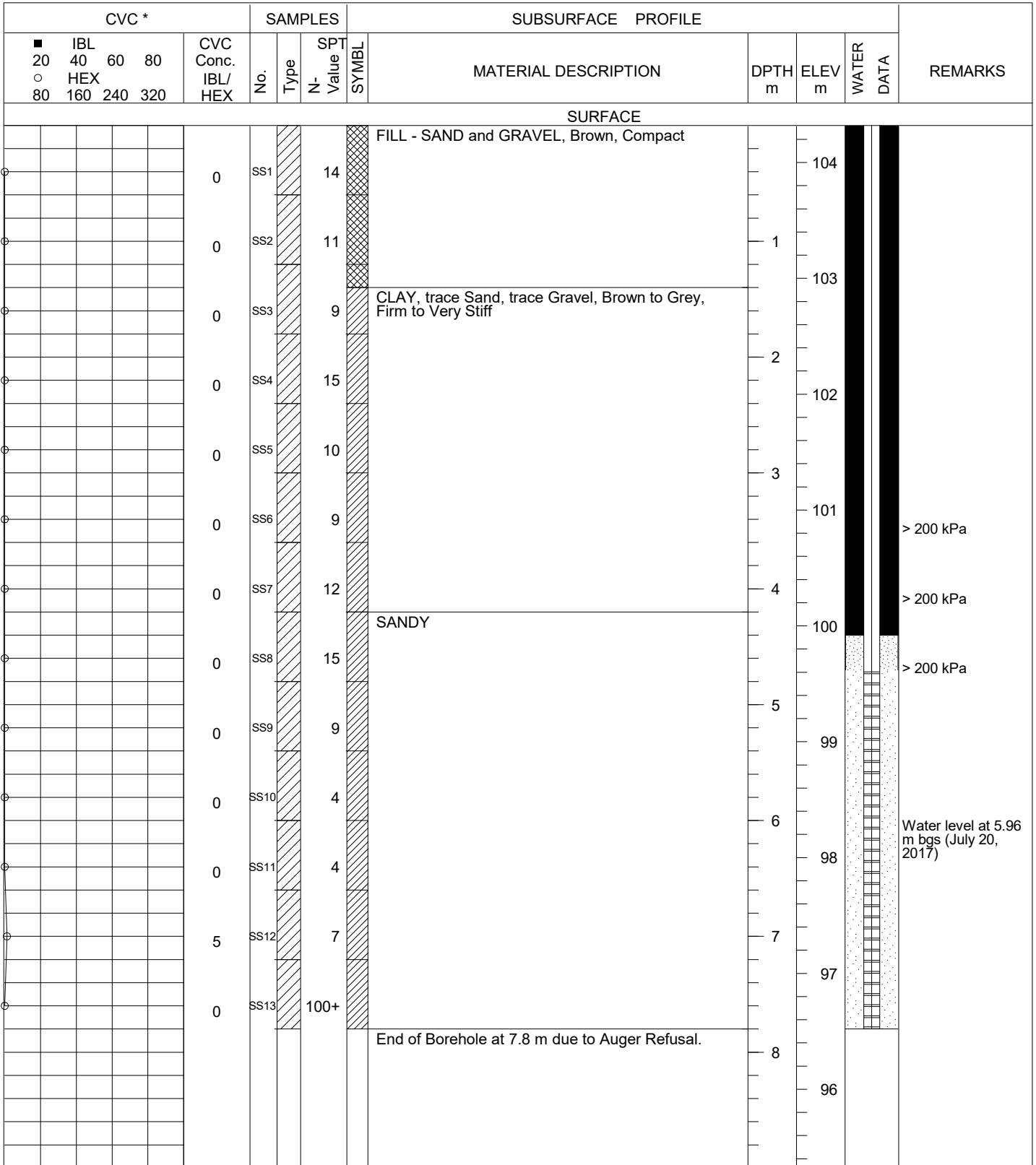
Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

# LOG OF BOREHOLE BH2017-06

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 104.32 metres (Assumed Benchmark)        | DATE:                                |



GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



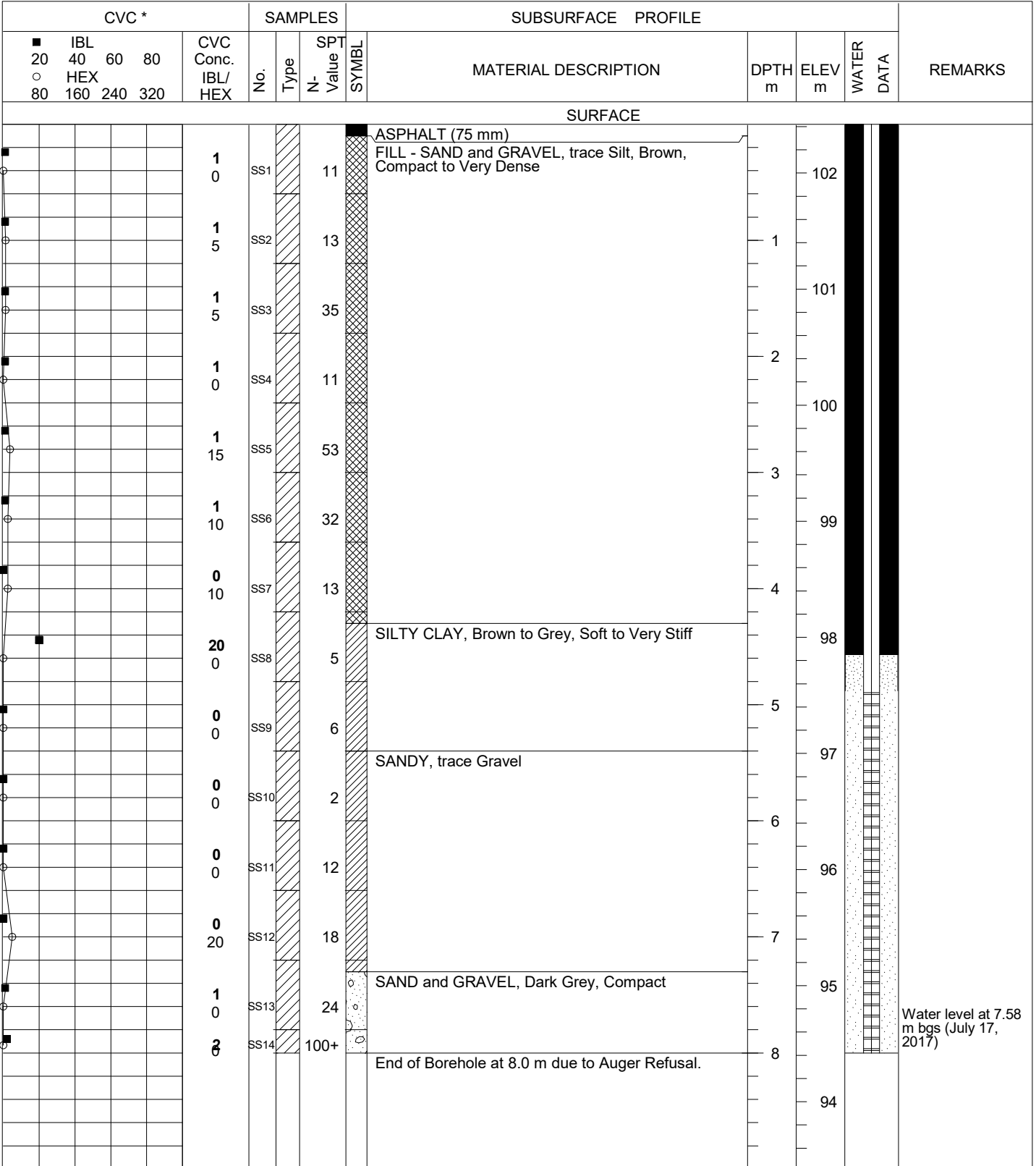
Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

# LOG OF BOREHOLE BH2017-07

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 102.42 metres (Assumed Benchmark)        | DATE:                                |



Water level at 7.58 m bgs (July 17, 2017)

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



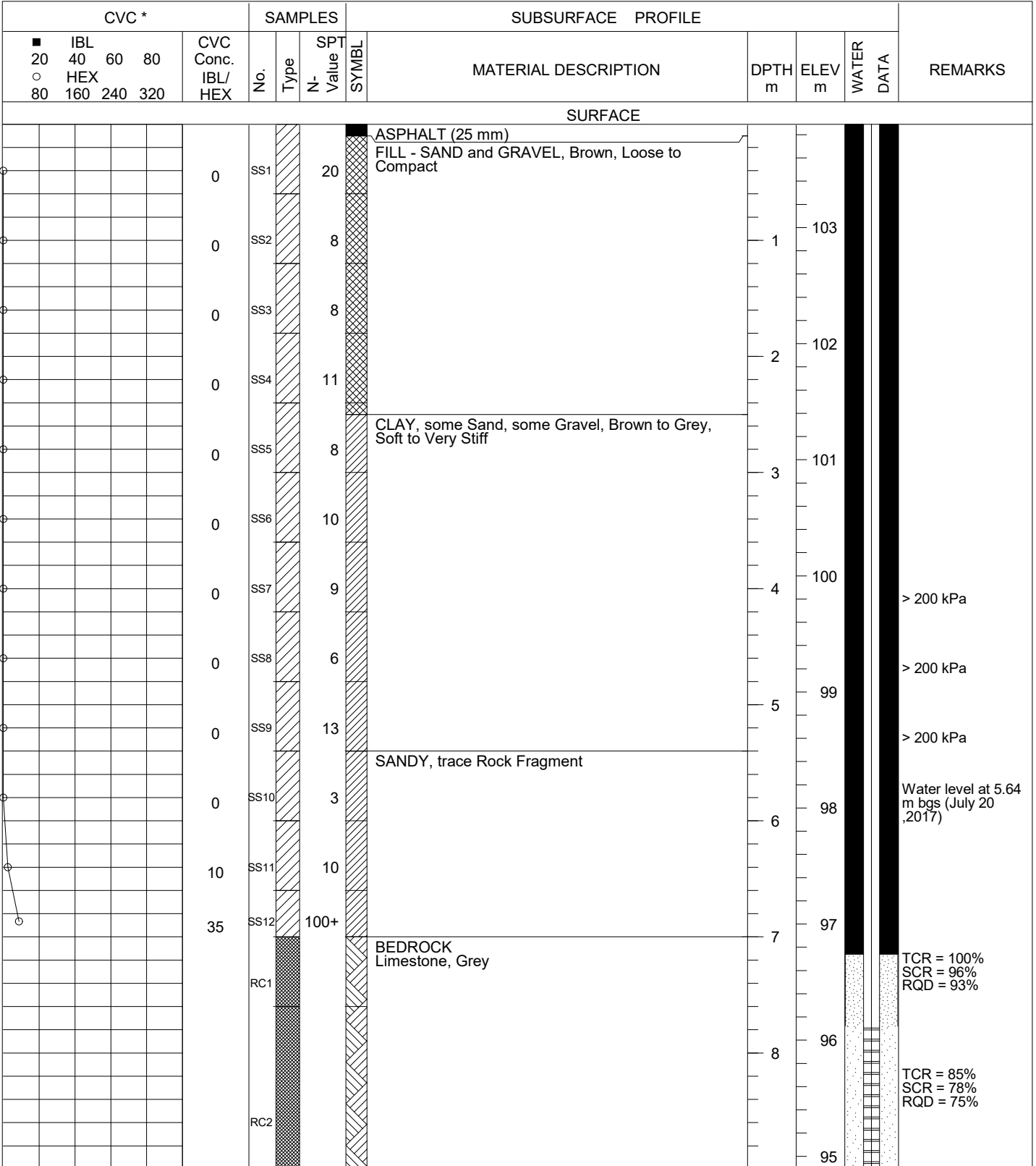
Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

# LOG OF BOREHOLE BH2017-08

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 103.89 metres (Assumed Benchmark)        | DATE:                                |



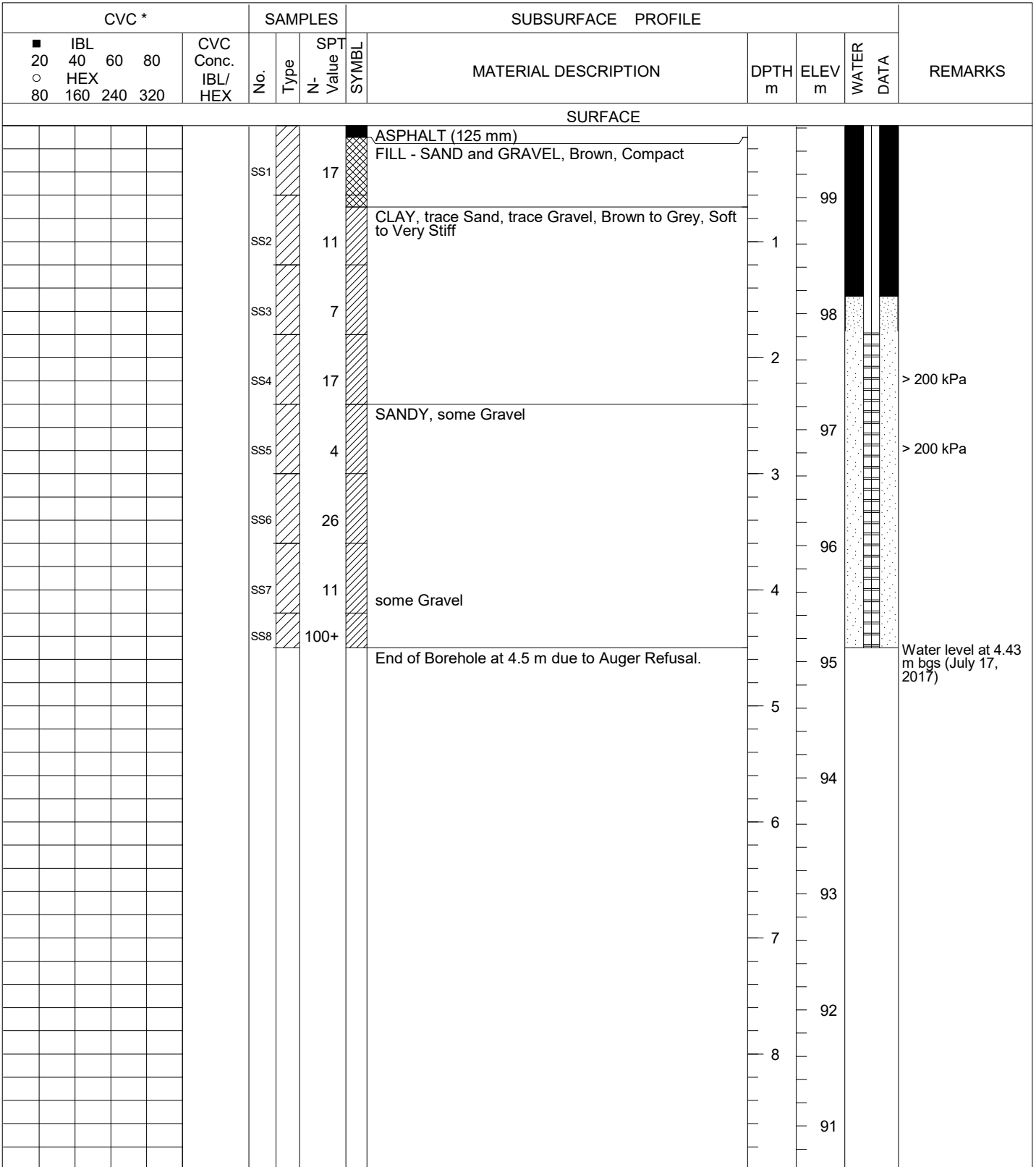
GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

|  |   |  |              |  |             |   |  |  |                   |  |                    |
|--|---|--|--------------|--|-------------|---|--|--|-------------------|--|--------------------|
|  | <table style="border: none;"> <tr> <td style="width: 15px; height: 15px; border: 1px solid black; background-color: white;"></td> <td>Auger Sample</td> </tr> <tr> <td style="width: 15px; height: 15px; border: 1px solid black; background-image: linear-gradient(to right, black 1px, transparent 1px); background-size: 10px 10px;"></td> <td>Split Spoon</td> </tr> </table> |  | Auger Sample |  | Split Spoon | <p>* - Combustible Vapour Concentration<br/>         NR - No Sample Recovery<br/>         ND - Not Detectable</p> | <table style="border: none;"> <tr> <td style="width: 15px; height: 15px; background-color: black;"></td> <td>Bentonite &amp; Riser</td> </tr> <tr> <td style="width: 15px; height: 15px; border: 1px dashed black;"></td> <td>Sand Pack &amp; Screen</td> </tr> </table> |  | Bentonite & Riser |  | Sand Pack & Screen |
|  | Auger Sample  |  |              |  |             |   |  |  |                   |  |                    |
|  | Split Spoon   |  |              |  |             |   |  |  |                   |  |                    |
|  | Bentonite & Riser   |  |              |  |             |   |  |  |                   |  |                    |
|  | Sand Pack & Screen  |  |              |  |             |   |  |  |                   |  |                    |



# LOG OF BOREHOLE BH2017-09

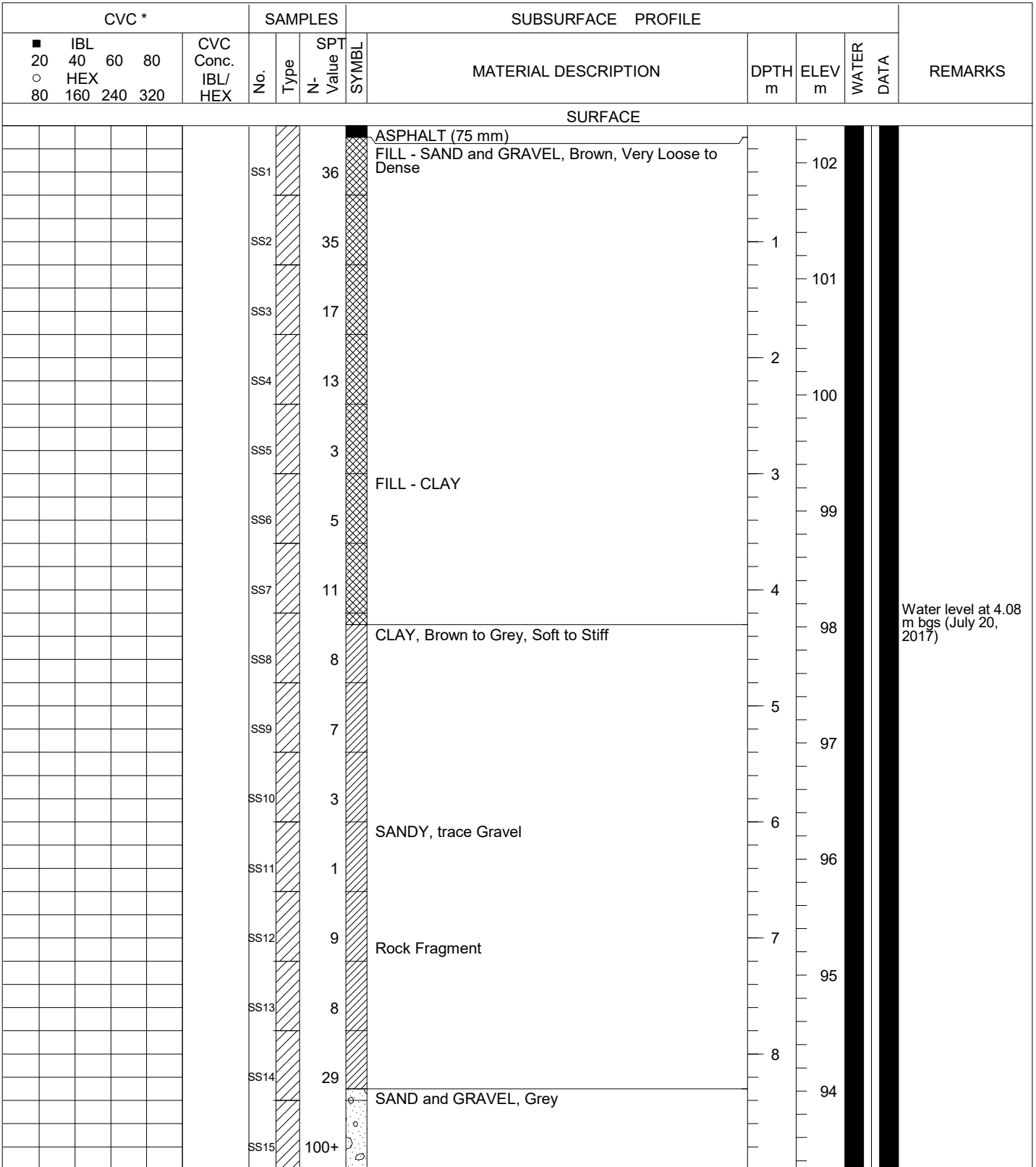
|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 99.62 metres (Assumed Benchmark)         | DATE:                                |



GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17

# LOG OF BOREHOLE BH2017-10

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 102.32 metres (Assumed Benchmark)        | DATE:                                |



Water level at 4.08 m bgs (July 20, 2017)

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



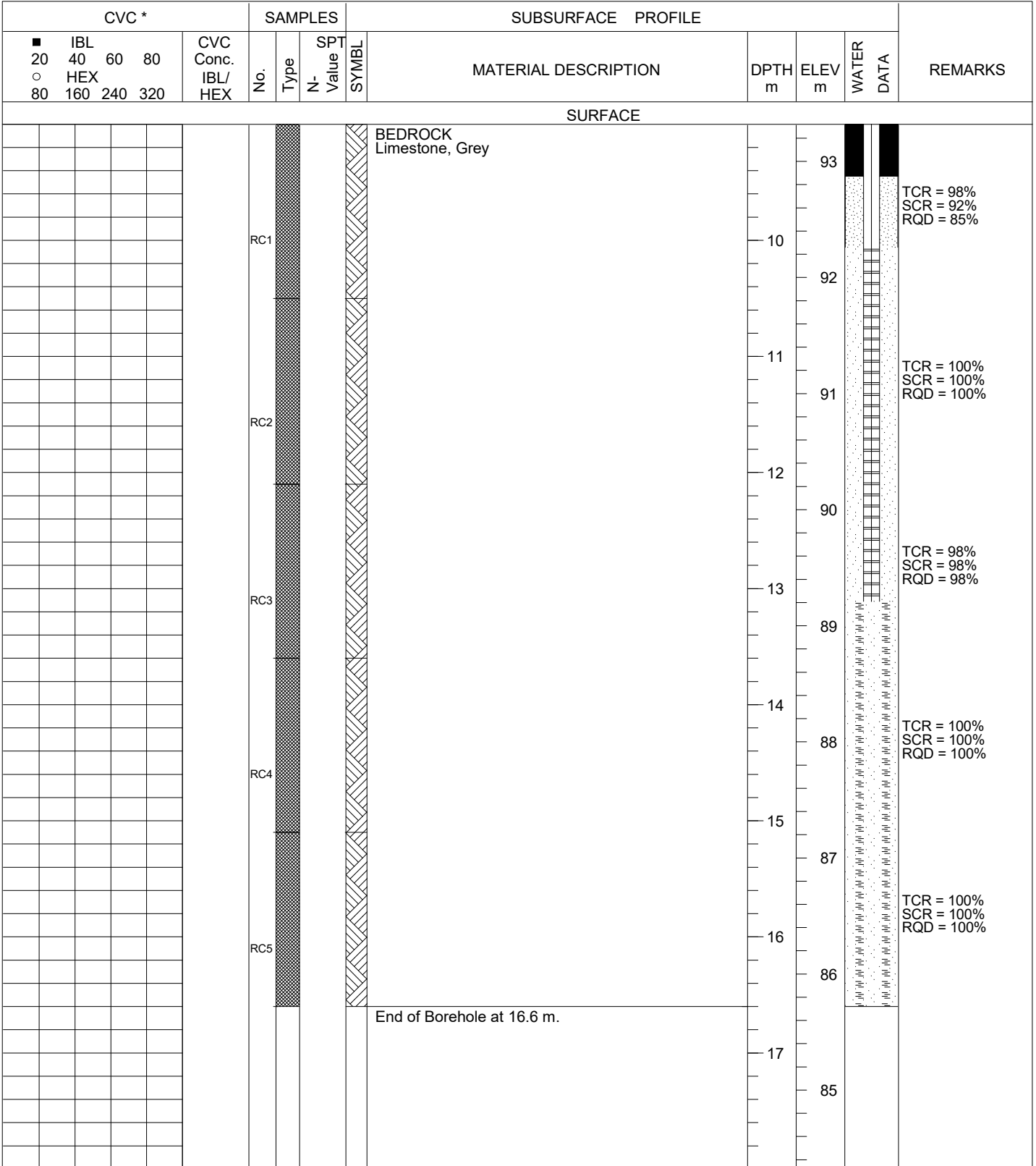
Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

# LOG OF BOREHOLE BH2017-10

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 102.32 metres (Assumed Benchmark)        | DATE:                                |



GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



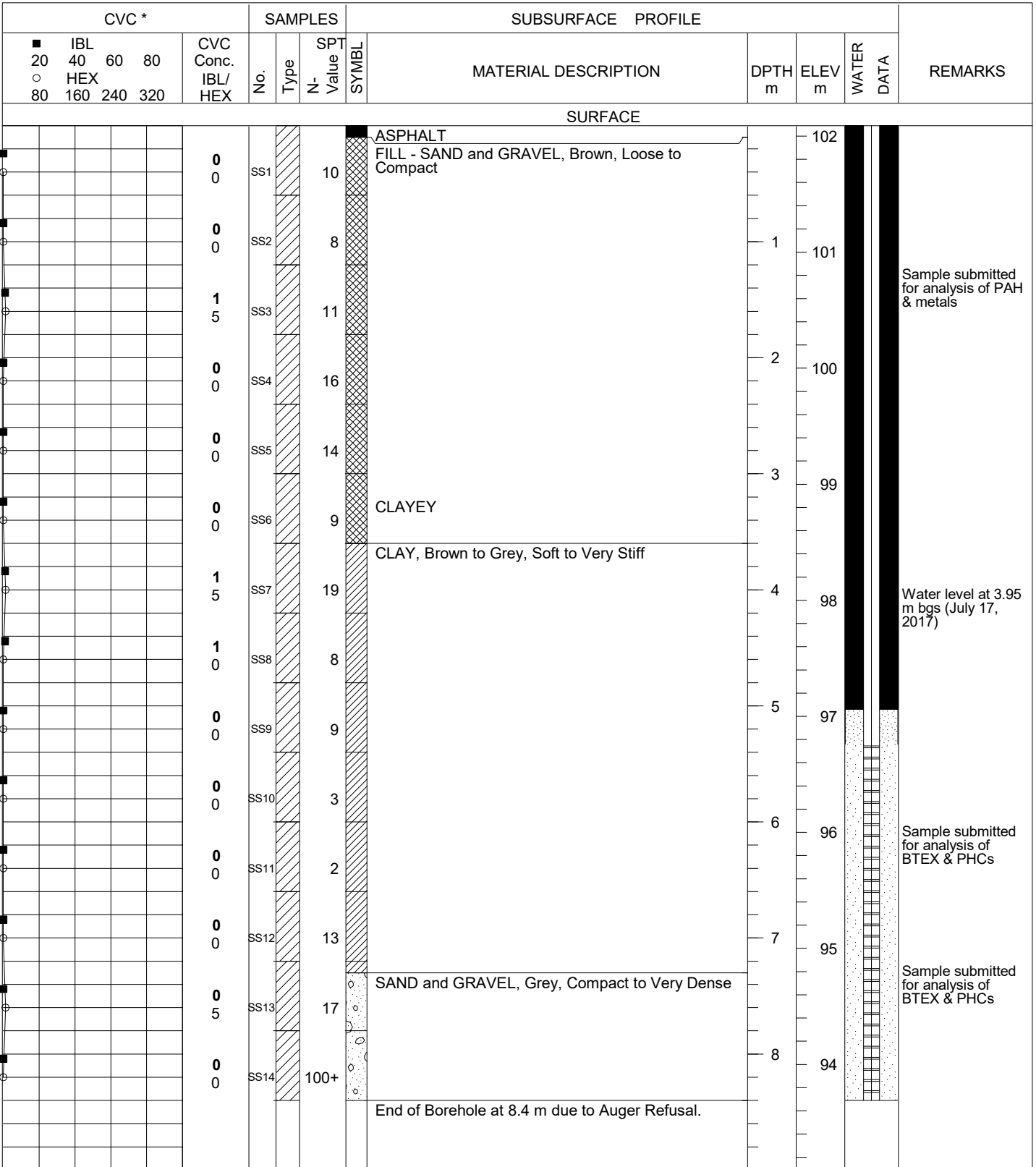
- Auger Sample
- Split Spoon

\* - Combustible Vapour Concentration  
NR - No Sample Recovery  
ND - Not Detectable

- Bentonite & Riser
- Sand Pack & Screen

# LOG OF BOREHOLE BH2017-11

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 102.09 metres (Assumed Benchmark)        | DATE:                                |



GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



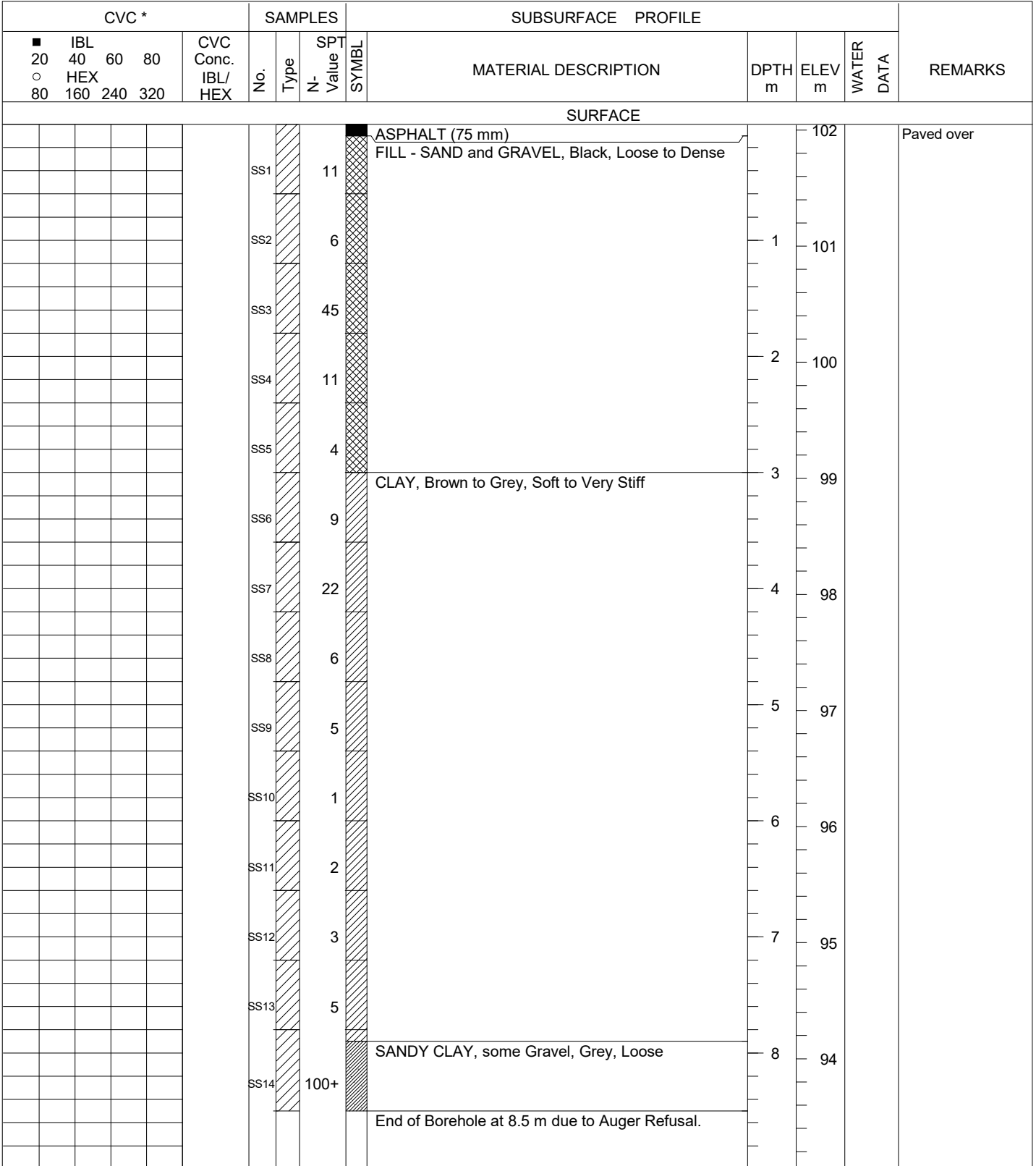
Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

# LOG OF BOREHOLE BH2017-12

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 102.05 metres (Assumed Benchmark)        | DATE:                                |



GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

# LOG OF BOREHOLE BH2017-13

|   |                                      |
|---|--------------------------------------|
| REF. No.: TS-SO-29563                                       | <b>DST CONSULTING ENGINEERS INC.</b> |
| CLIENT: Trinity Development Group Inc.                      |                                      |
| PROJECT: Geotechnical Drilling for the Proposed Development |                                      |
| LOCATION: 951 Gladstone Avenue, Ottawa, ON                  | METHOD: Hollow Stem Auger            |
| SURFACE ELEVATION: 102.20 metres (Assumed Benchmark)        | DATE:                                |

| CVC *   |    |    |    | SAMPLES                  |     |      |           | SUBSURFACE PROFILE |  |           |           | REMARKS |               |
|---------|----|----|----|--------------------------|-----|------|-----------|--------------------|--|-----------|-----------|---------|---------------|
| ■       | ○  | ○  | ○  | CVC Conc.<br>IBL/<br>HEX | No. | Type | SPT Value | SYMBL              | MATERIAL DESCRIPTION                           | DPTH<br>m | ELEV<br>m |         | WATER<br>DATA |
| 20      | 40 | 60 | 80 |                          |     |      |           |                    |  |           |           |         |               |
| SURFACE |    |    |    |                          |     |      |           |                    |  |           |           |         |               |
|         |    |    |    |                          |     |      |           | ■                  | ASPHALT (75 mm)                                |           | 102       |         |               |
|         |    |    |    |                          |     |      | 15        | ■                  | FILL - SAND and GRAVEL, Brown                  |           | 1         |         |               |
|         |    |    |    |                          |     |      | 14        | ■                  |  |           | 101       |         |               |
|         |    |    |    |                          |     |      | 9         | ■                  | CLAY, trace Gravel, Brown, Stiff               |           |           |         |               |
|         |    |    |    |                          |     |      |           |                    | End of Borehole at 1.8 m due to Auger Refusal. |           | 2         |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 100       |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 3         |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 99        |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 4         |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 98        |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 5         |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 97        |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 6         |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 96        |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 7         |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 95        |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 8         |         |               |
|         |    |    |    |                          |     |      |           |                    |  |           | 94        |         |               |

GASTECBH TS-SO-29563.GPJ DATA TEMPLATE.GDT 2-8-17



Auger Sample  
 Split Spoon

\* - Combustible Vapour Concentration  
 NR - No Sample Recovery  
 ND - Not Detectable

Bentonite & Riser  
 Sand Pack & Screen

## **APPENDIX D ELEVATION SURVEY DATA**

## Elevation Survey Data

951 Gladstone Avenue & 145 Loretta Avenue North, Ottawa

| <b>Borehole</b> | <b>Easting</b> | <b>Northing</b> | <b>Elevation</b> |
|-----------------|----------------|-----------------|------------------|
| BH 2017-01      | 443991         | 5028029         | 104.892          |
| BH 2017-02      | 444017.3       | 5028045         | 104.212          |
| BH 2017-03      | 444056.8       | 5028054         | 103.358          |
| BH 2017-04      | 444057.7       | 5028076         | 100.746          |
| BH 2017-05      | 444017.3       | 5028096         | 102.672          |
| BH 2017-05A     | 444019.2       | 5028096         | 102.663          |
| BH 2017-06      | 443975         | 5028066         | 104.322          |
| BH 2017-07      | 443952.3       | 5028127         | 102.416          |
| BH 2017-08      | 443979.6       | 5028091         | 103.889          |
| BH 2017-09      | 444005.2       | 5028115         | 99.617           |
| BH 2017-10      | 443965.7       | 5028139         | 102.316          |
| BH 2017-11      | 443947.7       | 5028155         | 102.088          |
| BH 2017-12      | 443963.2       | 5028159         | 102.054          |
| BH 2017-13      | 443977.7       | 5028143         | 102.195          |

## **APPENDIX E**

# **LABORATORY ANALYTICAL RESULTS**

TABLE E-1: SOIL ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS & BTEX

| Parameters     | Standards            |  |  |   |  |  |  |   |
|----------------|----------------------|--|--|---|--|--|--|---|
|                | MOECC Table 3 Coarse | BH2017-1 SS7 (3.6 - 4.2 mbgs) 05/07/2017 | DUP (Duplicate of BH17 1 SS7) 05/07/2017 | BH2017-1 SS12 (6.6 - 7.2 mbgs) 05/07/2017 | BH2017-2 SS6 (3.0 - 3.6 mbgs) 06/07/2017 | BH2017-2 SS9 (4.8 - 5.4 mbgs) 06/07/2017 | BH2017-3 SS2 (0.6 - 1.2 mbgs) 05/07/2017 | BH2017-3 SS11 (6.0 - 6.4 mbgs) 05/07/2017 |
| % Moisture     | NG                   | 12                                       | NA                                       | 11  | 30                                       | 15                                       | 13                                       | 11  |
| <b>PHCs</b>    |                      |  |  |   |  |  |  |   |
| F1 (C6-C10)    | 55                   | 200                                      | 190                                      | 520                                       | <10                                      | <10                                      | <10                                      | <10                                       |
| F2 (C10-C16)   | 98                   | 78                                       | NA                                       | 470                                       | <10                                      | <10                                      | 23                                       | 16  |
| F3 (C16-C34)   | 300                  | <50                                      | NA                                       | <50                                       | <50                                      | <50                                      | 170                                      | <50                                       |
| F4 (C34-C50)   | 2,800                | <50                                      | NA                                       | <50                                       | <50                                      | <50                                      | 630                                      | <50                                       |
| F4 Gravimetric | 2,800                | NA                                       | NA                                       | NA  | NA                                       | NA                                       | 2400                                     | NA  |
| <b>BTEX</b>    |                      |  |  |   |  |  |  |   |
| Benzene        | 0.21                 | <0.020                                   | <0.020                                   | 0.93                                      | <0.020                                   | <0.020                                   | <0.020                                   | <0.020                                    |
| Toluene        | 2.3                  | 0.042                                    | 0.050                                    | 11  | <0.020                                   | <0.050                                   | <0.020                                   | 0.030                                     |
| Ethylbenzene   | 2                    | 0.037                                    | 0.04                                     | 8.1                                       | <0.020                                   | 0.33                                     | <0.020                                   | <0.020                                    |
| o-Xylene       | NG                   | 1.1                                      | 1.1                                      | 11  | <0.020                                   | 0.039                                    | <0.020                                   | 0.091                                     |
| p+m-Xylene     | NG                   | 3.8                                      | 3.7                                      | 31  | <0.040                                   | 0.55                                     | <0.040                                   | 0.038                                     |
| Total Xylenes  | 3.1                  | 4.9                                      | 4.8                                      | 41  | <0.040                                   | 0.59                                     | <0.040                                   | 0.13                                      |

- Notes:
- All units are expressed in micrograms per gram (µg/g).
  - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.
  - Metres below ground surface
  - Less than laboratory reportable detection limit (value indicated)
  - Parameter not analyzed
  - No guideline/standard available
  - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.
  - Non-calculable RPD.
  - Sample result exceeds applicable MOECC standards Coarse soils.

**TABLE E-1: SOIL ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS & BTEX**

| Parameters     | Standards            |  |  |  |   |   |   |  |
|----------------|----------------------|--|--|--|---|---|---|--|
|                | MOECC Table 3 Coarse | BH2017-4 SS4<br>(1.8 - 2.4 mbgs)<br>06/07/2017 | BH2017-4 SS5<br>(2.4 - 3.0 mbgs)<br>06/07/2017 | BH2017-5 SS7<br>(3.6 - 4.2 mbgs)<br>07/07/2017 | BH2017-5 SS12<br>(6.6 - 7.2 mbgs)<br>07/07/2017 | BH2017-5A SS3<br>(1.2 - 1.8 mbgs)<br>07/07/2017 | BH2017-6 SS12<br>(6.6 - 7.2 mbgs)<br>07/07/2017 | BH2017-7 SS8<br>(4.2 - 4.8 mbgs)<br>27/06/2017 |
| % Moisture     | NG                   | 26   | 15   | 27   | 16  | 4.8   | 12  | 30   |
| <b>PHCs</b>    |                      |  |  |  |   |   |   |  |
| F1 (C6-C10)    | 55                   | 33   | 30   | 60   | <10   | <10   | <10   | <10  |
| F2 (C10-C16)   | 98                   | 55   | <10  | 160  | <10   | 260   | <10   | 310  |
| F3 (C16-C34)   | 300                  | <50  | <50  | 340  | <50   | 2300  | <50   | 340  |
| F4 (C34-C50)   | 2800                 | <50  | <50  | 79   | <50   | 490   | <50   | <50  |
| F4 Gravimetric | 2800                 | NA   | NA   | NA   | NA  | NA  | NA  | NA   |
| <b>BTEX</b>    |                      |  |  |  |   |   |   |  |
| Benzene        | 0.21                 | <0.020   | <0.020   | <0.020   | 0.11  | 0.039   | <0.020  | <0.020   |
| Toluene        | 2.3                  | <0.020   | <0.020   | <0.020   | <0.020  | 0.32  | <0.050  | <0.020   |
| Ethylbenzene   | 2                    | <0.020   | 0.13   | <0.020   | <0.020  | 0.056   | <0.020  | <0.020   |
| o-Xylene       | NG                   | <0.020   | <0.020   | <0.020   | <0.020  | 0.091   | <0.020  | <0.020   |
| p+m-Xylene     | NG                   | <0.040   | <0.020   | <0.020   | <0.040  | 0.35  | <0.020  | <0.040   |
| Total Xylenes  | 3.1                  | <0.040   | <0.020   | <0.020   | <0.040  | 0.44  | <0.020  | <0.040   |

- Notes:
- All units are expressed in micrograms per gram (µg/g).
  - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property)
  - Metres below ground surface
  - Less than laboratory reportable detection limit (value indicated)
  - Parameter not analyzed
  - No guideline/standard available
  - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.
  - Non-calculable RPD.
  - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-1: SOIL ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS & BTEX

| Parameters     | Standards            |   |  |   |  |  |  |  |
|----------------|----------------------|---|--|---|--|--|--|--|
|                | MOECC Table 3 Coarse | BH2017-7 SS14 (7.8 - 8.0 mbgs) 27/06/2017 | BH2017-8 SS5 (2.4 - 3.0 mbgs) 10/07/2017 | BH2017-8 SS12 (6.6 - 7.2 mbgs) 10/07/2017 | BH2017-9 SS4 (1.8 - 2.4 mbgs) 06/07/2017 | BH2017-9 SS8 (4.2 - 4.5 mbgs) 06/07/2017 | BH2017-10 SS10 (5.4 - 6.0 mbgs) 27/06/2017 | BH2017-10 SS11 (6.0 - 6.6 mbgs) 27/06/2017 |
| % Moisture     | NG                   | 13  | 27                                       | 15  | 24                                       | 15                                       | 12   | 14   |
| <b>PHCs</b>    |                      |   |  |   |  |  |  |  |
| F1 (C6-C10)    | 55                   | <10                                       | <10                                      | <10                                       | <10                                      | 15                                       | <10  | <10  |
| F2 (C10-C16)   | 98                   | <10                                       | <10                                      | <10                                       | <10                                      | <10                                      | <10  | <10  |
| F3 (C16-C34)   | 300                  | <50                                       | <50                                      | <50                                       | 170                                      | <50                                      | <50  | <50  |
| F4 (C34-C50)   | 2800                 | <50                                       | <50                                      | <50                                       | 380                                      | <50                                      | <50  | <50  |
| F4 Gravimetric | 2800                 | NA  | NA                                       | NA  | NA                                       | NA                                       | NA   | NA   |
| <b>BTEX</b>    |                      |   |  |   |  |  |  |  |
| Benzene        | 0.21                 | <0.020                                    | <0.020                                   | <0.020                                    | <0.020                                   | <0.020                                   | <0.020                                     | <0.020                                     |
| Toluene        | 2.3                  | <0.020                                    | <0.020                                   | <0.020                                    | <0.020                                   | 0.059                                    | <0.020                                     | <0.020                                     |
| Ethylbenzene   | 2                    | <0.020                                    | <0.020                                   | <0.020                                    | <0.020                                   | 0.19                                     | <0.020                                     | <0.020                                     |
| o-Xylene       | NG                   | 0.023                                     | <0.020                                   | <0.020                                    | <0.020                                   | 0.16                                     | <0.020                                     | <0.020                                     |
| p+m-Xylene     | NG                   | 0.081                                     | <0.040                                   | 0.029                                     | <0.020                                   | 0.71                                     | <0.020                                     | <0.040                                     |
| Total Xylenes  | 3.1                  | 0.10                                      | <0.040                                   | 0.029                                     | <0.020                                   | 0.87                                     | <0.020                                     | <0.040                                     |

- Notes:
- All units are expressed in micrograms per gram (µg/g).
  - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011, Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property)
  - Metres below ground surface
  - Less than laboratory reportable detection limit (value indicated)
  - Parameter not
  - No guideline/standard available
  - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.
  - Non-calculable RPD.
  - Sample result exceeds applicable MOECC standards Coarse soils.

**TABLE E-1: SOIL ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS & BTEX**

| Parameters     | Standards            | Analytical Results<br>(Sample ID / Depth / Sampling Date d/m/y) |  |   |   |
|----------------|----------------------|---|--|---|---|
|                | MOECC Table 3 Coarse | BH2017-11 SS11<br>(6.0 - 6.6 mbgs)<br>04/07/2017                | BH2017-11 SS13<br>(7.2 - 7.8 mbgs)<br>04/07/2017 | BH2017-13 SS3<br>(1.2 - 1.8 mbgs)<br>28/06/2017 | BH2017-31 SS3<br>(Duplicate of BH17-13 SS3)<br>28/06/2017 |
| % Moisture     | NG                   | NA  | NA   | NA  | NA  |
| <b>PHCs</b>    |                      |   |  |   |   |
| F1 (C6-C10)    | 55                   | <10   | <10  | <10   | <10   |
| F2 (C10-C16)   | 98                   | <10   | <10  | <10   | <10   |
| F3 (C16-C34)   | 300                  | <50   | <50  | 170   | 66  |
| F4 (C34-C50)   | 2800                 | <50   | <50  | 370   | 180   |
| F4 Gravimetric | 2800                 | --  | --   | --  | --  |
| <b>BTEX</b>    |                      |   |  |   |   |
| Benzene        | 0.21                 | <0.020  | <0.020   | <0.020  | <0.020  |
| Toluene        | 2.3                  | <0.020  | <0.020   | <0.020  | 0.027   |
| Ethylbenzene   | 2                    | <0.020  | <0.020   | <0.020  | <0.020  |
| o-Xylene       | NG                   | <0.040  | <0.040   | <0.040  | <0.020  |
| p+m-Xylene     | NG                   | <0.020  | <0.020   | <0.020  | 0.031   |
| Total Xylenes  | 3.1                  | <0.040  | <0.040   | <0.040  | 0.031   |

Notes: - All units are expressed in micrograms per gram (µg/g).

- MOECC - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011, Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use), Coarse textured soils.
- Table 3
- mbgs - Metres below ground surface
- < - Less than laboratory reportable detection limit (value indicated)
- NA - Parameter not analyzed
- NG - No guideline/standard available
- () - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.
- NC - Non-calculable RPD.
- Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-2: SOIL ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)

| Parameters             | Standards               | Analytical Results<br>(Sample ID / Depth / Sampling Date d/m/y) |  |   |   |   |
|------------------------|-------------------------|---|--|---|---|---|
|                        | MOECC Table 3<br>Coarse | BH2017-4 SS5<br>(2.4 - 3.0mbgs)<br>06/07/2017                   | BH2017-7 SS8<br>(4.2 - 4.8 mbgs)<br>27/06/2017 | BH2017-9 SS4<br>(1.8 - 2.4mbgs)<br>06/07/2017 | BH2017-11 SS3<br>(1.2 - 1.8 mbgs)<br>04/07/2017 | BH2017-31<br>SS3<br>(Duplicate of<br>BH2017-13-SS3) |
| Acenaphthene           | 7.9                     | <0.0050   | <0.010 (1)                                     | <0.050  | 0.26  | 0.82  |
| Acenaphthylene         | 0.15                    | <0.0050   | <0.0050  | <0.050  | 0.84  | 0.072   |
| Anthracene             | 0.67                    | 0.014   | <0.0050  | <0.050  | 0.73  | 0.13  |
| Benzo(a)anthracene     | 0.5                     | <0.0050   | <0.0050  | <0.050  | 3.5   | 0.23  |
| Benzo(a)pyrene         | 0.3                     | <0.0050   | <0.0050  | <0.050  | 3.2   | 0.19  |
| Benzo(b)fluoranthene   | 0.78                    | <0.0050   | <0.0050  | <0.050  | 3.9   | 0.24  |
| Benzo(g,h,i)perylene   | 6.6                     | <0.0050   | <0.0050  | <0.050  | 2.1   | 0.11  |
| Benzo(k)fluoranthene   | 0.78                    | <0.0050   | <0.0050  | <0.050  | 1.4   | 0.085   |
| Chrysene               | 7                       | 0.005   | <0.0050  | <0.050  | 2.9   | 0.19  |
| Dibenz(a,h)anthracene  | 0.1                     | <0.0050   | <0.0050  | <0.050  | 0.51  | <0.050  |
| Fluoranthene           | 0.69                    | 0.019   | 0.012  | 0.067   | 7.0   | 0.52  |
| Fluorene               | 62                      | 1.1   | 1.1  | <0.050  | 0.46  | 0.15  |
| Indeno(1,2,3-cd)pyrene | 0.38                    | 3.8   | 3.7  | <0.050  | 2.5   | 0.11  |
| 1-Methylnaphthalene    | 0.99                    | 0.0073  | <0.0050  | <0.050  | 0.24  | 0.11  |
| 2-Methylnaphthalene    |                         | <0.0050   | <0.0050  | <0.050  | 0.38  | 0.19  |
| Naphthalene            | 0.6                     | <0.0050   | <0.0050  | <0.050  | 0.40  | 0.18  |
| Phenanthrene           |                         | 0.022   | <0.0050  | 0.074   | 2.2   | 0.49  |
| Pyrene                 | 78                      | 0.014   | 0.048  | 0.055   | 5.7   | 0.38  |

Notes:

MOECC Table 3

mbgs  
 <  
 ()  
 NG  
 NC

Value  
 (1)

- All units are expressed in micrograms per gram (µg/g).
- Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011, Table 3; Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.
- Metres below ground surface
- Less than laboratory reportable detection limit (value indicated)
- Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.
- No guideline/standard available
- Non-calculable RPD
- Sample result exceeds applicable MOECC standards Coarse soils.
- Detection Limit raised due to matrix interference

TABLE E-3: SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS (VOCs)

| Parameters                          | Standards               | Analytical Results<br>(Sample ID / Depth / Sampling Date d/m/y) |   |   |  |   |   |
|-------------------------------------|-------------------------|---|---|---|--|---|---|
|                                     | MOECC Table 3<br>Coarse | BH2017-1 SS12<br>(6.6 - 7.2 mbgs)<br>05/07/2017                 | BH2017-2 SS9<br>(4.8 - 5.4mbgs)<br>06/07/2017 | BH2017-4 SS5<br>(2.4 - 3.0mbgs)<br>06/07/2017 | BH2017-5 SS7<br>(3.6 - 4.2 mbgs)<br>07/07/2017 | BH2017-5A SS3<br>(1.2 - 1.8 mbgs)<br>07/07/2017 | BH2017-6 SS12<br>(6.6 - 7.2 mbgs)<br>07/07/2017 |
| Acetone (2-Propanone)               | 16                      | <0.50   | <0.50   | <0.50   | <0.50  | <0.50   | <0.50   |
| Benzene                             | 0.21                    | 0.93  | <0.020  | <0.020  | <0.020   | 0.039   | <0.020  |
| Bromodichloromethane                | 13                      | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Bromoform                           | 0.26                    | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Bromomethane                        | 0.05                    | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Carbon Tetrachloride                | 0.05                    | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Chlorobenzene                       | 2.4                     | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Chloroform                          | 0.05                    | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Dibromochloromethane                | 9.4                     | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| 1,2-Dichlorobenzene                 | 3.4                     | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| 1,3-Dichlorobenzene                 | 4.8                     | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| 1,4-Dichlorobenzene                 | 0.083                   | 1.1   | 1.1   | <0.050  | <0.050   | <0.050  | <0.050  |
| Dichlorodifluoromethane (FREON 12)  | 16                      | 3.8   | 3.7   | <0.050  | <0.050   | <0.050  | <0.050  |
| 1,1-Dichloroethane                  | 3.5                     | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| 1,2-Dichloroethane                  | 0.05                    | <0.050  | <0.050  | <0.050  | <0.050   | 0.2   | <0.050  |
| 1,1-Dichloroethylene                | 0.05                    | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| cis-1,2-Dichloroethylene            | 3.4                     | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| trans-1,2-Dichloroethylene          | 0.084                   | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| 1,2-Dichloropropane                 | 0.05                    | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| cis-1,3-Dichloropropene             | 0.05                    | <0.030  | <0.030  | <0.030  | <0.030   | <0.030  | <0.030  |
| trans-1,3-Dichloropropene           | NG                      | <0.040  | <0.040  | <0.040  | <0.040   | <0.040  | <0.040  |
| Ethylbenzene                        | 2                       | 8.1   | 0.33  | 0.13  | <0.020   | 0.056   | <0.020  |
| Ethylene Dibromide                  | 0.05                    | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Hexane                              | 2.8                     | 11  | 0.17  | 0.41  | <0.050   | <0.050  | <0.050  |
| Methylene Chloride(Dichloromethane) | 0.1                     | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Methyl Ethyl Ketone (2-Butanone)    | 16                      | <0.50   | <0.50   | <0.50   | <0.50  | <0.50   | <0.50   |
| Methyl Isobutyl Ketone              | 1.7                     | <0.50   | <0.50   | <0.50   | <0.50  | <0.50   | <0.50   |
| Methyl t-butyl ether (MTBE)         | 0.75                    | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Styrene                             | 0.7                     | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| 1,1,1,2-Tetrachloroethane           | 0.058                   | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| 1,1,2,2-Tetrachloroethane           | 0.05                    | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Tetrachloroethylene                 | 0.28                    | <0.050  | <0.020  | <0.020  | <0.050   | 0.32  | <0.020  |
| Toluene                             | 2.3                     | 11  | <0.050  | <0.050  | <0.020   | <0.050  | <0.050  |
| 1,1,1-Trichloroethane               | 0.38                    | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| 1,1,2-Trichloroethane               | 0.05                    | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Trichloroethylene                   | 0.061                   | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Trichlorofluoromethane (FREON 11)   | 4                       | <0.050  | <0.050  | <0.050  | <0.050   | <0.050  | <0.050  |
| Vinyl Chloride                      | 0.02                    | <0.020  | <0.020  | <0.020  | <0.020   | <0.020  | <0.020  |
| p+m-Xylene                          | NG                      | 31  | 0.55  | <0.020  | <0.020   | 0.35  | <0.020  |
| o-Xylene                            | NG                      | 11  | 0.039   | <0.020  | <0.020   | 0.091   | <0.020  |
| Total Xylenes                       | 3.1                     | 41  | 0.59  | <0.020  | <0.020   | 0.44  | <0.020  |

Notes: - All units are expressed in micrograms per gram (µg/g).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

() - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NG - No guideline/standard available

NC - Non-calculable RPD

Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-3: SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS (VOCs)

| Parameters                          | Standards               | Analytical Results<br>(Sample ID / Depth / Sampling Date d/m/y) |   |  |   |
|-------------------------------------|-------------------------|---|---|--|---|
|                                     | MOECC Table 3<br>Coarse | BH2017-8 SS12<br>(6.6 - 7.2 mbgs)<br>10/07/2017                 | BH2017-9 SS4<br>(1.8 - 2.4mbgs)<br>06/07/2017 | BH2017-10 SS10<br>(5.5 - 6.1 mbgs)<br>27/06/2017 | BH2017-31 SS3<br>(DUP of BH2017-<br>13-SS3) |
| Acetone (2-Propanone)               | 16                      | <0.50   | <0.50   | <0.50  | <0.50                                       |
| Benzene                             | 0.21                    | <0.020  | <0.020  | <0.020   | <0.020                                      |
| Bromodichloromethane                | 13                      | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Bromofom                            | 0.26                    | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Bromomethane                        | 0.05                    | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Carbon Tetrachloride                | 0.05                    | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Chlorobenzene                       | 2.4                     | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Chloroform                          | 0.05                    | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Dibromochloromethane                | 9.4                     | <0.050  | <0.050  | <0.050   | <0.050                                      |
| 1,2-Dichlorobenzene                 | 3.4                     | <0.050  | <0.050  | <0.050   | <0.050                                      |
| 1,3-Dichlorobenzene                 | 4.8                     | <0.050  | <0.050  | <0.050   | <0.050                                      |
| 1,4-Dichlorobenzene                 | 0.083                   | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Dichlorodifluoromethane (FREON 12)  | 16                      | <0.050  | <0.050  | <0.050   | <0.050                                      |
| 1,1-Dichloroethane                  | 3.5                     | <0.050  | <0.050  | <0.050   | <0.050                                      |
| 1,2-Dichloroethane                  | 0.05                    | <0.050  | <0.050  | <0.050   | <0.050                                      |
| 1,1-Dichloroethylene                | 0.05                    | <0.050  | <0.050  | <0.050   | <0.050                                      |
| cis-1,2-Dichloroethylene            | 3.4                     | <0.050  | <0.050  | <0.050   | <0.050                                      |
| trans-1,2-Dichloroethylene          | 0.084                   | <0.050  | <0.050  | <0.050   | <0.050                                      |
| 1,2-Dichloropropane                 | 0.05                    | <0.050  | <0.050  | <0.050   | <0.050                                      |
| cis-1,3-Dichloropropene             | 0.05                    | <0.030  | <0.030  | <0.030   | <0.030                                      |
| trans-1,3-Dichloropropene           | NG                      | <0.040  | <0.040  | <0.040   | <0.040                                      |
| Ethylbenzene                        | 2                       | <0.020  | <0.020  | <0.020   | <0.020                                      |
| Ethylene Dibromide                  | 0.05                    | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Hexane                              | 2.8                     | 0.25  | <0.050  | <0.050   | 0.084                                       |
| Methylene Chloride(Dichloromethane) | 0.1                     | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Methyl Ethyl Ketone (2-Butanone)    | 16                      | <0.50   | <0.50   | <0.50  | <0.50                                       |
| Methyl Isobutyl Ketone              | 1.7                     | <0.50   | <0.50   | <0.50  | <0.50                                       |
| Methyl t-butyl ether (MTBE)         | 0.75                    | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Styrene                             | 0.7                     | <0.050  | <0.050  | <0.050   | <0.050                                      |
| 1,1,1,2-Tetrachloroethane           | 0.058                   | <0.050  | <0.050  | <0.050   | <0.050                                      |
| 1,1,2,2-Tetrachloroethane           | 0.05                    | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Tetrachloroethylene                 | 0.28                    | <0.020  | <0.020  | <0.050   | <0.050                                      |
| Toluene                             | 2.3                     | <0.050  | <0.050  | <0.020   | 0.027                                       |
| 1,1,1-Trichloroethane               | 0.38                    | <0.050  | <0.050  | <0.050   | <0.050                                      |
| 1,1,2-Trichloroethane               | 0.05                    | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Trichloroethylene                   | 0.061                   | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Trichlorofluoromethane (FREON 11)   | 4                       | <0.050  | <0.050  | <0.050   | <0.050                                      |
| Vinyl Chloride                      | 0.02                    | <0.020  | <0.020  | <0.020   | <0.020                                      |
| p+m-Xylene                          | NG                      | 0.029   | <0.020  | <0.020   | 0.031                                       |
| o-Xylene                            | NG                      | <0.020  | <0.020  | <0.020   | <0.020                                      |
| Total Xylenes                       | 3.1                     | 0.029   | <0.020  | <0.020   | 0.031                                       |

- Notes:
- All units are expressed in micrograms per gram (µg/g).
  - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.
  - MOECC Table 3
  - mbgs - Metres below ground surface
  - < - Less than laboratory reportable detection limit (value indicated)
  - () - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.
  - NG - No guideline/standard available
  - NC - Non-calculable RPD
  - Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-4: SOIL ANALYTICAL RESULTS - METALS

| Parameter Description | Standards               | Analytical Results<br>(Sample ID / Depth - mbgs / Sampling Date) |  |  |  |  |   |  |  |
|-----------------------|-------------------------|--|--|--|--|--|---|--|--|
|                       | MOECC Table 3<br>Coarse | BH2017-1<br>SS7<br>3.2 m - 4.3 m<br>05/07/2017                   | BH2017-2<br>SS9<br>4.8 m - 5.4 m<br>05/07/2017 | BH2017-3<br>SS2<br>0.6 m - 1.2 m<br>05/07/2017 | BH2017-4<br>SS5<br>2.4 m - 3.0 m<br>06/07/2017 | BH2017-5<br>SS7<br>3.6 m - 4.2 m<br>07/07/2017 | BH2017-6<br>SS12<br>6.6 m - 7.2 m<br>07/07/2017 | BH2017-7<br>SS5<br>2.4 m - 3.0 m<br>27/06/2017 | BH2017-8<br>SS5<br>2.4 m - 3.0 m<br>10/07/2017 |
|                       |                         | Antimony   | 7.5  | <0.20  | <0.20  | 0.45   | <0.20   | <0.20  | <0.20  |
| Arsenic               | 18                      | <0.1   | <1.0   | 3.5  | <1.0   | 1.4  | <1.0  | 1.8  | 2.0  |
| Barium                | 390                     | 68   | 82   | 160  | 110  | 320  | 56  | 40   | 370  |
| Beryllium             | 4                       | 0.25   | 0.33   | 0.56   | 0.36   | 0.74   | 0.26  | 0.22   | 0.78   |
| Boron (B)             | 120                     | 5.1  | <5.0   | 8.1  | 5.8  | 8.1  | 6.4   | <5.0   | 7.7  |
| Cadmium               | 1.2                     | <0.10  | <0.10  | 0.22   | <0.10  | <0.10  | <0.10   | <0.10  | 0.10   |
| Chromium              | 160                     | 14   | 18   | 40   | 21   | 100  | 15  | 14   | 120  |
| Cobalt                | 22                      | 6.0  | 6.7  | 10   | 8.0  | 21   | 5.4   | 4.0  | 22   |
| Copper                | 1.1                     | 11   | 14   | 35   | 15   | 48   | 11  | 7.9  | 54   |
| Lead                  | 3.8                     | 5.0  | 4.7  | 38   | 4.8  | 13   | 4   | 7.7  | 10   |
| Molybdenum            | 6.9                     | <0.50  | <0.50  | 0.90   | <0.50  | 0.54   | 0.55  | 2.3  | 0.53   |
| Nickel                | 100                     | 10   | 13   | 26   | 13   | 55   | 9.7   | 8.5  | 64   |
| Selenium              | 2.4                     | <0.50  | <0.50  | <0.50  | <0.50  | <0.50  | <0.50   | <0.50  | <0.50  |
| Silver                | 20                      | <0.20  | <0.20  | <0.20  | <0.20  | <0.20  | <0.20   | <0.20  | <0.20  |
| Thallium              | 1                       | 0.10   | 0.14   | 0.23   | 0.13   | 0.36   | 0.068   | 0.087  | 0.38   |
| Uranium               | 23                      | 0.42   | 0.53   | 0.82   | 0.57   | 0.66   | 0.9   | 0.46   | 0.57   |
| Vanadium              | 86                      | 25   | 32   | 56   | 34   | 92   | 23  | 18   | 90   |
| Zinc                  | 340                     | 24   | 27   | 79   | 30   | 110  | 19  | 18   | 110  |

Notes: - All units are expressed in micrograms per gram (µg/g).

MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.

mbgs - Metres below ground surface

< - Less than laboratory reportable detection limit (value indicated)

() - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

NG - No guideline/standard available

NC - Non-calculable RPD

Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-4: SOIL ANALYTICAL RESULTS - METALS

| Parameter Description | Standards     |        | Analytical Results<br>(Sample ID / Depth - mbgs / Sampling Date) |  |  |   |  |
|-----------------------|---------------|--------|--|--|--|---|--|
|                       | MOECC Table 3 | Coarse | BH2017-9<br>SS4<br>1.8 m - 2.4 m<br>06/07/2017                   | BH2017-10<br>SS13<br>7.2 m - 7.8 m<br>27/06/2017 | BH2017-11<br>SS3<br>1.2 m - 1.8 mbgs<br>04/07/2017 | BH2017-13<br>SS3<br>1.2 m - 1.8 m<br>28/06/2017 | BH2017-31<br>SS3<br>(DIP of BH2017-13-SS3)<br>1.2 m - 1.85 m |
|                       |               |        |  |  |  |   |  |
| Antimony              | 7.5           |        | <0.20  | 1.7  | 3.9  | <0.20   | 0.34   |
| Arsenic               | 18            |        | <1.0   | 4.7  | 33   | 2.1   | 1.7  |
| Barium                | 390           |        | 190  | 170  | 300  | 340   | 290  |
| Beryllium             | 4             |        | 0.56   | 0.46   | 0.44   | 0.74  | 0.72   |
| Boron (B)             | 120           |        | 5.8  | 7.3  | 11   | 6.6   | 6.2  |
| Cadmium               | 1.2           |        | <0.10  | 0.24   | 0.8  | 0.14  | 0.17   |
| Chromium              | 160           |        | 42   | 36   | 31   | 110   | 100  |
| Cobalt                | 22            |        | 12   | 9.5  | 7  | 23  | 21   |
| Copper                | 140           |        | 24   | 30   | 100  | 55  | 50   |
| Lead                  | 120           |        | 5.9  | 70   | 410  | 18  | 22   |
| Molybdenum            | 6.9           |        | <0.50  | 1.6  | 6.5  | 0.54  | 0.66   |
| Nickel                | 100           |        | 26   | 25   | 29   | 62  | 59   |
| Selenium              | 2.4           |        | <0.50  | <0.50  | 1.2  | <0.50   | <0.50  |
| Silver                | 20            |        | <0.20  | <0.20  | 0.37   | <0.20   | <0.20  |
| Thallium              | 1             |        | 0.28   | 0.2  | 0.19   | 0.41  | 0.36   |
| Uranium               | 23            |        | 0.58   | 0.65   | 1.2  | 0.68  | 0.7  |
| Vanadium              | 86            |        | 62   | 40   | 24   | 100   | 95   |
| Zinc                  | 340           |        | 63   | 90   | 310  | 120   | 110  |

- Notes:
- All units are expressed in micrograms per gram (µg/g).
  - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (Residential/Parkland/Institutional Property Use). Coarse textured soils.
  - Metres below ground surface
  - < - Less than laboratory reportable detection limit (value indicated)
  - () - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.
  - NG - No guideline/standard available
  - NC - Non-calculable RPD

TABLE E-5: GROUNDWATER ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS & BTEX

| Parameters         | Standards               | Analytical Results<br>(Sample ID / Sampling Date d/m/y) |                         |                         |  |                         |                                  |   |                         |                         |
|--------------------|-------------------------|---|-------------------------|-------------------------|--|-------------------------|----------------------------------|---|-------------------------|-------------------------|
|                    | MOECC Table 3<br>Coarse | BH2017-02<br>18/07/2017                                 | BH2017-04<br>18/07/2017 | BH2017-05<br>18/07/2017 | BHMW-D<br>(DUP of BH2017-05)<br>18/07/2017 | BH2017-06<br>26/07/2017 | Lab -Dup BH2017-06<br>26/07/2018 | BH2017-14<br>(DUP of BH2017-06)<br>26/07/2017 | BH2017-07<br>18/07/2017 | BH2017-09<br>18/07/2017 |
| <b>PHCs</b>        |                         |   |                         |                         |  |                         |                                  |   |                         |                         |
| F1 (C6-C10)        | 750                     | 21000   | <25                     | <25                     | <25  | <25                     | <25                              | <25   | <25                     | 28                      |
| F1 (C6-C10) - BTEX | 750                     | 12000   | <25                     | <25                     | <25  | <25                     | <25                              | <25   | <25                     | 28                      |
| F2 (C10-C16)       | 150                     | 6100  | <100                    | NA                      | NA   | <100                    | <100                             | <100  | <100                    | <100                    |
| F3 (C16-C34)       | 500                     | <200  | <200                    | NA                      | NA   | <200                    | <200                             | <200  | <200                    | <200                    |
| F4 (C34-C50)       | 500                     | <200  | <200                    | NA                      | NA   | <200                    | <200                             | <200  | <200                    | <200                    |
| <b>BTEX</b>        |                         |   |                         |                         |  |                         |                                  |   |                         |                         |
| Benzene            | 44                      | 11  | 0.23                    | 0.34                    | 0.25                                       | <0.20                   | <0.20                            | <0.20   | <0.20                   | <0.20                   |
| Toluene            | 18000                   | 41  | <0.20                   | <0.20                   | <0.20                                      | <0.20                   | <0.20                            | <0.20   | 0.53                    | <0.20                   |
| Ethylbenzene       | 2300                    | 1500  | 0.25                    | <0.20                   | <0.20                                      | <0.20                   | <0.20                            | <0.20   | <0.20                   | <0.20                   |
| o-Xylene           | NV                      | 680   | <0.20                   | <0.20                   | <0.20                                      | <0.20                   | <0.20                            | <0.20   | <0.20                   | <0.20                   |
| p+m-Xylene         | NV                      | 5900  | 0.22                    | <0.20                   | <0.20                                      | <0.20                   | <0.20                            | <0.20   | 0.49                    | 0.22                    |
| Total Xylenes      | 4,200                   | 6600  | 0.22                    | <0.20                   | <0.20                                      | <0.20                   | <0.20                            | <0.20   | 0.49                    | 0.22                    |

- Notes:
- All units are expressed in micrograms per gram (µg/L).
  - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (All Types of Property Use). Coarse textured soils.
  - Metres below ground surface
  - Less than laboratory reportable detection limit (value indicated)
  - Parameter not analyzed
  - No guideline/standard available
  - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.
  - Non-calculable RPD.
  - Sample result exceeds applicable MOECC standards Coarse soils.
- MOECC Table 3 mbgs  
 <  
 NA  
 NG  
 (  
 NC  
 Value

TABLE E-5: GROUNDWATER ANALYTICAL RESULTS - PETROLEUM HYDROCARBONS & BTEX

| Parameters         | Standards              |                         | Analytical Results<br>(Sample ID / Sampling Date d/m/y) |                         |                           |                          |
|--------------------|------------------------|-------------------------|---|-------------------------|---------------------------|--------------------------|
|                    | MOECC Table 3<br>Fines | MOECC Table 3<br>Coarse | BH2017-11<br>18/07/2017                                 | Unknown 1<br>25/07/2017 | FIELD BLANK<br>18/07/2017 | TRIP BLANK<br>18/07/2017 |
| <b>PHCs</b>        |                        |                         |   |                         |                           |                          |
| F1 (C6-C10)        | 750                    | 750                     | <25   | <0.25                   | <25                       | <25                      |
| F1 (C6-C10) - BTEX | 750                    | 750                     | <25   | <0.25                   | <25                       | <25                      |
| F2 (C10-C16)       | 150                    | 150                     | <100  | <100                    | <100                      | <100                     |
| F3 (C16-C34)       | 500                    | 500                     | <200  | <200                    | <200                      | <200                     |
| F4 (C34-C50)       | 500                    | 500                     | <200  | <200                    | <200                      | <200                     |
| <b>BTEX</b>        |                        |                         |   |                         |                           |                          |
| Benzene            | 430                    | 44                      | <0.20   | <0.20                   | <0.20                     | <0.20                    |
| Toluene            | 18000                  | 18000                   | <0.20   | <0.20                   | <0.20                     | <0.20                    |
| Ethylbenzene       | 2300                   | 2300                    | <0.20   | <0.20                   | <0.20                     | <0.20                    |
| o-Xylene           | NV                     | NV                      | <0.20   | <0.20                   | <0.20                     | <0.20                    |
| p+m-Xylene         | NV                     | NV                      | <0.20   | <0.20                   | <0.20                     | <0.20                    |
| Total Xylenes      | 4,200                  | 4,200                   | <0.20   | <0.20                   | <0.20                     | <0.20                    |

- Notes:
- All units are expressed in micrograms per gram (µg/L).
  - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (All Types of Property Use). Coarse textured soils.
  - Metres below ground surface
  - Less than laboratory reportable detection limit (value indicated)
  - Parameter not analyzed
  - No guideline/standard available
  - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.
  - Non-calculable RPD.
  - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-6: GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

| Parameters                          | Standards               | Analytical Results<br>(Sample ID / Sampling Date d/m/y) |                         |                         |   |                         |  |  |                         |                         |
|-------------------------------------|-------------------------|---|-------------------------|-------------------------|---|-------------------------|--|--|-------------------------|-------------------------|
|                                     | MOECC Table 3<br>Coarse | BH2017-02<br>18/07/2017                                 | BH2017-04<br>18/07/2017 | BH2017-05<br>18/07/2017 | BHMW-D<br>(DUP of<br>BH2017-05)<br>18/07/2017 | BH2017-06<br>26/07/2017 | BH2017-14<br>Field Dup of<br>BH2017-06<br>26/07/2017 | BH2017-14<br>Lab Dup of<br>BH2017-14<br>26/07/2017 | BH2017-07<br>18/07/2017 | BH2017-09<br>18/07/2017 |
| Acetone (2-Propanone)               | 130,000                 | <500  | <10                     | <10                     | <10   | <10                     | <10  | <10  | <10                     | <10                     |
| Benzene                             | 44.00                   | 11  | 0.23                    | 0.34                    | 0.25  | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| Bromodichloromethane                | 85000                   | <0.50   | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| Bromoform                           | 380                     | <1.0  | <1.0                    | <1.0                    | <1.0  | <1.0                    | <1.0   | <1.0   | <1.0                    | <1.0                    |
| Bromomethane                        | 5.6                     | <0.50   | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| Carbon Tetrachloride                | 0.79                    | <0.20   | <0.20                   | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| Chlorobenzene                       | 630                     | <0.20   | <0.20                   | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| Chloroform                          | 2.4                     | <0.20   | <0.20                   | 0.70                    | 0.60  | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| Dibromochloromethane                | 82000                   | <0.50   | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| 1,2-Dichlorobenzene                 | 4600                    | <0.50   | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| 1,3-Dichlorobenzene                 | 9600                    | <0.50   | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| 1,4-Dichlorobenzene                 | 8                       | <0.50   | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| Dichlorodifluoromethane (FREON 12)  | 4400                    | <50   | <1.0                    | <1.0                    | <1.0  | <1.0                    | <1.0   | <1.0   | <1.0                    | <1.0                    |
| 1,1-Dichloroethane                  | 320                     | <0.20   | <0.20                   | 0.24                    | 0.23  | <0.20                   | <0.20  | <0.20  | <0.20                   | 0.49                    |
| 1,2-Dichloroethane                  | 1.6                     | <0.50   | <0.50                   | 6.6                     | 7.0   | <0.50                   | <0.50  | <0.50  | <0.50                   | 20                      |
| 1,1-Dichloroethylene                | 1.6                     | <0.20   | <0.20                   | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| cis-1,2-Dichloroethylene            | 1.6                     | <0.50   | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| trans-1,2-Dichloroethylene          | 1.6                     | <0.50   | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| 1,2-Dichloropropane                 | 16                      | <0.20   | <0.20                   | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| cis-1,3-Dichloropropene             | NV                      | <0.30   | <0.30                   | <0.30                   | <0.30   | <0.30                   | <0.30  | <0.30  | <0.30                   | <0.30                   |
| trans-1,3-Dichloropropene           | NV                      | <0.40   | <0.40                   | <0.40                   | <0.40   | <0.40                   | <0.40  | <0.40  | <0.40                   | <0.40                   |
| Ethylbenzene                        | 2300                    | 1500  | 0.25                    | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| Ethylene Dibromide                  | 0.25                    | <0.20   | <0.20                   | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| Hexane                              | 51                      | 280   | <1.0                    | <1.0                    | <1.0  | <1.0                    | <1.0   | <1.0   | <1.0                    | <1.0                    |
| Methylene Chloride(Dichloromethane) | 610                     | <2.0  | <2.0                    | <2.0                    | <2.0  | <2.0                    | <2.0   | <2.0   | <2.0                    | <2.0                    |
| Methyl Ethyl Ketone (2-Butanone)    | 470000                  | <10   | <10                     | <10                     | <10   | <10                     | <10  | <10  | <10                     | <10                     |
| Methyl Isobutyl Ketone              | 140000                  | <250  | <5.0                    | <5.0                    | <5.0  | <5.0                    | <5.0   | <5.0   | <5.0                    | <5.0                    |
| Methyl t-butyl ether (MTBE)         | 190                     | <0.50   | 24                      | 240                     | 240   | <0.50                   | <0.50  | <0.50  | <2.5 (1)                | 110                     |
| Styrene                             | 1300                    | <2.1 (1)  | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| 1,1,1,2-Tetrachloroethane           | 3.3                     | <0.50   | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| 1,1,1,2,2-Tetrachloroethane         | 3.2                     | <0.50   | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| Tetrachloroethylene                 | 18000                   | <0.20   | <0.20                   | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| Toluene                             | 1.6                     | 41  | <0.20                   | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | 0.53                    | <0.20                   |
| 1,1,1-Trichloroethane               | 640                     | <0.20   | <0.20                   | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| 1,1,2-Trichloroethane               | 4.7                     | <0.50   | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| Trichloroethylene                   | 1.6                     | <0.20   | <0.20                   | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| Trichlorofluoromethane (FREON 11)   | 2500                    | <25   | <0.50                   | <0.50                   | <0.50   | <0.50                   | <0.50  | <0.50  | <0.50                   | <0.50                   |
| Vinyl Chloride                      | 0.5                     | <0.20   | <0.20                   | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| p+m-Xylene                          | NV                      | 5900  | 0.22                    | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | 0.49                    | 0.22                    |
| o-Xylene                            | NV                      | 680   | <0.20                   | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | <0.20                   | <0.20                   |
| Total Xylenes                       | 4200                    | 6600  | 0.22                    | <0.20                   | <0.20   | <0.20                   | <0.20  | <0.20  | 0.49                    | 0.22                    |

Notes: - All units are expressed in micrograms per gram (µg/L).

- MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (All Types of Property Use). Coarse textured soils.
- mbs - Metres below ground surface  
 < - Less than laboratory reportable detection limit (value indicated)  
 NA - Parameter not analyzed  
 NG - No guideline/standard available  
 () - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.  
 NC - Non-calculable RPD.  
 Value - Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-6: GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

| Parameters                          | Standards | Analytical Results<br>(Sample ID / Sampling Date d/m/y) |                         |                         |                              |
|-------------------------------------|-----------|---|-------------------------|-------------------------|------------------------------|
|                                     |           | MOECC Table 3<br>Coarse                                 | BH2017-11<br>18/07/2017 | Unknown 1<br>25/07/2017 | FIELD<br>BLANK<br>18/07/2017 |
| Acetone (2-Propanone)               | 130,000   | <10   | <10                     | <10                     | <10                          |
| Benzene                             | 44.00     | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| Bromodichloromethane                | 85000     | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| Bromoform                           | 380       | <1.0  | <1.0                    | <1.0                    | <1.0                         |
| Bromomethane                        | 5.6       | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| Carbon Tetrachloride                | 0.79      | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| Chlorobenzene                       | 630       | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| Chloroform                          | 2.4       | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| Dibromochloromethane                | 82000     | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| 1,2-Dichlorobenzene                 | 4600      | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| 1,3-Dichlorobenzene                 | 9600      | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| 1,4-Dichlorobenzene                 | 8         | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| Dichlorodifluoromethane (FREON 12)  | 4400      | <1.0  | <1.0                    | <1.0                    | <1.0                         |
| 1,1-Dichloroethane                  | 320       | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| 1,2-Dichloroethane                  | 1.6       | 1.3   | <0.50                   | <0.50                   | <0.50                        |
| 1,1-Dichloroethylene                | 1.6       | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| cis-1,2-Dichloroethylene            | 1.6       | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| trans-1,2-Dichloroethylene          | 1.6       | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| 1,2-Dichloropropane                 | 16        | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| cis-1,3-Dichloropropene             | NV        | <0.30   | <0.30                   | <0.30                   | <0.30                        |
| trans-1,3-Dichloropropene           | NV        | <0.40   | <0.40                   | <0.40                   | <0.40                        |
| Ethylbenzene                        | 2300      | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| Ethylene Dibromide                  | 0.25      | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| Hexane                              | 51        | <1.0  | <1.0                    | <1.0                    | <1.0                         |
| Methylene Chloride(Dichloromethane) | 610       | <2.0  | <2.0                    | <2.0                    | <2.0                         |
| Methyl Ethyl Ketone (2-Butanone)    | 470000    | <10   | <10                     | <10                     | <10                          |
| Methyl Isobutyl Ketone              | 140000    | <5.0  | <5.0                    | <5.0                    | <5.0                         |
| Methyl t-butyl ether (MTBE)         | 190       | 16  | <0.50                   | <0.50                   | <0.50                        |
| Styrene                             | 1300      | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| 1,1,1,2-Tetrachloroethane           | 3.3       | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| 1,1,1,2,2-Tetrachloroethane         | 3.2       | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| Tetrachloroethylene                 | 18000     | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| Toluene                             | 1.6       | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| 1,1,1,1-Trichloroethane             | 640       | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| 1,1,1,2-Trichloroethane             | 4.7       | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| Trichloroethylene                   | 1.6       | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| Trichlorofluoromethane (FREON 11)   | 2500      | <0.50   | <0.50                   | <0.50                   | <0.50                        |
| Vinyl Chloride                      | 0.5       | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| p+m-Xylene                          | NV        | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| o-Xylene                            | NV        | <0.20   | <0.20                   | <0.20                   | <0.20                        |
| Total Xylenes                       | 4200      | <0.20   | <0.20                   | <0.20                   | <0.20                        |

Notes: - All units are expressed in micrograms per gram (µg/L).

MOECC Table 3

mbgs

<

NA

NG

( )

NC

Value

- Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (All Types of Property Use). Coarse textured soils.

- Metres below ground surface

- Less than laboratory reportable detection limit (value indicated)

- Parameter not analyzed

- No guideline/standard available

- Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.

- Non-calculable RPD.

- Sample result exceeds applicable MOECC standards Coarse soils.

TABLE E-7: GROUNDWATER ANALYTICAL RESULTS - METALS & INORGANICS

| Parameters | Standards               | Analytical Results<br>(Sample ID / Sampling Date d/m/y) |                         |                         |  |                         |   |                                    |                         |                         |  |                                       |
|------------|-------------------------|---|-------------------------|-------------------------|--|-------------------------|---|------------------------------------|-------------------------|-------------------------|--|---------------------------------------|
|            | MOECC Table 3<br>Coarse | BH2017-02<br>18/07/2017                                 | BH2017-04<br>18/07/2017 | BH2017-05<br>18/07/2017 | BHMW-D<br>(DUP of BH2017-<br>05)<br>18/07/2017 | BH2017-06<br>26/07/2017 | BH2017-14<br>(DUP of BH2017-<br>06)<br>18/07/2017 | BH2017-06<br>Lab-Dup<br>26/07/2017 | BH2017-07<br>18/07/2017 | BH2017-09<br>18/07/2017 | Unknown 1<br>25/07/2017<br>(Well Adjacent to<br>BH2017-07) | LAB-DUP of<br>Unknown 1<br>25/07/2017 |
| Antimony   | 20000                   | <0.50   | <0.50                   | 0.71                    | 0.67   | <0.50                   | <0.50   | <0.50                              | <0.50                   | <0.50                   | <0.50  | <0.50                                 |
| Arsenic    | 1900                    | <1.0  | <1.0                    | <1.0                    | <1.0   | <1.0                    | <1.0  | <1.0                               | <1.0                    | <1.0                    | <1.0   | <1.0                                  |
| Barium     | 29000                   | 3800  | 130                     | 370                     | 370  | 98                      | 97  | 99                                 | 110                     | 140                     | 120  | 120                                   |
| Beryllium  | 67                      | <0.50   | <0.50                   | <0.50                   | <0.50  | <0.50                   | <0.50   | <0.50                              | <0.50                   | <0.50                   | <0.50  | <0.50                                 |
| Boron (B)  | 45000                   | 74.00   | 69                      | 180                     | 180  | 67                      | 67  | 68                                 | 76                      | 150                     | 56   | 58                                    |
| Cadmium    | 2.7                     | <0.10   | <0.10                   | <0.10                   | <0.10  | <0.10                   | <0.10   | <0.10                              | <0.10                   | <0.10                   | <0.10  | <0.10                                 |
| Chromium   | 810                     | <5.0  | <5.0                    | <5.0                    | <5.0   | <5.0                    | <5.0  | <5.0                               | <5.0                    | <5.0                    | <5.0   | <5.0                                  |
| Cobalt     | 66                      | 6.6   | 1.4                     | <0.50                   | <0.50  | 2.5                     | 2.6   | 2.6                                | 0.59                    | 0.78                    | <0.50  | <0.50                                 |
| Copper     | 87                      | <1.0  | <1.0                    | <1.0                    | <1.0   | <1.0                    | <1.0  | <1.0                               | <1.0                    | 4.3                     | 1.4  | 1.3                                   |
| Lead       | 25                      | 13  | <0.50                   | <0.50                   | <0.50  | <0.50                   | <0.50   | <0.50                              | <0.50                   | 0.52                    | <0.50  | <0.50                                 |
| Molybdenum | 9200                    | 0.56  | 1.6                     | 4.5                     | 4.4  | 1.0                     | 1.0   | 0.97                               | 9.6                     | 1.1                     | 11   | 11                                    |
| Nickel     | 490                     | 11  | 4.9                     | 4.4                     | 4.2  | 6.9                     | 6.9   | 6.6                                | 3.1                     | 11                      | 1.5  | 1.6                                   |
| Sodium     | 2300000                 | 680000  | 250000                  | 98000                   | 97000  | 120000                  | 120000  | 120000                             | 460000                  | 500000                  | 540000   | 530000                                |
| Selenium   | 63                      | <2.0  | <2.0                    | <2.0                    | <2.0   | <2.0                    | <2.0  | <2.0                               | <2.0                    | <2.0                    | <2.0   | 100                                   |
| Silver     | 1.5                     | <0.10   | <0.10                   | <0.10                   | <0.10  | <0.10                   | <0.10   | <0.10                              | <0.10                   | <0.10                   | <0.10  | <0.10                                 |
| Thallium   | 510                     | <0.050  | <0.050                  | <0.050                  | <0.050   | <0.050                  | <0.050  | <0.050                             | <0.050                  | <0.050                  | <0.050   | <0.050                                |
| Uranium    | 420                     | 1.2   | 3.9                     | 0.38                    | 0.37   | 6.9                     | 6.8   | 7.2                                | 1.5                     | 0.44                    | 1.2  | 1.2                                   |
| Vanadium   | 250                     | <0.50   | <0.50                   | <0.50                   | <0.50  | <0.50                   | <0.50   | <0.50                              | <0.50                   | <0.50                   | <0.50  | <0.50                                 |
| Zinc       | 1100                    | <5.0  | <5.0                    | <5.0                    | <5.0   | <5.0                    | 5.2   | <5.0                               | <5.0                    | 6                       | 6.3  | 5.6                                   |

Notes: - All units are expressed in micrograms per gram (µg/L).

- MOECC Table 3 - Ontario Ministry of the Environment and Climate Change (MOECC), "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", July 2011. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition (All Types of Property Use). Coarse textured soils.
- mbgs - Metres below ground surface
- < - Less than laboratory reportable detection limit (value indicated)
- NA - Parameter not analyzed
- NG - No guideline/standard available
- () - Value in brackets represents relative percent difference (RPD) between parent sample and duplicate sample.
- NC - Non-calculable RPD.
- Value - Sample result exceeds applicable MOECC standards Coarse soils.

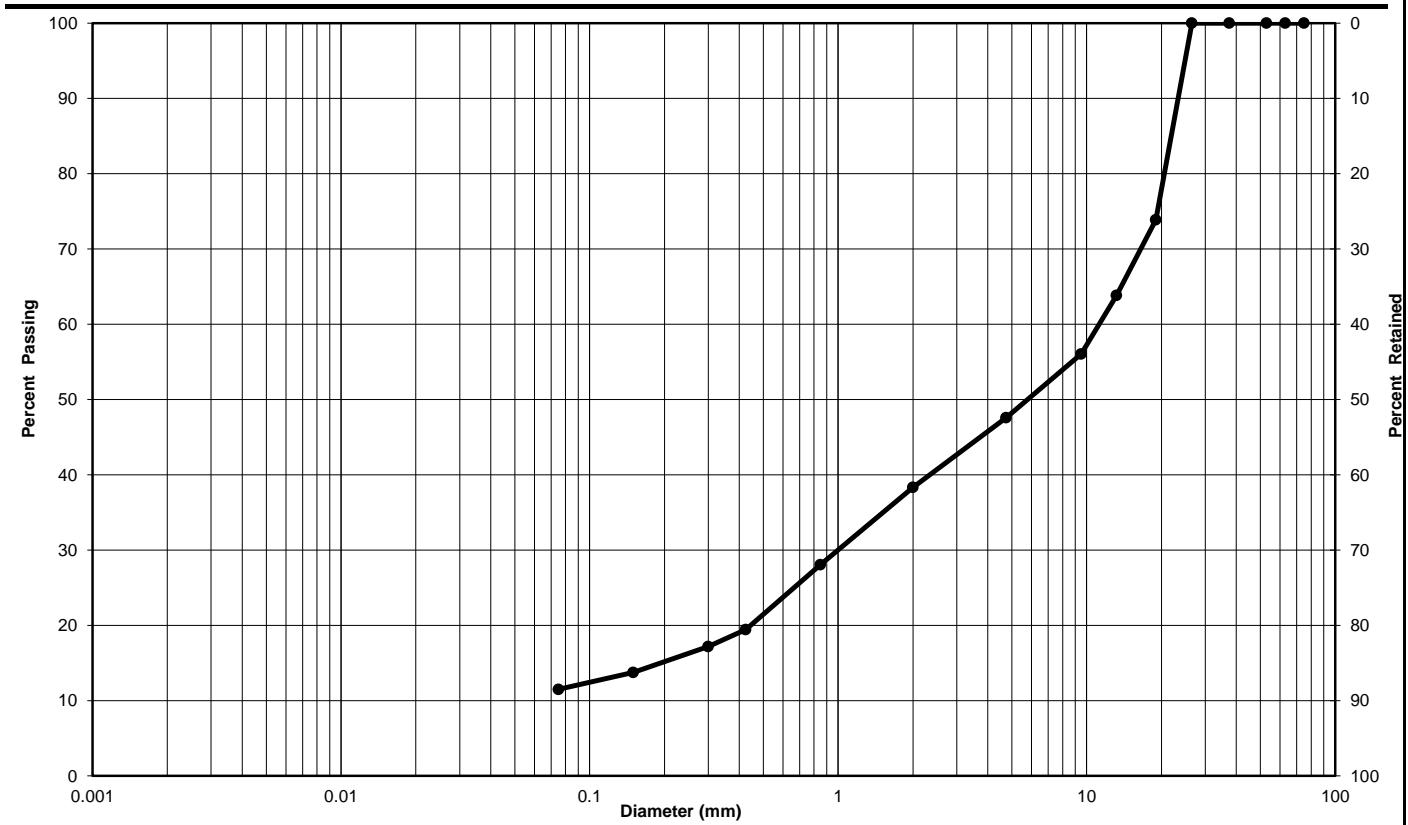
**APPENDIX F**  
**LABORATORY CERTIFICATES OF ANALYSIS**



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 Fax: (519) 725-3789  
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[www.dstgroup.com](http://www.dstgroup.com)

**PARTICLE SIZE ANALYSIS OF SOILS**

|                          |   |                      |                                  |
|--------------------------|---|----------------------|----------------------------------|
| <b>DST Ref. No.:</b>     | TS-SO-29563                                 | <b>Date Sampled:</b> | January 0, 1900                  |
| <b>Project:</b>          | Trinity Development Group Geotech Investig. | <b>Sampled By:</b>   | 1900-01-00                       |
| <b>Client:</b>           | Trinity Development Group                   | <b>Source:</b>       | BH2017-5, SS-4                   |
| <b>Project Location:</b> | Ottawa, ON                                  | <b>Location:</b>     | 0                                |
| <b>Sample #:</b>         | KWG-016-6                                   | <b>Description:</b>  | Gravel and Sand, trace Clay/Silt |



| Clay & Silt                                    | Sand |        |        | Gravel |        |
|--|------|--------|--------|--------|--------|
|  | Fine | Medium | Coarse | Fine   | Coarse |
| Particle-Size Limits as per USCS (ASTM D-2487) |      |        |        |        |        |

| Soil Description                 | Gravel (%) | Sand (%) | Clay & Silt (%) |
|----------------------------------|------------|----------|-----------------|
| Gravel and Sand, trace Clay/Silt | 52         | 37       | 11              |



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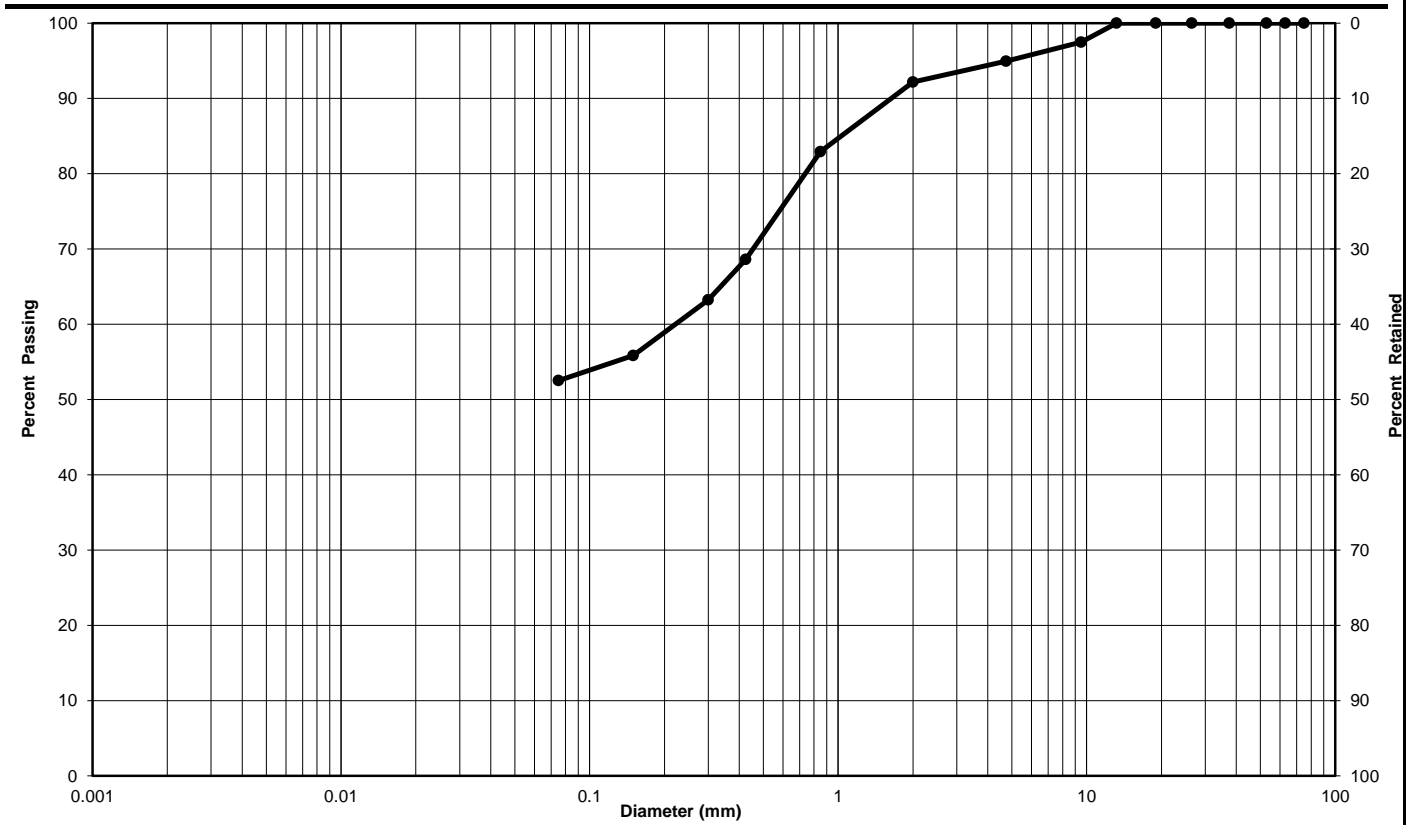
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**PARTICLE SIZE ANALYSIS OF SOILS**

|                          |   |                      |                                  |
|--------------------------|---|----------------------|----------------------------------|
| <b>DST Ref. No.:</b>     | TS-SO-29563                                 | <b>Date Sampled:</b> | January 0, 1900                  |
| <b>Project:</b>          | Trinity Development Group Geotech Investig. | <b>Sampled By:</b>   | 1900-01-00                       |
| <b>Client:</b>           | Trinity Development Group                   | <b>Source:</b>       | BH2017-9, SS-2                   |
| <b>Project Location:</b> | Ottawa, ON                                  | <b>Location:</b>     | 0                                |
| <b>Sample #:</b>         | KWG-016-9                                   | <b>Description:</b>  | Sand and Clay/Silt, trace Gravel |



| Clay & Silt                                    | Sand |        |        | Gravel |        |
|--|------|--------|--------|--------|--------|
|  | Fine | Medium | Coarse | Fine   | Coarse |
| Particle-Size Limits as per USCS (ASTM D-2487) |      |        |        |        |        |

| Soil Description                 | Gravel (%) | Sand (%) | Clay & Silt (%) |
|----------------------------------|------------|----------|-----------------|
| Sand and Clay/Silt, trace Gravel | 5          | 42       | 53              |



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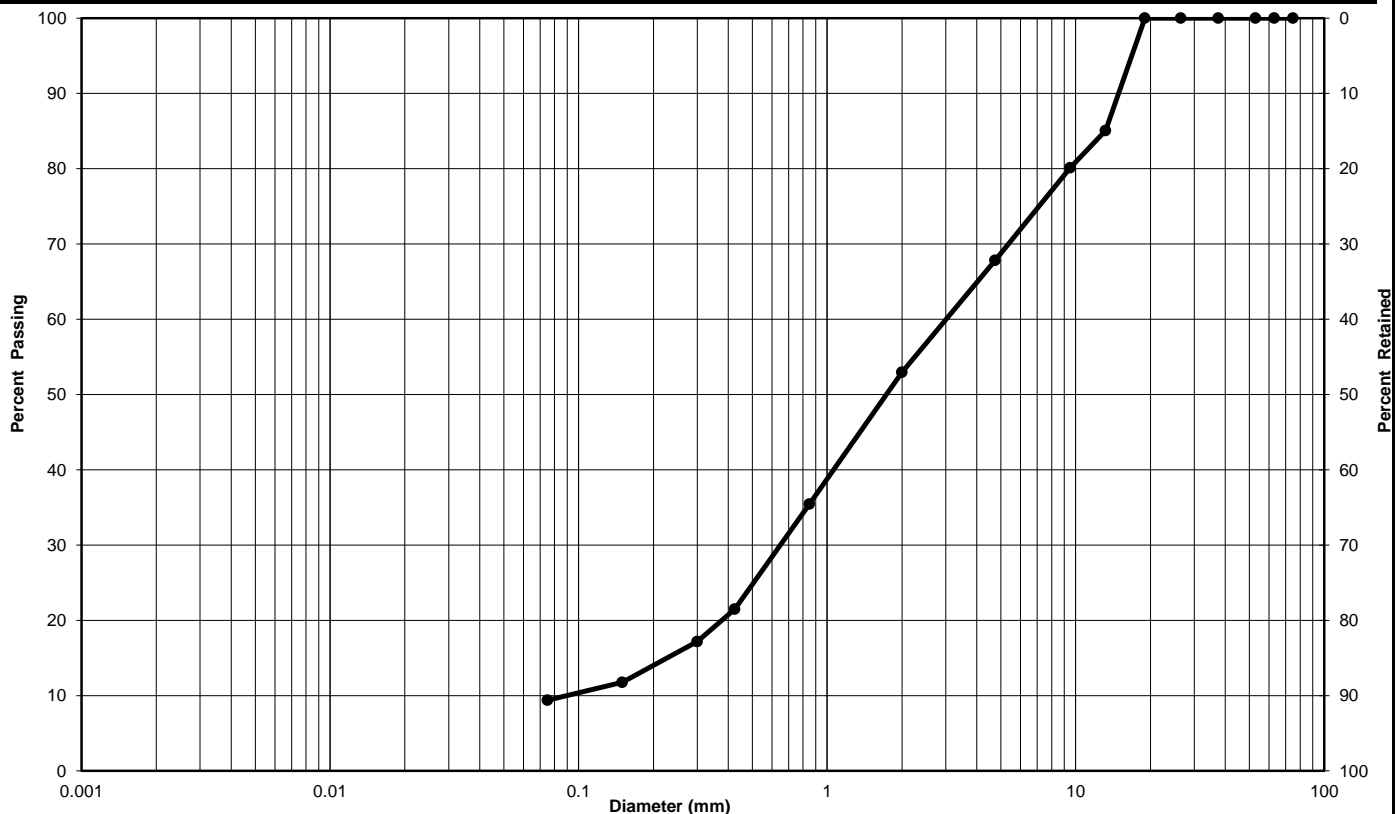
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**PARTICLE SIZE ANALYSIS OF SOILS**

|                          |   |                      |                                  |
|--------------------------|---|----------------------|----------------------------------|
| <b>DST Ref. No.:</b>     | TS-SO-29563                                 | <b>Date Sampled:</b> | January 0, 1900                  |
| <b>Project:</b>          | Trinity Development Group Geotech Investig. | <b>Sampled By:</b>   | 1900-01-00                       |
| <b>Client:</b>           | Trinity Development Group                   | <b>Source:</b>       | BH2017-10, SS-4                  |
| <b>Project Location:</b> | Ottawa, ON                                  | <b>Location:</b>     | 0                                |
| <b>Sample #:</b>         | KWG-016-10                                  | <b>Description:</b>  | Gravelly Sand, trace Clay & Silt |



| Clay & Silt                                    | Sand |        |        | Gravel |        |
|--|------|--------|--------|--------|--------|
|  | Fine | Medium | Coarse | Fine   | Coarse |
| Particle-Size Limits as per USCS (ASTM D-2487) |      |        |        |        |        |

| Soil Description                 | Gravel (%) | Sand (%) | Clay & Silt (%) |
|----------------------------------|------------|----------|-----------------|
| Gravelly Sand, trace Clay & Silt | 32         | 59       | 9               |



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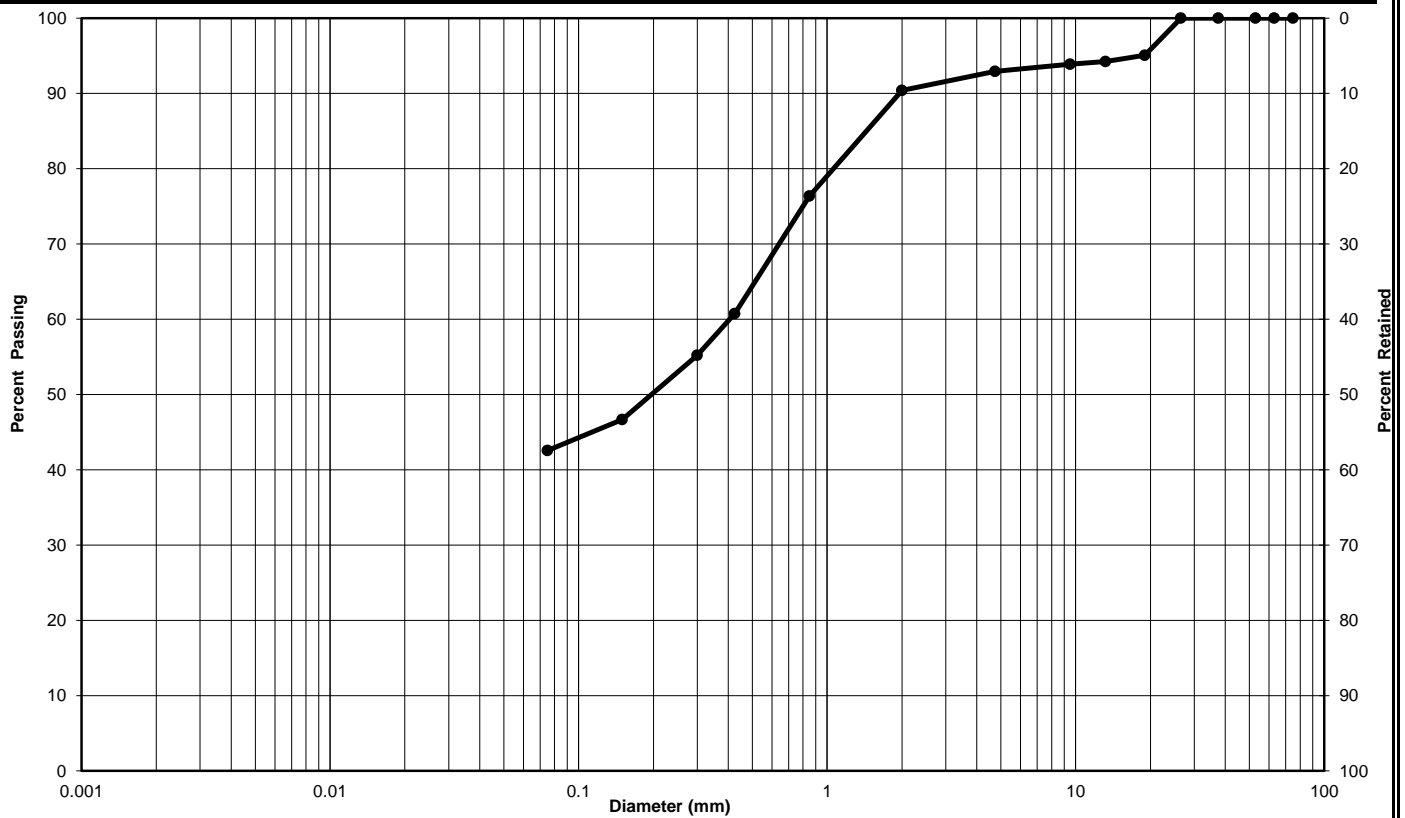
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**PARTICLE SIZE ANALYSIS OF SOILS**

|                          |   |                      |                                  |
|--------------------------|---|----------------------|----------------------------------|
| <b>DST Ref. No.:</b>     | TS-SO-29563                                 | <b>Date Sampled:</b> | January 0, 1900                  |
| <b>Project:</b>          | Trinity Development Group Geotech Investig. | <b>Sampled By:</b>   | 1900-01-00                       |
| <b>Client:</b>           | Trinity Development Group                   | <b>Source:</b>       | BH2017-11, SS-6                  |
| <b>Project Location:</b> | Ottawa, ON                                  | <b>Location:</b>     | 0                                |
| <b>Sample #:</b>         | KWG-016-12                                  | <b>Description:</b>  | Clay/Silt and Sand, trace Gravel |



| Clay & Silt                                    | Sand |        |        | Gravel |        |
|--|------|--------|--------|--------|--------|
|  | Fine | Medium | Coarse | Fine   | Coarse |
| Particle-Size Limits as per USCS (ASTM D-2487) |      |        |        |        |        |

| Soil Description                 | Gravel (%) | Sand (%) | Clay & Silt (%) |
|----------------------------------|------------|----------|-----------------|
| Clay/Silt and Sand, trace Gravel | 7          | 50       | 43              |



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**Attention: Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/06**  
Report #: R4578859  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7D5076**  
**Received: 2017/06/27, 17:30**

Sample Matrix: Soil  
# Samples Received: 3

| Analyses                                       | Quantity | Date       | Date       | Laboratory Method | Reference            |
|--|----------|------------|------------|-------------------|----------------------|
|  |          | Extracted  | Analyzed   |                   |                      |
| 1,3-Dichloropropene Sum (1)                    | 1        | N/A        | 2017/07/05 |                   | EPA 8260C m          |
| Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2) | 1        | N/A        | 2017/07/05 | CAM SOP-00315     | CCME PHC-CWS m       |
| Petroleum Hydrocarbons F2-F4 in Soil (1, 3)    | 2        | 2017/07/04 | 2017/07/05 | CAM SOP-00316     | CCME CWS m           |
| Strong Acid Leachable Metals by ICPMS (1)      | 1        | 2017/07/05 | 2017/07/05 | CAM SOP-00447     | EPA 6020B m          |
| Moisture (1)                                   | 1        | N/A        | 2017/06/30 | CAM SOP-00445     | Carter 2nd ed 51.2 m |
| Moisture (1)                                   | 1        | N/A        | 2017/07/04 | CAM SOP-00445     | Carter 2nd ed 51.2 m |
| Volatile Organic Compounds and F1 PHCs (1)     | 1        | N/A        | 2017/07/04 | CAM SOP-00230     | 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.

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.

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.

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

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

Your Project #: TS-SO-29563  
Your C.O.C. #: 617077-02-01

**Attention:Eve Sabourin**

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Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/06**  
Report #: R4578859  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7D5076**

**Received: 2017/06/27, 17:30**

- (1) This test was performed by Maxxam Analytics Mississauga
- (2) 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.
- (3) 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.  
Alison Cameron, Project Manager  
Email: ACameron@maxxam.ca  
Phone# (613) 274-0573

=====  
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.

**O.REG 153 ICPMS METALS (SOIL)**

|                                  |              |                      |            |                 |
|----------------------------------|--------------|----------------------|------------|-----------------|
| <b>Maxxam ID</b>                 |              | EQL304               |            |                 |
| <b>Sampling Date</b>             |              |                      |            |                 |
| <b>COC Number</b>                |              | 617077-02-01         |            |                 |
|                                  | <b>UNITS</b> | <b>BH2017-10SS13</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Metals</b>                    |              |                      |            |                 |
| Acid Extractable Antimony (Sb)   | ug/g         | 1.7                  | 0.20       | 5057954         |
| Acid Extractable Arsenic (As)    | ug/g         | 4.7                  | 1.0        | 5057954         |
| Acid Extractable Barium (Ba)     | ug/g         | 170                  | 0.50       | 5057954         |
| Acid Extractable Beryllium (Be)  | ug/g         | 0.46                 | 0.20       | 5057954         |
| Acid Extractable Boron (B)       | ug/g         | 7.3                  | 5.0        | 5057954         |
| Acid Extractable Cadmium (Cd)    | ug/g         | 0.24                 | 0.10       | 5057954         |
| Acid Extractable Chromium (Cr)   | ug/g         | 36                   | 1.0        | 5057954         |
| Acid Extractable Cobalt (Co)     | ug/g         | 9.5                  | 0.10       | 5057954         |
| Acid Extractable Copper (Cu)     | ug/g         | 30                   | 0.50       | 5057954         |
| Acid Extractable Lead (Pb)       | ug/g         | 70                   | 1.0        | 5057954         |
| Acid Extractable Molybdenum (Mo) | ug/g         | 1.6                  | 0.50       | 5057954         |
| Acid Extractable Nickel (Ni)     | ug/g         | 25                   | 0.50       | 5057954         |
| Acid Extractable Selenium (Se)   | ug/g         | <0.50                | 0.50       | 5057954         |
| Acid Extractable Silver (Ag)     | ug/g         | <0.20                | 0.20       | 5057954         |
| Acid Extractable Thallium (Tl)   | ug/g         | 0.20                 | 0.050      | 5057954         |
| Acid Extractable Uranium (U)     | ug/g         | 0.65                 | 0.050      | 5057954         |
| Acid Extractable Vanadium (V)    | ug/g         | 40                   | 5.0        | 5057954         |
| Acid Extractable Zinc (Zn)       | ug/g         | 90                   | 5.0        | 5057954         |
| RDL = Reportable Detection Limit |              |                      |            |                 |
| QC Batch = Quality Control Batch |              |                      |            |                 |

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

|                                   |              |                      |            |                 |
|-----------------------------------|--------------|----------------------|------------|-----------------|
| <b>Maxxam ID</b>                  |              | EQL302               |            |                 |
| <b>Sampling Date</b>              |              |                      |            |                 |
| <b>COC Number</b>                 |              | 617077-02-01         |            |                 |
|                                   | <b>UNITS</b> | <b>BH2017-10SS11</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Inorganics</b>                 |              |                      |            |                 |
| Moisture                          | %            | 14                   | 1.0        | 5054487         |
| <b>BTEX &amp; F1 Hydrocarbons</b> |              |                      |            |                 |
| Benzene                           | ug/g         | <0.020               | 0.020      | 5056992         |
| Toluene                           | ug/g         | <0.020               | 0.020      | 5056992         |
| Ethylbenzene                      | ug/g         | <0.020               | 0.020      | 5056992         |
| o-Xylene                          | ug/g         | <0.020               | 0.020      | 5056992         |
| p+m-Xylene                        | ug/g         | <0.040               | 0.040      | 5056992         |
| Total Xylenes                     | ug/g         | <0.040               | 0.040      | 5056992         |
| F1 (C6-C10)                       | ug/g         | <10                  | 10         | 5056992         |
| F1 (C6-C10) - BTEX                | ug/g         | <10                  | 10         | 5056992         |
| <b>F2-F4 Hydrocarbons</b>         |              |                      |            |                 |
| F2 (C10-C16 Hydrocarbons)         | ug/g         | <10                  | 10         | 5057039         |
| F3 (C16-C34 Hydrocarbons)         | ug/g         | <50                  | 50         | 5057039         |
| F4 (C34-C50 Hydrocarbons)         | ug/g         | <50                  | 50         | 5057039         |
| Reached Baseline at C50           | ug/g         | Yes                  |            | 5057039         |
| <b>Surrogate Recovery (%)</b>     |              |                      |            |                 |
| 1,4-Difluorobenzene               | %            | 99                   |            | 5056992         |
| 4-Bromofluorobenzene              | %            | 94                   |            | 5056992         |
| D10-Ethylbenzene                  | %            | 108                  |            | 5056992         |
| D4-1,2-Dichloroethane             | %            | 104                  |            | 5056992         |
| o-Terphenyl                       | %            | 87                   |            | 5057039         |
| RDL = Reportable Detection Limit  |              |                      |            |                 |
| QC Batch = Quality Control Batch  |              |                      |            |                 |

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

| Maxxam ID                           |       | EQX158        |       |          |
|-------------------------------------|-------|---------------|-------|----------|
| Sampling Date                       |       |               |       |          |
| COC Number                          |       | 617077-02-01  |       |          |
|                                     | UNITS | BH2017-10SS10 | RDL   | QC Batch |
| <b>Inorganics</b>                   |       |               |       |          |
| Moisture                            | %     | 12            | 1.0   | 5057421  |
| <b>Calculated Parameters</b>        |       |               |       |          |
| 1,3-Dichloropropene (cis+trans)     | ug/g  | <0.050        | 0.050 | 5053409  |
| <b>Volatile Organics</b>            |       |               |       |          |
| Acetone (2-Propanone)               | ug/g  | <0.50         | 0.50  | 5052442  |
| Benzene                             | ug/g  | <0.020        | 0.020 | 5052442  |
| Bromodichloromethane                | ug/g  | <0.050        | 0.050 | 5052442  |
| Bromoform                           | ug/g  | <0.050        | 0.050 | 5052442  |
| Bromomethane                        | ug/g  | <0.050        | 0.050 | 5052442  |
| Carbon Tetrachloride                | ug/g  | <0.050        | 0.050 | 5052442  |
| Chlorobenzene                       | ug/g  | <0.050        | 0.050 | 5052442  |
| Chloroform                          | ug/g  | <0.050        | 0.050 | 5052442  |
| Dibromochloromethane                | ug/g  | <0.050        | 0.050 | 5052442  |
| 1,2-Dichlorobenzene                 | ug/g  | <0.050        | 0.050 | 5052442  |
| 1,3-Dichlorobenzene                 | ug/g  | <0.050        | 0.050 | 5052442  |
| 1,4-Dichlorobenzene                 | ug/g  | <0.050        | 0.050 | 5052442  |
| Dichlorodifluoromethane (FREON 12)  | ug/g  | <0.050        | 0.050 | 5052442  |
| 1,1-Dichloroethane                  | ug/g  | <0.050        | 0.050 | 5052442  |
| 1,2-Dichloroethane                  | ug/g  | <0.050        | 0.050 | 5052442  |
| 1,1-Dichloroethylene                | ug/g  | <0.050        | 0.050 | 5052442  |
| cis-1,2-Dichloroethylene            | ug/g  | <0.050        | 0.050 | 5052442  |
| trans-1,2-Dichloroethylene          | ug/g  | <0.050        | 0.050 | 5052442  |
| 1,2-Dichloropropane                 | ug/g  | <0.050        | 0.050 | 5052442  |
| cis-1,3-Dichloropropene             | ug/g  | <0.030        | 0.030 | 5052442  |
| trans-1,3-Dichloropropene           | ug/g  | <0.040        | 0.040 | 5052442  |
| Ethylbenzene                        | ug/g  | <0.020        | 0.020 | 5052442  |
| Ethylene Dibromide                  | ug/g  | <0.050        | 0.050 | 5052442  |
| Hexane                              | ug/g  | <0.050        | 0.050 | 5052442  |
| Methylene Chloride(Dichloromethane) | ug/g  | <0.050        | 0.050 | 5052442  |
| Methyl Ethyl Ketone (2-Butanone)    | ug/g  | <0.50         | 0.50  | 5052442  |
| Methyl Isobutyl Ketone              | ug/g  | <0.50         | 0.50  | 5052442  |
| Methyl t-butyl ether (MTBE)         | ug/g  | <0.050        | 0.050 | 5052442  |
| Styrene                             | ug/g  | <0.050        | 0.050 | 5052442  |
| 1,1,1,2-Tetrachloroethane           | ug/g  | <0.050        | 0.050 | 5052442  |
| 1,1,2,2-Tetrachloroethane           | ug/g  | <0.050        | 0.050 | 5052442  |
| Tetrachloroethylene                 | ug/g  | <0.050        | 0.050 | 5052442  |
| RDL = Reportable Detection Limit    |       |               |       |          |
| QC Batch = Quality Control Batch    |       |               |       |          |

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

|                                   |              |                      |            |                 |
|-----------------------------------|--------------|----------------------|------------|-----------------|
| <b>Maxxam ID</b>                  |              | EQX158               |            |                 |
| <b>Sampling Date</b>              |              |                      |            |                 |
| <b>COC Number</b>                 |              | 617077-02-01         |            |                 |
|                                   | <b>UNITS</b> | <b>BH2017-10SS10</b> | <b>RDL</b> | <b>QC Batch</b> |
| Toluene                           | ug/g         | <0.020               | 0.020      | 5052442         |
| 1,1,1-Trichloroethane             | ug/g         | <0.050               | 0.050      | 5052442         |
| 1,1,2-Trichloroethane             | ug/g         | <0.050               | 0.050      | 5052442         |
| Trichloroethylene                 | ug/g         | <0.050               | 0.050      | 5052442         |
| Trichlorofluoromethane (FREON 11) | ug/g         | <0.050               | 0.050      | 5052442         |
| Vinyl Chloride                    | ug/g         | <0.020               | 0.020      | 5052442         |
| p+m-Xylene                        | ug/g         | <0.020               | 0.020      | 5052442         |
| o-Xylene                          | ug/g         | <0.020               | 0.020      | 5052442         |
| Total Xylenes                     | ug/g         | <0.020               | 0.020      | 5052442         |
| F1 (C6-C10)                       | ug/g         | <10                  | 10         | 5052442         |
| F1 (C6-C10) - BTEX                | ug/g         | <10                  | 10         | 5052442         |
| <b>F2-F4 Hydrocarbons</b>         |              |                      |            |                 |
| F2 (C10-C16 Hydrocarbons)         | ug/g         | <10                  | 10         | 5057241         |
| F3 (C16-C34 Hydrocarbons)         | ug/g         | <50                  | 50         | 5057241         |
| F4 (C34-C50 Hydrocarbons)         | ug/g         | <50                  | 50         | 5057241         |
| Reached Baseline at C50           | ug/g         | Yes                  |            | 5057241         |
| <b>Surrogate Recovery (%)</b>     |              |                      |            |                 |
| o-Terphenyl                       | %            | 94                   |            | 5057241         |
| 4-Bromofluorobenzene              | %            | 95                   |            | 5052442         |
| D10-o-Xylene                      | %            | 107                  |            | 5052442         |
| D4-1,2-Dichloroethane             | %            | 103                  |            | 5052442         |
| D8-Toluene                        | %            | 98                   |            | 5052442         |
| RDL = Reportable Detection Limit  |              |                      |            |                 |
| QC Batch = Quality Control Batch  |              |                      |            |                 |

### TEST SUMMARY

**Maxxam ID:** EQL302  
**Sample ID:** BH2017-10SS11  
**Matrix:** Soil

**Collected:**  
**Shipped:**  
**Received:** 2017/06/27

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst          |
|---|-----------------|---------|------------|---------------|------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5056992 | N/A        | 2017/07/05    | Anca Ganea       |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5057039 | 2017/07/04 | 2017/07/05    | Atoosa Keshavarz |
| Moisture                                | BAL             | 5054487 | N/A        | 2017/06/30    | Min Yang         |

**Maxxam ID:** EQL304  
**Sample ID:** BH2017-10SS13  
**Matrix:** Soil

**Collected:**  
**Shipped:**  
**Received:** 2017/06/27

| Test Description                      | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst            |
|---------------------------------------|-----------------|---------|------------|---------------|--------------------|
| Strong Acid Leachable Metals by ICPMS | ICP/MS          | 5057954 | 2017/07/05 | 2017/07/05    | Viviana Canzonieri |

**Maxxam ID:** EQX158  
**Sample ID:** BH2017-10SS10  
**Matrix:** Soil

**Collected:**  
**Shipped:**  
**Received:** 2017/06/27

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|--|-----------------|---------|------------|---------------|-------------------|
| 1,3-Dichloropropene Sum                | CALC            | 5053409 | N/A        | 2017/07/05    | Automated Statchk |
| Petroleum Hydrocarbons F2-F4 in Soil   | GC/FID          | 5057241 | 2017/07/04 | 2017/07/05    | Atoosa Keshavarz  |
| Moisture                               | BAL             | 5057421 | N/A        | 2017/07/04    | Valentina Kaftani |
| Volatile Organic Compounds and F1 PHCs | GC/MSFD         | 5052442 | N/A        | 2017/07/04    | Karen Hughes      |

### GENERAL COMMENTS

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

|           |        |
|-----------|--------|
| Package 1 | 11.0°C |
|-----------|--------|

Sample EQL302 [BH2017-10SS11] : F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample EQX158 [BH2017-10SS10] : VOC Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

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

### QUALITY ASSURANCE REPORT

| QC Batch | Parameter                 | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|---------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                           |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5052442  | 4-Bromofluorobenzene      | 2017/07/03 | 101          | 60 - 140  | 101          | 60 - 140  | 96           | %     |           |           |
| 5052442  | D10-o-Xylene              | 2017/07/03 | 98           | 60 - 130  | 93           | 60 - 130  | 85           | %     |           |           |
| 5052442  | D4-1,2-Dichloroethane     | 2017/07/03 | 102          | 60 - 140  | 101          | 60 - 140  | 106          | %     |           |           |
| 5052442  | D8-Toluene                | 2017/07/03 | 99           | 60 - 140  | 99           | 60 - 140  | 97           | %     |           |           |
| 5056992  | 1,4-Difluorobenzene       | 2017/07/04 | 97           | 60 - 140  | 99           | 60 - 140  | 98           | %     |           |           |
| 5056992  | 4-Bromofluorobenzene      | 2017/07/04 | 99           | 60 - 140  | 99           | 60 - 140  | 95           | %     |           |           |
| 5056992  | D10-Ethylbenzene          | 2017/07/04 | 94           | 60 - 140  | 107          | 60 - 140  | 99           | %     |           |           |
| 5056992  | D4-1,2-Dichloroethane     | 2017/07/04 | 100          | 60 - 140  | 101          | 60 - 140  | 105          | %     |           |           |
| 5057039  | o-Terphenyl               | 2017/07/04 | 103          | 60 - 130  | 91           | 60 - 130  | 85           | %     |           |           |
| 5057241  | o-Terphenyl               | 2017/07/04 | 98           | 60 - 130  | 102          | 60 - 130  | 96           | %     |           |           |
| 5052442  | 1,1,1,2-Tetrachloroethane | 2017/07/03 | 101          | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | 1,1,1-Trichloroethane     | 2017/07/03 | 97           | 60 - 140  | 96           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | 1,1,2,2-Tetrachloroethane | 2017/07/03 | 95           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | 1,1,2-Trichloroethane     | 2017/07/03 | 94           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | 1,1-Dichloroethane        | 2017/07/03 | 97           | 60 - 140  | 97           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | 1,1-Dichloroethylene      | 2017/07/03 | 100          | 60 - 140  | 100          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | 1,2-Dichlorobenzene       | 2017/07/03 | 91           | 60 - 140  | 91           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | 1,2-Dichloroethane        | 2017/07/03 | 94           | 60 - 140  | 94           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | 1,2-Dichloropropane       | 2017/07/03 | 91           | 60 - 140  | 90           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | 1,3-Dichlorobenzene       | 2017/07/03 | 93           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | 1,4-Dichlorobenzene       | 2017/07/03 | 93           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Acetone (2-Propanone)     | 2017/07/03 | 81           | 60 - 140  | 85           | 60 - 140  | <0.50        | ug/g  | NC        | 50        |
| 5052442  | Benzene                   | 2017/07/03 | 97           | 60 - 140  | 97           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5052442  | Bromodichloromethane      | 2017/07/03 | 93           | 60 - 140  | 93           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Bromoform                 | 2017/07/03 | 100          | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Bromomethane              | 2017/07/03 | 92           | 60 - 140  | 92           | 60 - 140  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Carbon Tetrachloride      | 2017/07/03 | 97           | 60 - 140  | 97           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Chlorobenzene             | 2017/07/03 | 92           | 60 - 140  | 92           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Chloroform                | 2017/07/03 | 94           | 60 - 140  | 94           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | cis-1,2-Dichloroethylene  | 2017/07/03 | 95           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | cis-1,3-Dichloropropene   | 2017/07/03 | 87           | 60 - 140  | 84           | 60 - 130  | <0.030       | ug/g  | NC        | 50        |
| 5052442  | Dibromochloromethane      | 2017/07/03 | 98           | 60 - 140  | 99           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                           | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|-------------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                     |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5052442  | Dichlorodifluoromethane (FREON 12)  | 2017/07/03 | 99           | 60 - 140  | 97           | 60 - 140  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Ethylbenzene                        | 2017/07/03 | 91           | 60 - 140  | 91           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5052442  | Ethylene Dibromide                  | 2017/07/03 | 100          | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | F1 (C6-C10) - BTEX                  | 2017/07/03 |              |           |              |           | <10          | ug/g  | NC        | 30        |
| 5052442  | F1 (C6-C10)                         | 2017/07/03 | 112          | 60 - 140  | 101          | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5052442  | Hexane                              | 2017/07/03 | 99           | 60 - 140  | 100          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Methyl Ethyl Ketone (2-Butanone)    | 2017/07/03 | 84           | 60 - 140  | 87           | 60 - 140  | <0.50        | ug/g  | NC        | 50        |
| 5052442  | Methyl Isobutyl Ketone              | 2017/07/03 | 82           | 60 - 140  | 83           | 60 - 130  | <0.50        | ug/g  | NC        | 50        |
| 5052442  | Methyl t-butyl ether (MTBE)         | 2017/07/03 | 93           | 60 - 140  | 94           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Methylene Chloride(Dichloromethane) | 2017/07/03 | 97           | 60 - 140  | 97           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | o-Xylene                            | 2017/07/03 | 90           | 60 - 140  | 90           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5052442  | p+m-Xylene                          | 2017/07/03 | 91           | 60 - 140  | 92           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5052442  | Styrene                             | 2017/07/03 | 88           | 60 - 140  | 89           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Tetrachloroethylene                 | 2017/07/03 | 90           | 60 - 140  | 90           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Toluene                             | 2017/07/03 | 98           | 60 - 140  | 98           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5052442  | Total Xylenes                       | 2017/07/03 |              |           |              |           | <0.020       | ug/g  | NC        | 50        |
| 5052442  | trans-1,2-Dichloroethylene          | 2017/07/03 | 91           | 60 - 140  | 93           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | trans-1,3-Dichloropropene           | 2017/07/03 | 85           | 60 - 140  | 83           | 60 - 130  | <0.040       | ug/g  | NC        | 50        |
| 5052442  | Trichloroethylene                   | 2017/07/03 | 94           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Trichlorofluoromethane (FREON 11)   | 2017/07/03 | 99           | 60 - 140  | 99           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5052442  | Vinyl Chloride                      | 2017/07/03 | 84           | 60 - 140  | 84           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5054487  | Moisture                            | 2017/06/30 |              |           |              |           |              |       | 3.5       | 20        |
| 5056992  | Benzene                             | 2017/07/04 | 92           | 60 - 140  | 112          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5056992  | Ethylbenzene                        | 2017/07/04 | 96           | 60 - 140  | 117          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5056992  | F1 (C6-C10) - BTEX                  | 2017/07/04 |              |           |              |           | <10          | ug/g  | NC        | 30        |
| 5056992  | F1 (C6-C10)                         | 2017/07/04 | 81           | 60 - 140  | 98           | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5056992  | o-Xylene                            | 2017/07/04 | 98           | 60 - 140  | 123          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5056992  | p+m-Xylene                          | 2017/07/04 | 95           | 60 - 140  | 118          | 60 - 140  | <0.040       | ug/g  | NC        | 50        |
| 5056992  | Toluene                             | 2017/07/04 | 90           | 60 - 140  | 111          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5056992  | Total Xylenes                       | 2017/07/04 |              |           |              |           | <0.040       | ug/g  | NC        | 50        |
| 5057039  | F2 (C10-C16 Hydrocarbons)           | 2017/07/05 | 117          | 50 - 130  | 99           | 80 - 120  | <10          | ug/g  | 10        | 30        |
| 5057039  | F3 (C16-C34 Hydrocarbons)           | 2017/07/05 | 108          | 50 - 130  | 99           | 80 - 120  | <50          | ug/g  | 5.9       | 30        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                        | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|----------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                  |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5057039  | F4 (C34-C50 Hydrocarbons)        | 2017/07/05 | 109          | 50 - 130  | 103          | 80 - 120  | <50          | ug/g  | NC        | 30        |
| 5057241  | F2 (C10-C16 Hydrocarbons)        | 2017/07/05 | 103          | 50 - 130  | 105          | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5057241  | F3 (C16-C34 Hydrocarbons)        | 2017/07/05 | 93           | 50 - 130  | 104          | 80 - 120  | <50          | ug/g  | NC (1)    | 30        |
| 5057241  | F4 (C34-C50 Hydrocarbons)        | 2017/07/05 | 71           | 50 - 130  | 99           | 80 - 120  | <50          | ug/g  | 158 (1)   | 30        |
| 5057421  | Moisture                         | 2017/07/04 |              |           |              |           |              |       | 0         | 20        |
| 5057954  | Acid Extractable Antimony (Sb)   | 2017/07/05 | 94           | 75 - 125  | 99           | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5057954  | Acid Extractable Arsenic (As)    | 2017/07/05 | 100          | 75 - 125  | 100          | 80 - 120  | <1.0         | ug/g  | 8.5       | 30        |
| 5057954  | Acid Extractable Barium (Ba)     | 2017/07/05 | 100          | 75 - 125  | 99           | 80 - 120  | <0.50        | ug/g  | 6.5       | 30        |
| 5057954  | Acid Extractable Beryllium (Be)  | 2017/07/05 | 99           | 75 - 125  | 99           | 80 - 120  | <0.20        | ug/g  | 5.2       | 30        |
| 5057954  | Acid Extractable Boron (B)       | 2017/07/05 | 103          | 75 - 125  | 102          | 80 - 120  | <5.0         | ug/g  | 7.4       | 30        |
| 5057954  | Acid Extractable Cadmium (Cd)    | 2017/07/05 | 96           | 75 - 125  | 97           | 80 - 120  | <0.10        | ug/g  | NC        | 30        |
| 5057954  | Acid Extractable Chromium (Cr)   | 2017/07/05 | 105          | 75 - 125  | 100          | 80 - 120  | <1.0         | ug/g  | 2.0       | 30        |
| 5057954  | Acid Extractable Cobalt (Co)     | 2017/07/05 | 100          | 75 - 125  | 101          | 80 - 120  | <0.10        | ug/g  | 0.52      | 30        |
| 5057954  | Acid Extractable Copper (Cu)     | 2017/07/05 | 96           | 75 - 125  | 102          | 80 - 120  | <0.50        | ug/g  | 26        | 30        |
| 5057954  | Acid Extractable Lead (Pb)       | 2017/07/05 | 95           | 75 - 125  | 101          | 80 - 120  | <1.0         | ug/g  | 7.4       | 30        |
| 5057954  | Acid Extractable Molybdenum (Mo) | 2017/07/05 | 99           | 75 - 125  | 96           | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5057954  | Acid Extractable Nickel (Ni)     | 2017/07/05 | 100          | 75 - 125  | 100          | 80 - 120  | <0.50        | ug/g  | 3.4       | 30        |
| 5057954  | Acid Extractable Selenium (Se)   | 2017/07/05 | 98           | 75 - 125  | 104          | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5057954  | Acid Extractable Silver (Ag)     | 2017/07/05 | 100          | 75 - 125  | 101          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5057954  | Acid Extractable Thallium (Tl)   | 2017/07/05 | 92           | 75 - 125  | 98           | 80 - 120  | <0.050       | ug/g  | 27        | 30        |
| 5057954  | Acid Extractable Uranium (U)     | 2017/07/05 | 95           | 75 - 125  | 98           | 80 - 120  | <0.050       | ug/g  | 0.63      | 30        |
| 5057954  | Acid Extractable Vanadium (V)    | 2017/07/05 | 101          | 75 - 125  | 98           | 80 - 120  | <5.0         | ug/g  | NC        | 30        |
| 5057954  | Acid Extractable Zinc (Zn)       | 2017/07/05 | 96           | 75 - 125  | 96           | 80 - 120  | <5.0         | ug/g  | 2.5       | 30        |

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

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

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

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

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

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

(1) Duplicate results exceeded RPD acceptance criteria for flagged analytes. This is likely due to sample heterogeneity.

**VALIDATION SIGNATURE PAGE**

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

*Cristina Carriere*

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Cristina Carriere, Scientific Services

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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.

**INVOICE TO:**  
 Company Name: #3624 - DST Consulting Engineering Ltd  
 Attention: Accounts Payable  
 Address: 2150 Thurston Dr Unit 203  
 Ottawa ON K1G 5T9  
 Tel: (613) 748-1415 x Fax: (613) 748-1356 x  
 Email: ap@dstgroup.com

**REPORT TO:**  
 Company Name: Eve Sabourin  
 Attention: Eve Sabourin  
 Address:  
 Tel: Fax:  
 Email: esabourin@dstgroup.com

**PROJECT INFORMATION:**  
 Quotation #: B61802  
 P.O. #:  
 Project: TS-SO-29563  
 Project Name:  
 Site #:  
 Sampled By:

27-Jun-17 17:30  
 Alison Cameron  
 B7D5076  
 MAF ENV-900  
 C#617077-02-01

Page 1 of 1  
 Bottle Order #: B7D5076  
 Project Manager: Alison Cameron

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

| Regulation 153 (2011)  | Other Regulations  | Special Instructions  |
|--|--|---|
| <input type="checkbox"/> Table 1<br><input type="checkbox"/> Table 2<br><input type="checkbox"/> Table 3<br><input type="checkbox"/> Table | <input type="checkbox"/> Res./Park<br><input type="checkbox"/> Ind./Comm<br><input type="checkbox"/> Agri/Other<br><input type="checkbox"/> Medium/Fine<br><input type="checkbox"/> Coarse<br><input type="checkbox"/> For RSC | <input type="checkbox"/> CCME<br><input type="checkbox"/> Sanitary Sewer Bylaw<br><input type="checkbox"/> Reg 558<br><input type="checkbox"/> Storm Sewer Bylaw<br><input type="checkbox"/> MISA Municipality<br><input type="checkbox"/> PWQO<br><input type="checkbox"/> Other |

**ANALYSIS REQUESTED (PLEASE BE SPECIFIC)**

Field Filtered (please circle): Metals / Hg / Cr-VI  
 D.Reg 153 Metals by HS & F1-F4 (Soil) X  
 D.Reg 153 PAHs (Soil) X  
 D.Reg 153 ICPMS Metals (Soil) X

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

**Regular (Standard) TAT:**  
 (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 > 3 days - contact your Project Manager for details.  
**Job Specific Rush TAT (if applies to entire submission)**  
 Date Required: Time Required:   
 Rush Confirmation Number: (call job for #)

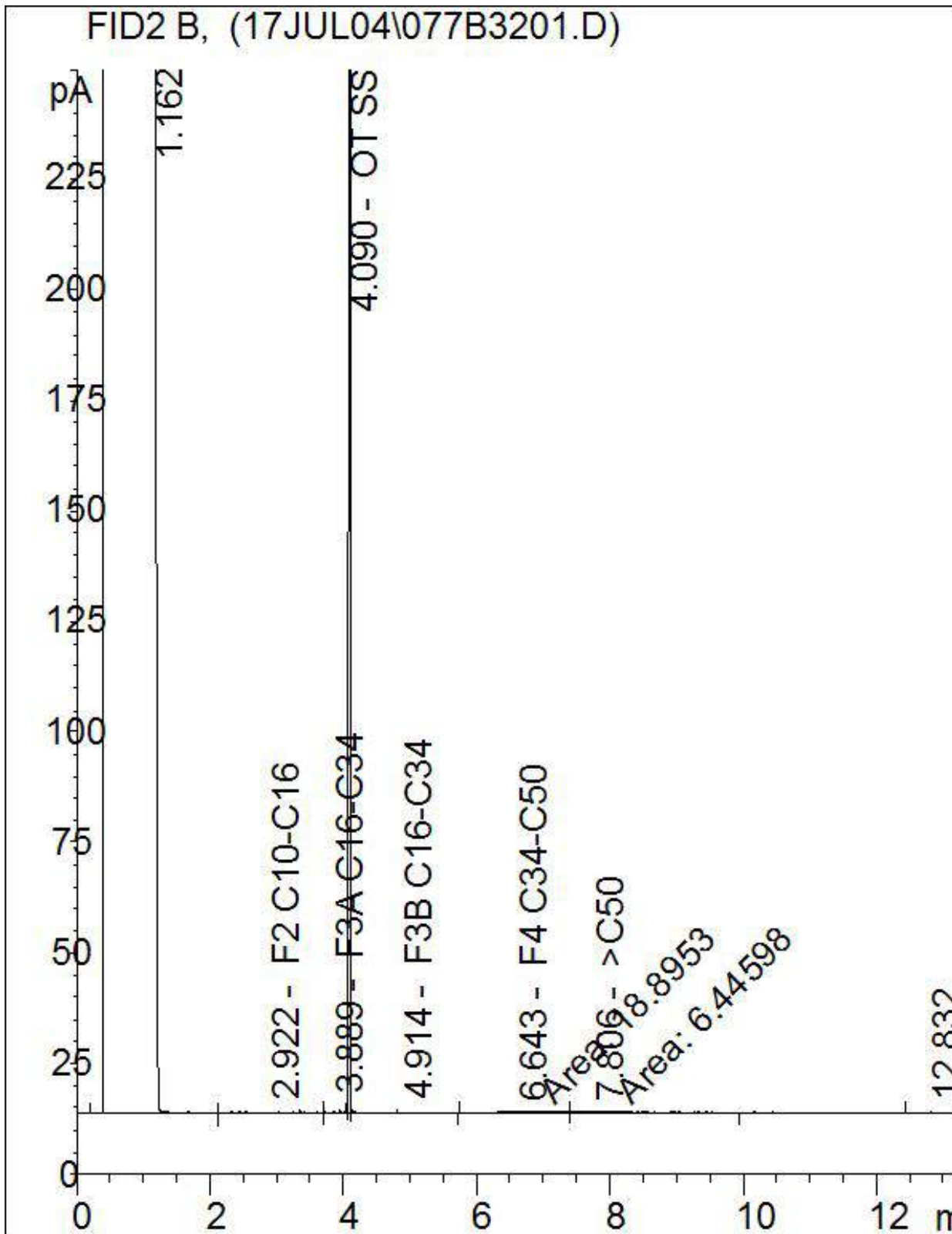
| Sample Barcode Label | Sample (Location) Identification | Date Sampled | Time Sampled | Matrix | Field Filtered (please circle): Metals / Hg / Cr-VI | D.Reg 153 Metals by HS & F1-F4 (Soil) | D.Reg 153 PAHs (Soil) | D.Reg 153 ICPMS Metals (Soil) | # of Bottles |   | Comments           |
|----------------------|----------------------------------|--------------|--------------|--------|---|---------------------------------------|-----------------------|-------------------------------|--------------|---|--------------------|
| 1                    | BH2017-10SS11                    | 27/06/17     |              |        |   | X                                     |                       |                               | 1            | 1 | no VOC             |
| 2                    | BH2017-10SS14                    | 27/06/17     |              |        |   | X                                     |                       |                               | 1            | 1 | VOC as well        |
| 3                    | BH2017-10SS13                    | 27/06/17     |              |        |   |                                       |                       | X                             | 1            | 1 |                    |
| 4                    | <del>BH2017-2-SS1</del>          |              |              |        |   |                                       |                       |                               |              |   |                    |
| 5                    | <del>BH2017-2-SS2</del>          |              |              |        |   |                                       |                       |                               |              |   |                    |
| 6                    | <del>BH2017-2-SS3</del>          |              |              |        |   |                                       |                       |                               |              |   |                    |
| 7                    | <del>BH2017-2-SS4</del>          |              |              |        |   |                                       |                       |                               |              |   | RECEIVED IN OTTAWA |
| 8                    | <del>BH2017-2-SS5</del>          |              |              |        |   |                                       |                       |                               |              |   |                    |
| 9                    | <del>BH2017-2-SS6</del>          |              |              |        |   |                                       |                       |                               |              |   |                    |
| 10                   | <del>BH2017-2-SS7</del>          |              |              |        |   |                                       |                       |                               |              |   | ON FILE            |

|                                    |                  |      |                                |                  |       |                               |                     |                          |                      |     |    |
|------------------------------------|------------------|------|--------------------------------|------------------|-------|-------------------------------|---------------------|--------------------------|----------------------|-----|----|
| RELINQUISHED BY: (Signature/Print) | Date: (YY/MM/DD) | Time | RECEIVED BY: (Signature/Print) | Date: (YY/MM/DD) | Time  | # jars used and not submitted | Laboratory Use Only |                          |                      |     |    |
| [Signature]                        | 17/06/17         | 5:30 | [Signature]                    | 27/06/17         | 17:30 |                               | Time Sensitive      | Temperature (°C) on Reel | Custody Seal Present | Yes | No |
|                                    |                  |      |                                |                  |       |                               |                     | 12.10.11                 | Intact               |     | X  |

\* 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.  
 White: Maxxa Yellow: Client  
 SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM.

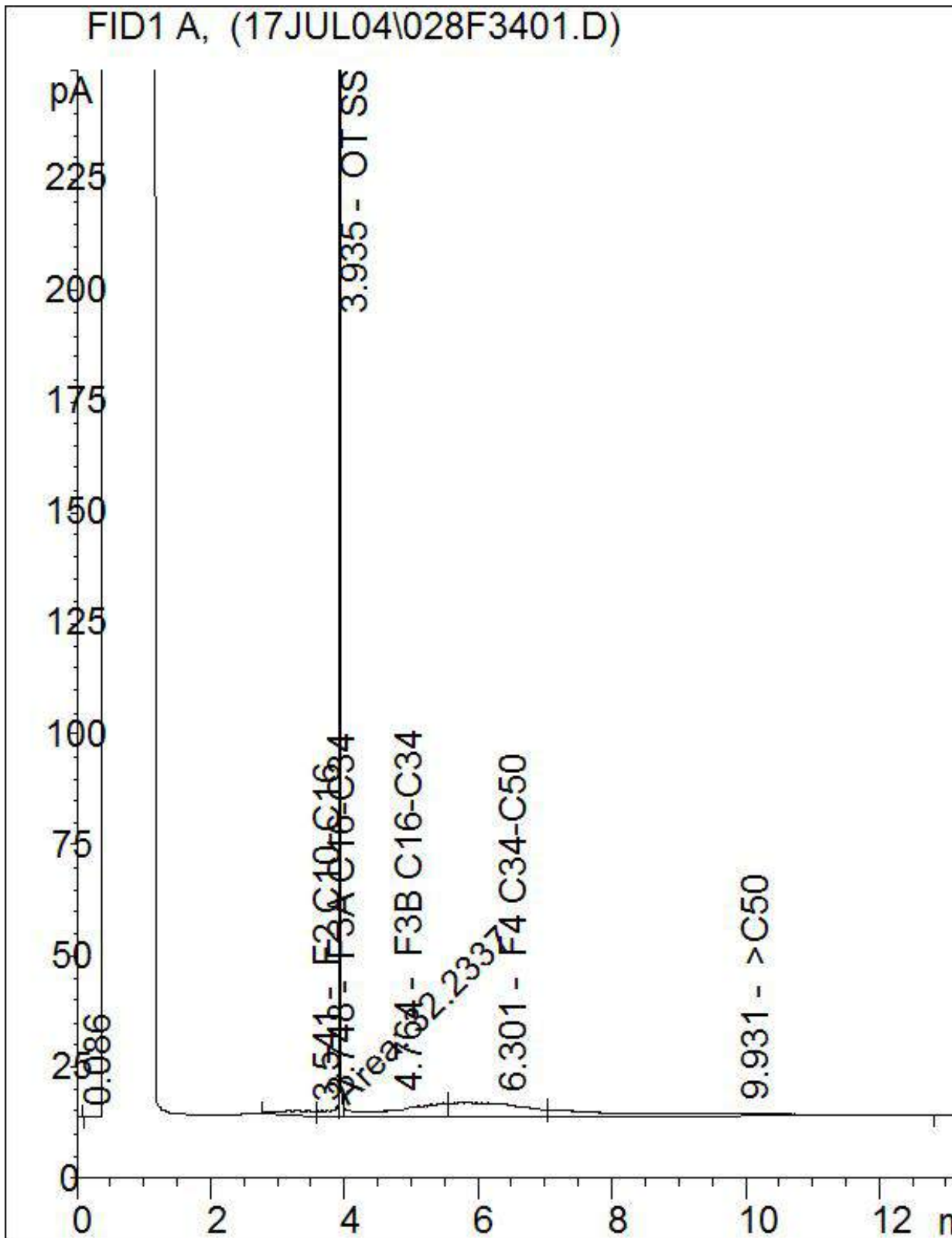
Alison Cameron 2017/06/27 22:30  
 9/9/8

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.

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.

**Attention: Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/18**  
Report #: R4602719  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7D5083**  
**Received: 2017/06/27, 17:30**

Sample Matrix: Soil  
# Samples Received: 3

| Analyses                                       | Quantity | Date       | Date       | Laboratory Method | Reference            |
|--|----------|------------|------------|-------------------|----------------------|
|  |          | Extracted  | Analyzed   |                   |                      |
| Methylnaphthalene Sum (1)                      | 1        | N/A        | 2017/07/18 | CAM SOP-00301     | EPA 8270D m          |
| Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2) | 2        | N/A        | 2017/07/05 | CAM SOP-00315     | CCME PHC-CWS m       |
| Petroleum Hydrocarbons F2-F4 in Soil (1, 3)    | 2        | 2017/07/02 | 2017/07/04 | CAM SOP-00316     | CCME CWS m           |
| Temporary Hold - 1 Day Fridge (1)              | 1        | N/A        | 2017/07/05 |                   |                      |
| Strong Acid Leachable Metals by ICPMS (1)      | 1        | 2017/06/30 | 2017/07/04 | CAM SOP-00447     | EPA 6020B m          |
| Moisture (1)                                   | 2        | N/A        | 2017/06/30 | CAM SOP-00445     | Carter 2nd ed 51.2 m |
| PAH Compounds in Soil by GC/MS (SIM) (1)       | 1        | 2017/07/14 | 2017/07/17 | CAM SOP-00318     | EPA 8270D 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.

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.

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.

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

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

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

Your Project #: TS-SO-29563  
Your C.O.C. #: 617077-13-01

**Attention:Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/18**  
Report #: R4602719  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7D5083**

**Received: 2017/06/27, 17:30**

- (1) This test was performed by Maxxam Analytics Mississauga
- (2) 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.
- (3) 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.  
Alison Cameron, Project Manager  
Email: ACameron@maxxam.ca  
Phone# (613) 274-0573

=====  
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.

**O.REG 153 ICPMS METALS (SOIL)**

|                                  |              |                     |            |                 |
|----------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                 |              | EQL314              |            |                 |
| <b>Sampling Date</b>             |              | 2017/06/27          |            |                 |
| <b>COC Number</b>                |              | 617077-13-01        |            |                 |
|                                  | <b>UNITS</b> | <b>BH2017-7 SS5</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Metals</b>                    |              |                     |            |                 |
| Acid Extractable Antimony (Sb)   | ug/g         | <0.20               | 0.20       | 5053798         |
| Acid Extractable Arsenic (As)    | ug/g         | 1.8                 | 1.0        | 5053798         |
| Acid Extractable Barium (Ba)     | ug/g         | 40                  | 0.50       | 5053798         |
| Acid Extractable Beryllium (Be)  | ug/g         | 0.22                | 0.20       | 5053798         |
| Acid Extractable Boron (B)       | ug/g         | <5.0                | 5.0        | 5053798         |
| Acid Extractable Cadmium (Cd)    | ug/g         | <0.10               | 0.10       | 5053798         |
| Acid Extractable Chromium (Cr)   | ug/g         | 14                  | 1.0        | 5053798         |
| Acid Extractable Cobalt (Co)     | ug/g         | 4.0                 | 0.10       | 5053798         |
| Acid Extractable Copper (Cu)     | ug/g         | 7.9                 | 0.50       | 5053798         |
| Acid Extractable Lead (Pb)       | ug/g         | 7.7                 | 1.0        | 5053798         |
| Acid Extractable Molybdenum (Mo) | ug/g         | 2.3                 | 0.50       | 5053798         |
| Acid Extractable Nickel (Ni)     | ug/g         | 8.5                 | 0.50       | 5053798         |
| Acid Extractable Selenium (Se)   | ug/g         | <0.50               | 0.50       | 5053798         |
| Acid Extractable Silver (Ag)     | ug/g         | <0.20               | 0.20       | 5053798         |
| Acid Extractable Thallium (Tl)   | ug/g         | 0.087               | 0.050      | 5053798         |
| Acid Extractable Uranium (U)     | ug/g         | 0.46                | 0.050      | 5053798         |
| Acid Extractable Vanadium (V)    | ug/g         | 18                  | 5.0        | 5053798         |
| Acid Extractable Zinc (Zn)       | ug/g         | 18                  | 5.0        | 5053798         |
| RDL = Reportable Detection Limit |              |                     |            |                 |
| QC Batch = Quality Control Batch |              |                     |            |                 |

**O.REG 153 PAHS (SOIL)**

|   |              |                     |            |                 |
|---|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>  |              | EQL315              |            |                 |
| <b>Sampling Date</b>  |              | 2017/06/27          |            |                 |
| <b>COC Number</b>   |              | 617077-13-01        |            |                 |
|   | <b>UNITS</b> | <b>BH2017-7 SS8</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>  |              |                     |            |                 |
| Methylnaphthalene, 2-(1-)   | ug/g         | <0.0071             | 0.0071     | 5066838         |
| <b>Polyaromatic Hydrocarbons</b>  |              |                     |            |                 |
| Acenaphthene  | ug/g         | <0.010 (1)          | 0.010      | 5074320         |
| Acenaphthylene  | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Anthracene  | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Benzo(a)anthracene  | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Benzo(a)pyrene  | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Benzo(b/j)fluoranthene  | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Benzo(g,h,i)perylene  | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Benzo(k)fluoranthene  | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Chrysene  | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Dibenz(a,h)anthracene   | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Fluoranthene  | ug/g         | 0.012               | 0.0050     | 5074320         |
| Fluorene  | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Indeno(1,2,3-cd)pyrene  | ug/g         | <0.0050             | 0.0050     | 5074320         |
| 1-Methylnaphthalene   | ug/g         | <0.0050             | 0.0050     | 5074320         |
| 2-Methylnaphthalene   | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Naphthalene   | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Phenanthrene  | ug/g         | <0.0050             | 0.0050     | 5074320         |
| Pyrene  | ug/g         | 0.048               | 0.0050     | 5074320         |
| <b>Surrogate Recovery (%)</b>   |              |                     |            |                 |
| D10-Anthracene  | %            | 92                  |            | 5074320         |
| D14-Terphenyl (FS)  | %            | 91                  |            | 5074320         |
| D8-Acenaphthylene   | %            | 85                  |            | 5074320         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>(1) DL was raised due to matrix interference. |              |                     |            |                 |

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

| Maxxam ID                         |              | EQL313               | EQL315              |            |                 |
|-----------------------------------|--------------|----------------------|---------------------|------------|-----------------|
| Sampling Date                     |              | 2017/06/27           | 2017/06/27          |            |                 |
| COC Number                        |              | 617077-13-01         | 617077-13-01        |            |                 |
|                                   | <b>UNITS</b> | <b>BH2017-7 SS14</b> | <b>BH2017-7 SS8</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Inorganics</b>                 |              |                      |                     |            |                 |
| Moisture                          | %            | 13                   | 30                  | 1.0        | 5053923         |
| <b>BTEX &amp; F1 Hydrocarbons</b> |              |                      |                     |            |                 |
| Benzene                           | ug/g         | <0.020               | <0.020              | 0.020      | 5057671         |
| Toluene                           | ug/g         | <0.020               | <0.020              | 0.020      | 5057671         |
| Ethylbenzene                      | ug/g         | <0.020               | <0.020              | 0.020      | 5057671         |
| o-Xylene                          | ug/g         | 0.023                | <0.020              | 0.020      | 5057671         |
| p+m-Xylene                        | ug/g         | 0.081                | <0.040              | 0.040      | 5057671         |
| Total Xylenes                     | ug/g         | 0.10                 | <0.040              | 0.040      | 5057671         |
| F1 (C6-C10)                       | ug/g         | <10                  | <10                 | 10         | 5057671         |
| F1 (C6-C10) - BTEX                | ug/g         | <10                  | <10                 | 10         | 5057671         |
| <b>F2-F4 Hydrocarbons</b>         |              |                      |                     |            |                 |
| F2 (C10-C16 Hydrocarbons)         | ug/g         | <10                  | 310                 | 10         | 5055587         |
| F3 (C16-C34 Hydrocarbons)         | ug/g         | <50                  | 340                 | 50         | 5055587         |
| F4 (C34-C50 Hydrocarbons)         | ug/g         | <50                  | <50                 | 50         | 5055587         |
| Reached Baseline at C50           | ug/g         | Yes                  | Yes                 |            | 5055587         |
| <b>Surrogate Recovery (%)</b>     |              |                      |                     |            |                 |
| 1,4-Difluorobenzene               | %            | 104                  | 100                 |            | 5057671         |
| 4-Bromofluorobenzene              | %            | 106                  | 107                 |            | 5057671         |
| D10-Ethylbenzene                  | %            | 89                   | 87                  |            | 5057671         |
| D4-1,2-Dichloroethane             | %            | 105                  | 99                  |            | 5057671         |
| o-Terphenyl                       | %            | 87                   | 89                  |            | 5055587         |
| RDL = Reportable Detection Limit  |              |                      |                     |            |                 |
| QC Batch = Quality Control Batch  |              |                      |                     |            |                 |

### TEST SUMMARY

**Maxxam ID:** EQL313  
**Sample ID:** BH2017-7 SS14  
**Matrix:** Soil

**Collected:** 2017/06/27  
**Shipped:**  
**Received:** 2017/06/27

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst                 |
|---|-----------------|---------|------------|---------------|-------------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5057671 | N/A        | 2017/07/05    | Georgeta Rusu           |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5055587 | 2017/07/02 | 2017/07/04    | Margaret Kulczyk-Stanko |
| Temporary Hold - 1 Day Fridge           |                 | 0       |            |               | Ramanjot Kaur           |
| Moisture                                | BAL             | 5053923 | N/A        | 2017/06/30    | Min Yang                |

**Maxxam ID:** EQL314  
**Sample ID:** BH2017-7 SS5  
**Matrix:** Soil

**Collected:** 2017/06/27  
**Shipped:**  
**Received:** 2017/06/27

| Test Description                      | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst         |
|---------------------------------------|-----------------|---------|------------|---------------|-----------------|
| Strong Acid Leachable Metals by ICPMS | ICP/MS          | 5053798 | 2017/06/30 | 2017/07/04    | Kevin Comerford |

**Maxxam ID:** EQL315  
**Sample ID:** BH2017-7 SS8  
**Matrix:** Soil

**Collected:** 2017/06/27  
**Shipped:**  
**Received:** 2017/06/27

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst                 |
|---|-----------------|---------|------------|---------------|-------------------------|
| Methylnaphthalene Sum                   | CALC            | 5066838 | N/A        | 2017/07/18    | Automated Statchk       |
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5057671 | N/A        | 2017/07/05    | Georgeta Rusu           |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5055587 | 2017/07/02 | 2017/07/04    | Margaret Kulczyk-Stanko |
| Moisture                                | BAL             | 5053923 | N/A        | 2017/06/30    | Min Yang                |
| PAH Compounds in Soil by GC/MS (SIM)    | GC/MS           | 5074320 | 2017/07/14 | 2017/07/17    | Jett Wu                 |

### GENERAL COMMENTS

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

|           |        |
|-----------|--------|
| Package 1 | 11.0°C |
|-----------|--------|

Sample EQL313 [BH2017-7 SS14] : F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

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

### QUALITY ASSURANCE REPORT

| QC Batch | Parameter                        | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|----------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                  |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5055587  | o-Terphenyl                      | 2017/07/04 | 87           | 60 - 130  | 90           | 60 - 130  | 89           | %     |           |           |
| 5057671  | 1,4-Difluorobenzene              | 2017/07/05 | 105          | 60 - 140  | 103          | 60 - 140  | 107          | %     |           |           |
| 5057671  | 4-Bromofluorobenzene             | 2017/07/05 | 111          | 60 - 140  | 103          | 60 - 140  | 94           | %     |           |           |
| 5057671  | D10-Ethylbenzene                 | 2017/07/05 | 86           | 60 - 140  | 98           | 60 - 140  | 96           | %     |           |           |
| 5057671  | D4-1,2-Dichloroethane            | 2017/07/05 | 106          | 60 - 140  | 105          | 60 - 140  | 106          | %     |           |           |
| 5074320  | D10-Anthracene                   | 2017/07/15 | 92           | 50 - 130  | 93           | 50 - 130  | 100          | %     |           |           |
| 5074320  | D14-Terphenyl (FS)               | 2017/07/15 | 92           | 50 - 130  | 92           | 50 - 130  | 98           | %     |           |           |
| 5074320  | D8-Acenaphthylene                | 2017/07/15 | 89           | 50 - 130  | 80           | 50 - 130  | 85           | %     |           |           |
| 5053798  | Acid Extractable Antimony (Sb)   | 2017/07/04 | 95           | 75 - 125  | 102          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5053798  | Acid Extractable Arsenic (As)    | 2017/07/04 | 100          | 75 - 125  | 100          | 80 - 120  | <1.0         | ug/g  | 3.7       | 30        |
| 5053798  | Acid Extractable Barium (Ba)     | 2017/07/04 | NC           | 75 - 125  | 99           | 80 - 120  | <0.50        | ug/g  | 0.59      | 30        |
| 5053798  | Acid Extractable Beryllium (Be)  | 2017/07/04 | 99           | 75 - 125  | 99           | 80 - 120  | <0.20        | ug/g  | 6.5       | 30        |
| 5053798  | Acid Extractable Boron (B)       | 2017/07/04 | 95           | 75 - 125  | 99           | 80 - 120  | <5.0         | ug/g  | NC        | 30        |
| 5053798  | Acid Extractable Cadmium (Cd)    | 2017/07/04 | 100          | 75 - 125  | 104          | 80 - 120  | <0.10        | ug/g  | NC        | 30        |
| 5053798  | Acid Extractable Chromium (Cr)   | 2017/07/04 | 101          | 75 - 125  | 105          | 80 - 120  | <1.0         | ug/g  | 1.5       | 30        |
| 5053798  | Acid Extractable Cobalt (Co)     | 2017/07/04 | 100          | 75 - 125  | 102          | 80 - 120  | <0.10        | ug/g  | 7.0       | 30        |
| 5053798  | Acid Extractable Copper (Cu)     | 2017/07/04 | 99           | 75 - 125  | 104          | 80 - 120  | <0.50        | ug/g  | 6.9       | 30        |
| 5053798  | Acid Extractable Lead (Pb)       | 2017/07/04 | 98           | 75 - 125  | 103          | 80 - 120  | <1.0         | ug/g  | 3.2       | 30        |
| 5053798  | Acid Extractable Molybdenum (Mo) | 2017/07/04 | 100          | 75 - 125  | 106          | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5053798  | Acid Extractable Nickel (Ni)     | 2017/07/04 | 101          | 75 - 125  | 102          | 80 - 120  | <0.50        | ug/g  | 0.74      | 30        |
| 5053798  | Acid Extractable Selenium (Se)   | 2017/07/04 | 100          | 75 - 125  | 102          | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5053798  | Acid Extractable Silver (Ag)     | 2017/07/04 | 101          | 75 - 125  | 103          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5053798  | Acid Extractable Thallium (Tl)   | 2017/07/04 | 99           | 75 - 125  | 103          | 80 - 120  | <0.050       | ug/g  | 21        | 30        |
| 5053798  | Acid Extractable Uranium (U)     | 2017/07/04 | 96           | 75 - 125  | 98           | 80 - 120  | <0.050       | ug/g  | 5.3       | 30        |
| 5053798  | Acid Extractable Vanadium (V)    | 2017/07/04 | NC           | 75 - 125  | 100          | 80 - 120  | <5.0         | ug/g  | 3.3       | 30        |
| 5053798  | Acid Extractable Zinc (Zn)       | 2017/07/04 | 100          | 75 - 125  | 97           | 80 - 120  | <5.0         | ug/g  | 5.0       | 30        |
| 5053923  | Moisture                         | 2017/06/30 |              |           |              |           |              |       | 1.6       | 20        |
| 5055587  | F2 (C10-C16 Hydrocarbons)        | 2017/07/04 | 97           | 50 - 130  | 99           | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5055587  | F3 (C16-C34 Hydrocarbons)        | 2017/07/04 | 89           | 50 - 130  | 92           | 80 - 120  | <50          | ug/g  | NC        | 30        |
| 5055587  | F4 (C34-C50 Hydrocarbons)        | 2017/07/04 | 88           | 50 - 130  | 90           | 80 - 120  | <50          | ug/g  | NC        | 30        |
| 5057671  | Benzene                          | 2017/07/05 | 86           | 60 - 140  | 116          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5057671  | Ethylbenzene                     | 2017/07/05 | 81           | 60 - 140  | 101          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter              | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                        |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5057671  | F1 (C6-C10) - BTEX     | 2017/07/05 |              |           |              |           | <10          | ug/g  | NC        | 30        |
| 5057671  | F1 (C6-C10)            | 2017/07/05 | 71           | 60 - 140  | 104          | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5057671  | o-Xylene               | 2017/07/05 | 93           | 60 - 140  | 101          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5057671  | p+m-Xylene             | 2017/07/05 | 90           | 60 - 140  | 109          | 60 - 140  | <0.040       | ug/g  | NC        | 50        |
| 5057671  | Toluene                | 2017/07/05 | 80           | 60 - 140  | 96           | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5057671  | Total Xylenes          | 2017/07/05 |              |           |              |           | <0.040       | ug/g  | NC        | 50        |
| 5074320  | 1-Methylnaphthalene    | 2017/07/15 | 83           | 50 - 130  | 84           | 50 - 130  | <0.0050      | ug/g  | 2.5       | 40        |
| 5074320  | 2-Methylnaphthalene    | 2017/07/15 | 78           | 50 - 130  | 80           | 50 - 130  | <0.0050      | ug/g  | 10        | 40        |
| 5074320  | Acenaphthene           | 2017/07/15 | NC           | 50 - 130  | 86           | 50 - 130  | <0.0050      | ug/g  | 69 (1)    | 40        |
| 5074320  | Acenaphthylene         | 2017/07/15 | 90           | 50 - 130  | 83           | 50 - 130  | <0.0050      | ug/g  | 5.5       | 40        |
| 5074320  | Anthracene             | 2017/07/15 | NC           | 50 - 130  | 82           | 50 - 130  | <0.0050      | ug/g  | 41 (1)    | 40        |
| 5074320  | Benzo(a)anthracene     | 2017/07/15 | NC           | 50 - 130  | 81           | 50 - 130  | <0.0050      | ug/g  | 41 (1)    | 40        |
| 5074320  | Benzo(a)pyrene         | 2017/07/15 | 105          | 50 - 130  | 86           | 50 - 130  | <0.0050      | ug/g  | 30        | 40        |
| 5074320  | Benzo(b/j)fluoranthene | 2017/07/15 | NC           | 50 - 130  | 90           | 50 - 130  | <0.0050      | ug/g  | 41 (1)    | 40        |
| 5074320  | Benzo(g,h,i)perylene   | 2017/07/15 | 96           | 50 - 130  | 88           | 50 - 130  | <0.0050      | ug/g  | 31        | 40        |
| 5074320  | Benzo(k)fluoranthene   | 2017/07/15 | NC           | 50 - 130  | 85           | 50 - 130  | <0.0050      | ug/g  | 49 (1)    | 40        |
| 5074320  | Chrysene               | 2017/07/15 | NC           | 50 - 130  | 86           | 50 - 130  | <0.0050      | ug/g  | 50 (1)    | 40        |
| 5074320  | Dibenz(a,h)anthracene  | 2017/07/15 | 81           | 50 - 130  | 86           | 50 - 130  | <0.0050      | ug/g  | 38        | 40        |
| 5074320  | Fluoranthene           | 2017/07/15 | NC           | 50 - 130  | 89           | 50 - 130  | <0.0050      | ug/g  | 42 (1)    | 40        |
| 5074320  | Fluorene               | 2017/07/15 | NC           | 50 - 130  | 86           | 50 - 130  | <0.0050      | ug/g  | 42 (1)    | 40        |
| 5074320  | Indeno(1,2,3-cd)pyrene | 2017/07/15 | 74           | 50 - 130  | 84           | 50 - 130  | <0.0050      | ug/g  | 33        | 40        |
| 5074320  | Naphthalene            | 2017/07/15 | 70           | 50 - 130  | 81           | 50 - 130  | <0.0050      | ug/g  | 45 (2)    | 40        |
| 5074320  | Phenanthrene           | 2017/07/15 | NC           | 50 - 130  | 86           | 50 - 130  | <0.0050      | ug/g  | 44 (1)    | 40        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|-----------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |           |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5074320  | Pyrene    | 2017/07/15 | NC           | 50 - 130  | 92           | 50 - 130  | <0.0050      | ug/g  | 41 (1)    | 40        |

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(2) Duplicate results exceeded RPD acceptance criteria. This is likely due to sample heterogeneity (small rocks presented ). The variability in the results for flagged analytes may be more pronounced.

### VALIDATION SIGNATURE PAGE

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

*Cristina Carriere*

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Cristina Carriere, Scientific Services

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

**INVOICE TO:**  
 Company Name: **Accounts Payable**  
 Attention: **Accounts Payable**  
 Address: **2150 Thurston Dr Unit 203**  
**Ottawa ON K1G 5T9**  
 Tel: **(613) 748-1415 x** Fax: **(613) 748-1356 x**  
 Email: **ap@dstgroup.com**

**REPORT TO:**  
 Company Name: **Eve Sabourin**  
 Attention: **Eve Sabourin**  
 Address: **613 697 4225**  
 Tel: **613 697 4225** Fax: **613 697 4225**  
 Email: **esabourin@dstgroup.com**

**PROJECT INFORMATION:**  
 Quotation #: **B61802**  
 P.O. #:  
 Project: **TS-SO-29563**  
 Project Name:  
 Site #:  
 Sampled By:

27-Jun-17 17:30  
 Alison Cameron  
 B7D5083  
 MAF ENV-900  
 Alison Cameron  
 Page 1 of 1  
 Bottle Order #: B7D5083  
 517077  
 Project Manager: Alison Cameron

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

| Regulation 153 (2011)                |                                     | Other Regulations                |   | Special Instructions |
|--------------------------------------|-------------------------------------|----------------------------------|---|----------------------|
| <input type="checkbox"/> Table 1     | <input type="checkbox"/> Res/Park   | <input type="checkbox"/> CCME    | <input type="checkbox"/> Sanitary Sewer Bylaw |                      |
| <input type="checkbox"/> Table 2     | <input type="checkbox"/> Ind/Comm   | <input type="checkbox"/> Reg 558 | <input type="checkbox"/> Storm Sewer Bylaw    |                      |
| <input type="checkbox"/> Table 3     | <input type="checkbox"/> Agri/Other | <input type="checkbox"/> MISA    | Municipality _____                            |                      |
| <input type="checkbox"/> Table _____ | <input type="checkbox"/> For RSC    | <input type="checkbox"/> PWQO    |   |                      |
|                                      |                                     | <input type="checkbox"/> Other   |   |                      |

**ANALYSIS REQUESTED (PLEASE BE SPECIFIC)**

| Field Filtered (please circle):<br>Metals / Hg / Cr / V / | D.Reg 153 Metals by HS & F1-F4 (Soil) | D.Reg 153 PAHs (Soil) | D.Reg 153 ICPMS Metals (Soil) |
|---|---------------------------------------|-----------------------|-------------------------------|
|   | X                                     | *                     |                               |
|   |                                       |                       | X                             |
|   | X                                     | *                     |                               |

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

**Regular (Standard) TAT:**  
 (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.

Regular (Standard) TAT

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

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

| Sample Barcode Label | Sample (Location) Identification | Date Sampled | Time Sampled | Matrix |
|----------------------|----------------------------------|--------------|--------------|--------|
| 1                    | BH2017-7 SS44                    | 27/06/2017   |              | Soil   |
| 2                    | BH2017-7 SS5                     | 27/06/2017   |              | Soil   |
| 3                    | <del>BH2017-10 SS6</del>         |              |              |        |
| 4                    | <del>BH2017-10 SS7</del>         |              |              |        |
| 5                    | BH2017-7 SS8                     | 27/06/2017   |              | Soil   |
| 6                    | <del>BH2017-10 SS9</del>         |              |              |        |
| 7                    | <del>BH2017-10 SS10</del>        |              |              |        |
| 8                    | <del>BH2017-10 SS11</del>        |              |              |        |
| 9                    | <del>BH2017-10 SS12</del>        |              |              |        |
| 10                   | <del>BH2017-10 SS13</del>        |              |              |        |

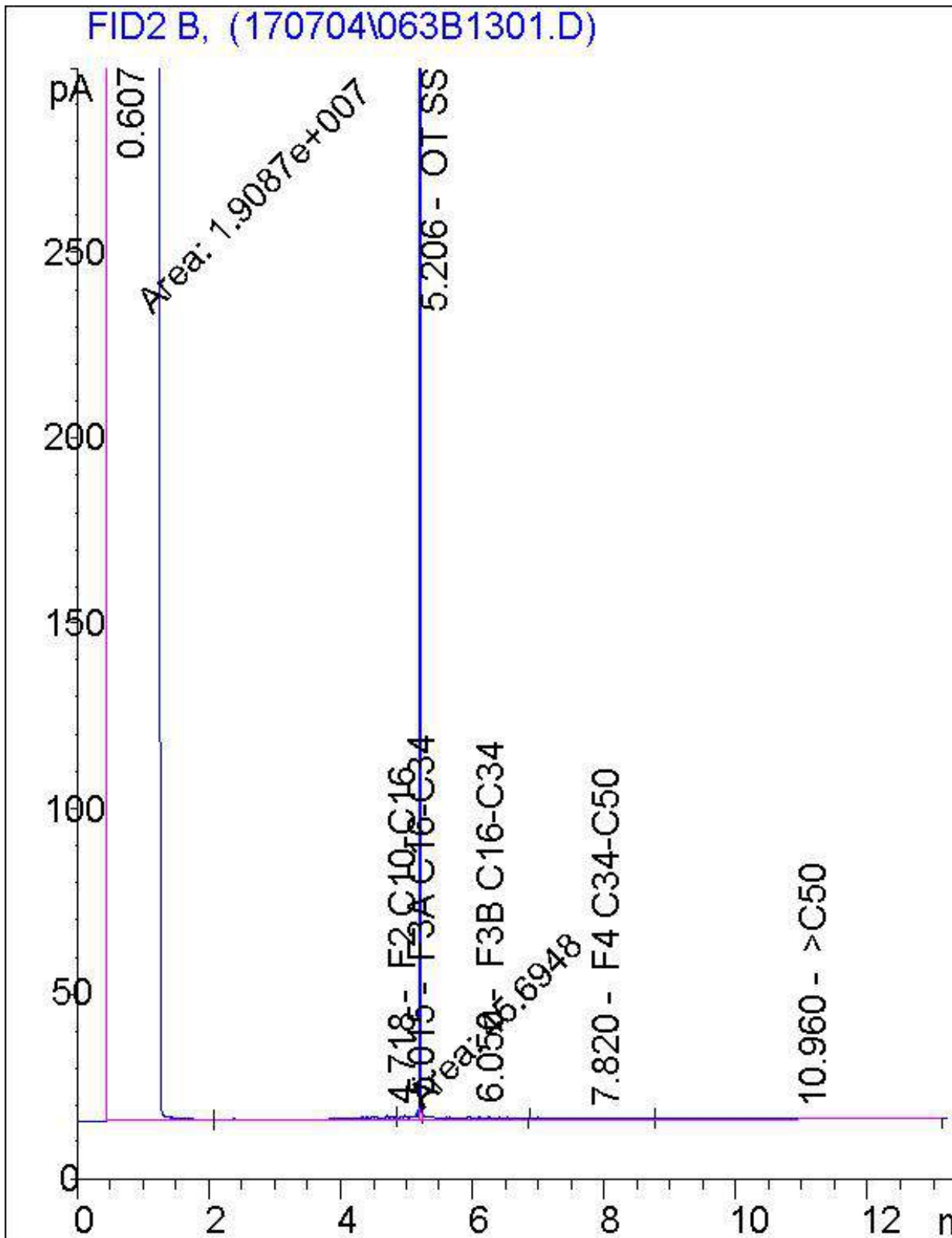
RECEIVED IN OTTAWA

ON IP

|  |                                |              |  |                                |               |                               |                     |                |  |                      |              |                |
|--|--------------------------------|--------------|--|--------------------------------|---------------|-------------------------------|---------------------|----------------|--|----------------------|--------------|----------------|
| * RELINQUISHED BY: (Signature/Print)<br><i>[Signature]</i>   | Date: (YY/MM/DD)<br>17/06/2017 | Time<br>5:30 | RECEIVED BY: (Signature/Print)<br><i>[Signature]</i> | Date: (YY/MM/DD)<br>2017/06/27 | Time<br>17:30 | # Jars used and not submitted | Laboratory Use Only | Time Sensitive | Temperature (°C) on Reel<br>13, 10, 11 | Custody Seal Present | Yes          | No             |
| <p>* 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.</p> <p>* 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.</p> <p>** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.</p> |                                |              |  |                                |               |                               |                     |                |  | Intact               | White: Maxxa | Yellow: Client |

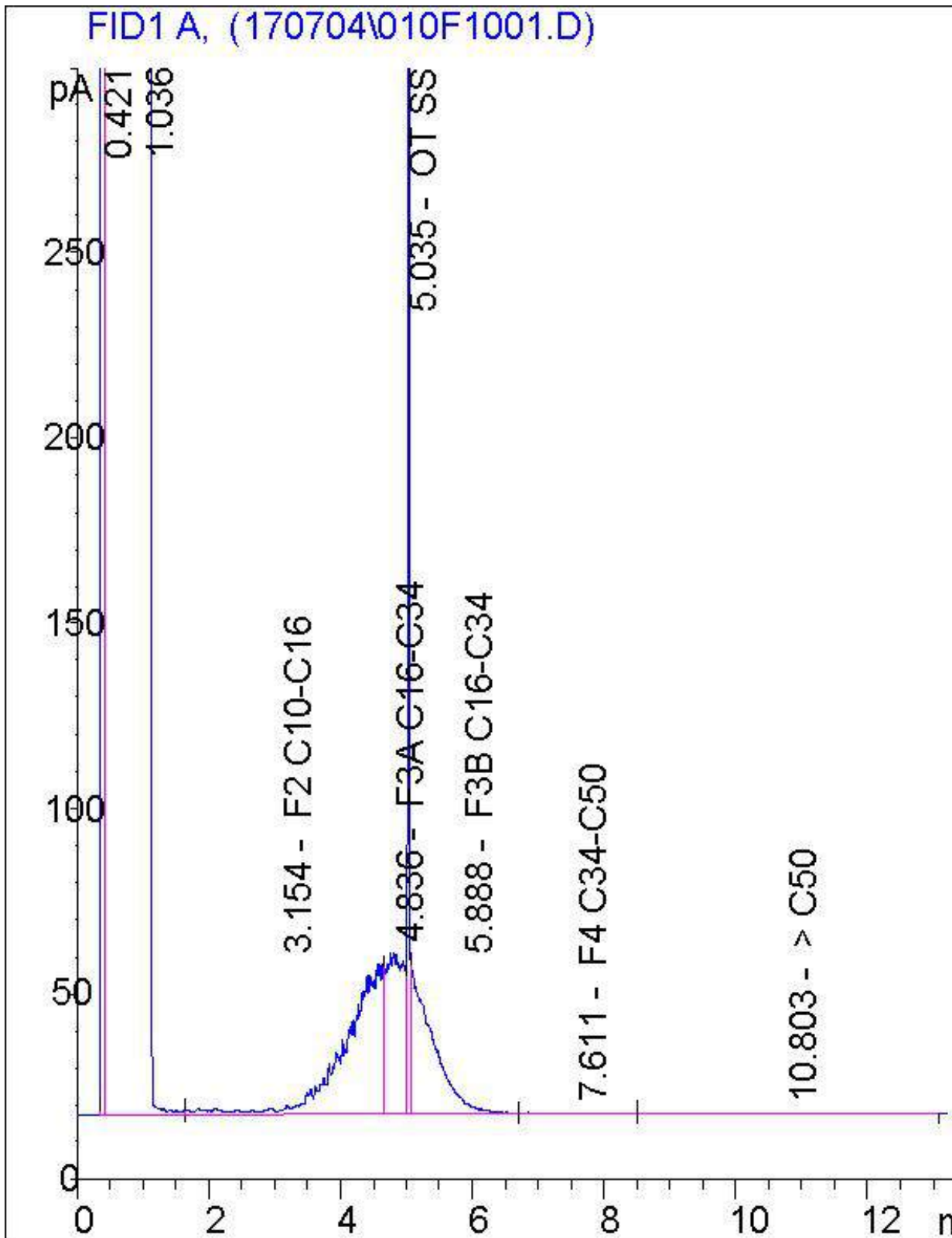
*[Signature]* 9/9/8  
 2017/06/27 22:30

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.

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.

**Attention: Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/07**  
Report #: R4581369  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7D6393**  
**Received: 2017/06/28, 16:50**

Sample Matrix: Soil  
# Samples Received: 2

| Analyses                                       | Quantity | Date       | Date       | Laboratory Method | Reference            |
|--|----------|------------|------------|-------------------|----------------------|
|  |          | Extracted  | Analyzed   |                   |                      |
| Methylnaphthalene Sum (1)                      | 1        | N/A        | 2017/07/06 | CAM SOP-00301     | EPA 8270D m          |
| 1,3-Dichloropropene Sum (1)                    | 1        | N/A        | 2017/07/06 |                   | EPA 8260C m          |
| Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2) | 1        | N/A        | 2017/07/05 | CAM SOP-00315     | CCME PHC-CWS m       |
| Petroleum Hydrocarbons F2-F4 in Soil (1, 3)    | 2        | 2017/07/05 | 2017/07/05 | CAM SOP-00316     | CCME CWS m           |
| F4G (CCME Hydrocarbons Gravimetric) (1)        | 1        | 2017/07/07 | 2017/07/07 | CAM SOP-00316     | CCME PHC-CWS m       |
| Strong Acid Leachable Metals by ICPMS (1)      | 1        | 2017/07/04 | 2017/07/07 | CAM SOP-00447     | EPA 6020B m          |
| Strong Acid Leachable Metals by ICPMS (1)      | 1        | 2017/07/05 | 2017/07/06 | CAM SOP-00447     | EPA 6020B m          |
| Moisture (1)                                   | 1        | N/A        | 2017/07/01 | CAM SOP-00445     | Carter 2nd ed 51.2 m |
| Moisture (1)                                   | 1        | N/A        | 2017/07/05 | CAM SOP-00445     | Carter 2nd ed 51.2 m |
| PAH Compounds in Soil by GC/MS (SIM) (1)       | 1        | 2017/07/05 | 2017/07/05 | CAM SOP-00318     | EPA 8270D m          |
| Volatile Organic Compounds and F1 PHCs (1)     | 1        | N/A        | 2017/07/06 | CAM SOP-00230     | 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.

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.

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.

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

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

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

Your Project #: TS-SO-29563  
Your C.O.C. #: 617077-12-01

**Attention:Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/07**  
Report #: R4581369  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7D6393**

**Received: 2017/06/28, 16:50**

- (1) This test was performed by Maxxam Analytics Mississauga
- (2) 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.
- (3) 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.

Alison Cameron, Project Manager  
Email: ACameron@maxxam.ca  
Phone# (613) 274-0573

=====

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.

**O.REG 153 ICPMS METALS (SOIL)**

| Maxxam ID                        |       | EQR287        |          | EQR289        |       |          |
|----------------------------------|-------|---------------|----------|---------------|-------|----------|
| Sampling Date                    |       |               |          |               |       |          |
| COC Number                       |       | 617077-12-01  |          | 617077-12-01  |       |          |
|                                  | UNITS | BH2017-13-SS3 | QC Batch | BH2017-31-SS3 | RDL   | QC Batch |
| <b>Metals</b>                    |       |               |          |               |       |          |
| Acid Extractable Antimony (Sb)   | ug/g  | <0.20         | 5056506  | 0.34          | 0.20  | 5058516  |
| Acid Extractable Arsenic (As)    | ug/g  | 2.1           | 5056506  | 1.7           | 1.0   | 5058516  |
| Acid Extractable Barium (Ba)     | ug/g  | 340           | 5056506  | 290           | 0.50  | 5058516  |
| Acid Extractable Beryllium (Be)  | ug/g  | 0.74          | 5056506  | 0.72          | 0.20  | 5058516  |
| Acid Extractable Boron (B)       | ug/g  | 6.6           | 5056506  | 6.2           | 5.0   | 5058516  |
| Acid Extractable Cadmium (Cd)    | ug/g  | 0.14          | 5056506  | 0.17          | 0.10  | 5058516  |
| Acid Extractable Chromium (Cr)   | ug/g  | 110           | 5056506  | 100           | 1.0   | 5058516  |
| Acid Extractable Cobalt (Co)     | ug/g  | 23            | 5056506  | 21            | 0.10  | 5058516  |
| Acid Extractable Copper (Cu)     | ug/g  | 55            | 5056506  | 50            | 0.50  | 5058516  |
| Acid Extractable Lead (Pb)       | ug/g  | 18            | 5056506  | 22            | 1.0   | 5058516  |
| Acid Extractable Molybdenum (Mo) | ug/g  | 0.54          | 5056506  | 0.66          | 0.50  | 5058516  |
| Acid Extractable Nickel (Ni)     | ug/g  | 62            | 5056506  | 59            | 0.50  | 5058516  |
| Acid Extractable Selenium (Se)   | ug/g  | <0.50         | 5056506  | <0.50         | 0.50  | 5058516  |
| Acid Extractable Silver (Ag)     | ug/g  | <0.20         | 5056506  | <0.20         | 0.20  | 5058516  |
| Acid Extractable Thallium (Tl)   | ug/g  | 0.41          | 5056506  | 0.36          | 0.050 | 5058516  |
| Acid Extractable Uranium (U)     | ug/g  | 0.68          | 5056506  | 0.70          | 0.050 | 5058516  |
| Acid Extractable Vanadium (V)    | ug/g  | 100           | 5056506  | 95            | 5.0   | 5058516  |
| Acid Extractable Zinc (Zn)       | ug/g  | 120           | 5056506  | 110           | 5.0   | 5058516  |
| RDL = Reportable Detection Limit |       |               |          |               |       |          |
| QC Batch = Quality Control Batch |       |               |          |               |       |          |

**O.REG 153 PAHS (SOIL)**

| Maxxam ID                        |       | EQR289        |       |          |
|----------------------------------|-------|---------------|-------|----------|
| Sampling Date                    |       |               |       |          |
| COC Number                       |       | 617077-12-01  |       |          |
|                                  | UNITS | BH2017-31-SS3 | RDL   | QC Batch |
| <b>Calculated Parameters</b>     |       |               |       |          |
| Methylnaphthalene, 2-(1-)        | ug/g  | 0.30          | 0.071 | 5053186  |
| <b>Polyaromatic Hydrocarbons</b> |       |               |       |          |
| Acenaphthene                     | ug/g  | 0.082         | 0.050 | 5058053  |
| Acenaphthylene                   | ug/g  | 0.072         | 0.050 | 5058053  |
| Anthracene                       | ug/g  | 0.13          | 0.050 | 5058053  |
| Benzo(a)anthracene               | ug/g  | 0.23          | 0.050 | 5058053  |
| Benzo(a)pyrene                   | ug/g  | 0.19          | 0.050 | 5058053  |
| Benzo(b/j)fluoranthene           | ug/g  | 0.24          | 0.050 | 5058053  |
| Benzo(g,h,i)perylene             | ug/g  | 0.11          | 0.050 | 5058053  |
| Benzo(k)fluoranthene             | ug/g  | 0.085         | 0.050 | 5058053  |
| Chrysene                         | ug/g  | 0.19          | 0.050 | 5058053  |
| Dibenz(a,h)anthracene            | ug/g  | <0.050        | 0.050 | 5058053  |
| Fluoranthene                     | ug/g  | 0.52          | 0.050 | 5058053  |
| Fluorene                         | ug/g  | 0.15          | 0.050 | 5058053  |
| Indeno(1,2,3-cd)pyrene           | ug/g  | 0.11          | 0.050 | 5058053  |
| 1-Methylnaphthalene              | ug/g  | 0.11          | 0.050 | 5058053  |
| 2-Methylnaphthalene              | ug/g  | 0.19          | 0.050 | 5058053  |
| Naphthalene                      | ug/g  | 0.18          | 0.050 | 5058053  |
| Phenanthrene                     | ug/g  | 0.49          | 0.050 | 5058053  |
| Pyrene                           | ug/g  | 0.38          | 0.050 | 5058053  |
| <b>Surrogate Recovery (%)</b>    |       |               |       |          |
| D10-Anthracene                   | %     | 88            |       | 5058053  |
| D14-Terphenyl (FS)               | %     | 81            |       | 5058053  |
| D8-Acenaphthylene                | %     | 84            |       | 5058053  |
| RDL = Reportable Detection Limit |       |               |       |          |
| QC Batch = Quality Control Batch |       |               |       |          |

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

|                                   |              |                      |            |                 |
|-----------------------------------|--------------|----------------------|------------|-----------------|
| <b>Maxxam ID</b>                  |              | EQR287               |            |                 |
| <b>Sampling Date</b>              |              |                      |            |                 |
| <b>COC Number</b>                 |              | 617077-12-01         |            |                 |
|                                   | <b>UNITS</b> | <b>BH2017-13-SS3</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Inorganics</b>                 |              |                      |            |                 |
| Moisture                          | %            | 19                   | 1.0        | 5055454         |
| <b>BTEX &amp; F1 Hydrocarbons</b> |              |                      |            |                 |
| Benzene                           | ug/g         | <0.020               | 0.020      | 5058500         |
| Toluene                           | ug/g         | <0.020               | 0.020      | 5058500         |
| Ethylbenzene                      | ug/g         | <0.020               | 0.020      | 5058500         |
| o-Xylene                          | ug/g         | <0.020               | 0.020      | 5058500         |
| p+m-Xylene                        | ug/g         | <0.040               | 0.040      | 5058500         |
| Total Xylenes                     | ug/g         | <0.040               | 0.040      | 5058500         |
| F1 (C6-C10)                       | ug/g         | <10                  | 10         | 5058500         |
| F1 (C6-C10) - BTEX                | ug/g         | <10                  | 10         | 5058500         |
| <b>F2-F4 Hydrocarbons</b>         |              |                      |            |                 |
| F2 (C10-C16 Hydrocarbons)         | ug/g         | <10                  | 10         | 5057917         |
| F3 (C16-C34 Hydrocarbons)         | ug/g         | 170                  | 50         | 5057917         |
| F4 (C34-C50 Hydrocarbons)         | ug/g         | 370                  | 50         | 5057917         |
| Reached Baseline at C50           | ug/g         | No                   |            | 5057917         |
| <b>Surrogate Recovery (%)</b>     |              |                      |            |                 |
| 1,4-Difluorobenzene               | %            | 99                   |            | 5058500         |
| 4-Bromofluorobenzene              | %            | 106                  |            | 5058500         |
| D10-Ethylbenzene                  | %            | 109                  |            | 5058500         |
| D4-1,2-Dichloroethane             | %            | 99                   |            | 5058500         |
| o-Terphenyl                       | %            | 79                   |            | 5057917         |
| RDL = Reportable Detection Limit  |              |                      |            |                 |
| QC Batch = Quality Control Batch  |              |                      |            |                 |

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

|                                     |              |                      |            |                 |
|-------------------------------------|--------------|----------------------|------------|-----------------|
| <b>Maxxam ID</b>                    |              | EQR289               |            |                 |
| <b>Sampling Date</b>                |              |                      |            |                 |
| <b>COC Number</b>                   |              | 617077-12-01         |            |                 |
|                                     | <b>UNITS</b> | <b>BH2017-31-SS3</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Inorganics</b>                   |              |                      |            |                 |
| Moisture                            | %            | 24                   | 1.0        | 5057924         |
| <b>Calculated Parameters</b>        |              |                      |            |                 |
| 1,3-Dichloropropene (cis+trans)     | ug/g         | <0.050               | 0.050      | 5053409         |
| <b>Volatile Organics</b>            |              |                      |            |                 |
| Acetone (2-Propanone)               | ug/g         | <0.50                | 0.50       | 5057908         |
| Benzene                             | ug/g         | <0.020               | 0.020      | 5057908         |
| Bromodichloromethane                | ug/g         | <0.050               | 0.050      | 5057908         |
| Bromoform                           | ug/g         | <0.050               | 0.050      | 5057908         |
| Bromomethane                        | ug/g         | <0.050               | 0.050      | 5057908         |
| Carbon Tetrachloride                | ug/g         | <0.050               | 0.050      | 5057908         |
| Chlorobenzene                       | ug/g         | <0.050               | 0.050      | 5057908         |
| Chloroform                          | ug/g         | <0.050               | 0.050      | 5057908         |
| Dibromochloromethane                | ug/g         | <0.050               | 0.050      | 5057908         |
| 1,2-Dichlorobenzene                 | ug/g         | <0.050               | 0.050      | 5057908         |
| 1,3-Dichlorobenzene                 | ug/g         | <0.050               | 0.050      | 5057908         |
| 1,4-Dichlorobenzene                 | ug/g         | <0.050               | 0.050      | 5057908         |
| Dichlorodifluoromethane (FREON 12)  | ug/g         | <0.050               | 0.050      | 5057908         |
| 1,1-Dichloroethane                  | ug/g         | <0.050               | 0.050      | 5057908         |
| 1,2-Dichloroethane                  | ug/g         | <0.050               | 0.050      | 5057908         |
| 1,1-Dichloroethylene                | ug/g         | <0.050               | 0.050      | 5057908         |
| cis-1,2-Dichloroethylene            | ug/g         | <0.050               | 0.050      | 5057908         |
| trans-1,2-Dichloroethylene          | ug/g         | <0.050               | 0.050      | 5057908         |
| 1,2-Dichloropropane                 | ug/g         | <0.050               | 0.050      | 5057908         |
| cis-1,3-Dichloropropene             | ug/g         | <0.030               | 0.030      | 5057908         |
| trans-1,3-Dichloropropene           | ug/g         | <0.040               | 0.040      | 5057908         |
| Ethylbenzene                        | ug/g         | <0.020               | 0.020      | 5057908         |
| Ethylene Dibromide                  | ug/g         | <0.050               | 0.050      | 5057908         |
| Hexane                              | ug/g         | 0.084                | 0.050      | 5057908         |
| Methylene Chloride(Dichloromethane) | ug/g         | <0.050               | 0.050      | 5057908         |
| Methyl Ethyl Ketone (2-Butanone)    | ug/g         | <0.50                | 0.50       | 5057908         |
| Methyl Isobutyl Ketone              | ug/g         | <0.50                | 0.50       | 5057908         |
| Methyl t-butyl ether (MTBE)         | ug/g         | <0.050               | 0.050      | 5057908         |
| Styrene                             | ug/g         | <0.050               | 0.050      | 5057908         |
| 1,1,1,2-Tetrachloroethane           | ug/g         | <0.050               | 0.050      | 5057908         |
| 1,1,2,2-Tetrachloroethane           | ug/g         | <0.050               | 0.050      | 5057908         |
| Tetrachloroethylene                 | ug/g         | <0.050               | 0.050      | 5057908         |
| RDL = Reportable Detection Limit    |              |                      |            |                 |
| QC Batch = Quality Control Batch    |              |                      |            |                 |

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

| Maxxam ID                         |       | EQR289        |       |          |
|-----------------------------------|-------|---------------|-------|----------|
| Sampling Date                     |       |               |       |          |
| COC Number                        |       | 617077-12-01  |       |          |
|                                   | UNITS | BH2017-31-SS3 | RDL   | QC Batch |
| Toluene                           | ug/g  | 0.027         | 0.020 | 5057908  |
| 1,1,1-Trichloroethane             | ug/g  | <0.050        | 0.050 | 5057908  |
| 1,1,2-Trichloroethane             | ug/g  | <0.050        | 0.050 | 5057908  |
| Trichloroethylene                 | ug/g  | <0.050        | 0.050 | 5057908  |
| Trichlorofluoromethane (FREON 11) | ug/g  | <0.050        | 0.050 | 5057908  |
| Vinyl Chloride                    | ug/g  | <0.020        | 0.020 | 5057908  |
| p+m-Xylene                        | ug/g  | 0.031         | 0.020 | 5057908  |
| o-Xylene                          | ug/g  | <0.020        | 0.020 | 5057908  |
| Total Xylenes                     | ug/g  | 0.031         | 0.020 | 5057908  |
| F1 (C6-C10)                       | ug/g  | <10           | 10    | 5057908  |
| F1 (C6-C10) - BTEX                | ug/g  | <10           | 10    | 5057908  |
| <b>F2-F4 Hydrocarbons</b>         |       |               |       |          |
| F2 (C10-C16 Hydrocarbons)         | ug/g  | <10           | 10    | 5057917  |
| F3 (C16-C34 Hydrocarbons)         | ug/g  | 66            | 50    | 5057917  |
| F4 (C34-C50 Hydrocarbons)         | ug/g  | 180           | 50    | 5057917  |
| Reached Baseline at C50           | ug/g  | No            |       | 5057917  |
| <b>Surrogate Recovery (%)</b>     |       |               |       |          |
| o-Terphenyl                       | %     | 75            |       | 5057917  |
| 4-Bromofluorobenzene              | %     | 91            |       | 5057908  |
| D10-o-Xylene                      | %     | 102           |       | 5057908  |
| D4-1,2-Dichloroethane             | %     | 113           |       | 5057908  |
| D8-Toluene                        | %     | 93            |       | 5057908  |
| RDL = Reportable Detection Limit  |       |               |       |          |
| QC Batch = Quality Control Batch  |       |               |       |          |

**PETROLEUM HYDROCARBONS (CCME)**

|                                   |              |                      |            |                 |
|-----------------------------------|--------------|----------------------|------------|-----------------|
| <b>Maxxam ID</b>                  |              | EQR289               |            |                 |
| <b>Sampling Date</b>              |              |                      |            |                 |
| <b>COC Number</b>                 |              | 617077-12-01         |            |                 |
|                                   | <b>UNITS</b> | <b>BH2017-31-SS3</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>F2-F4 Hydrocarbons</b>         |              |                      |            |                 |
| F4G-sg (Grav. Heavy Hydrocarbons) | ug/g         | 610                  | 100        | 5062252         |
| RDL = Reportable Detection Limit  |              |                      |            |                 |
| QC Batch = Quality Control Batch  |              |                      |            |                 |

### TEST SUMMARY

**Maxxam ID:** EQR287  
**Sample ID:** BH2017-13-SS3  
**Matrix:** Soil

**Collected:**  
**Shipped:**  
**Received:** 2017/06/28

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst            |
|---|-----------------|---------|------------|---------------|--------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5058500 | N/A        | 2017/07/05    | Domnica Andronesco |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5057917 | 2017/07/05 | 2017/07/05    | Barbara Wowk       |
| Strong Acid Leachable Metals by ICPMS   | ICP/MS          | 5056506 | 2017/07/04 | 2017/07/07    | Kevin Comerford    |
| Moisture                                | BAL             | 5055454 | N/A        | 2017/07/01    | Valentina Kaftani  |

**Maxxam ID:** EQR289  
**Sample ID:** BH2017-31-SS3  
**Matrix:** Soil

**Collected:**  
**Shipped:**  
**Received:** 2017/06/28

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|--|-----------------|---------|------------|---------------|-------------------|
| Methylnaphthalene Sum                  | CALC            | 5053186 | N/A        | 2017/07/06    | Automated Statchk |
| 1,3-Dichloropropene Sum                | CALC            | 5053409 | N/A        | 2017/07/06    | Automated Statchk |
| Petroleum Hydrocarbons F2-F4 in Soil   | GC/FID          | 5057917 | 2017/07/05 | 2017/07/05    | Barbara Wowk      |
| F4G (CCME Hydrocarbons Gravimetric)    | BAL             | 5062252 | 2017/07/07 | 2017/07/07    | Debra Deslandes   |
| Strong Acid Leachable Metals by ICPMS  | ICP/MS          | 5058516 | 2017/07/05 | 2017/07/06    | Kevin Comerford   |
| Moisture                               | BAL             | 5057924 | N/A        | 2017/07/05    | Valentina Kaftani |
| PAH Compounds in Soil by GC/MS (SIM)   | GC/MS           | 5058053 | 2017/07/05 | 2017/07/05    | Mitesh Raj        |
| Volatile Organic Compounds and F1 PHCs | GC/MSFD         | 5057908 | N/A        | 2017/07/06    | Xueming Jiang     |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 6.7°C |
|-----------|-------|

Sample EQR289 [BH2017-31-SS3] : PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

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

**QUALITY ASSURANCE REPORT**

| QC Batch | Parameter                        | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|----------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                  |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5057908  | 4-Bromofluorobenzene             | 2017/07/06 | 100          | 60 - 140  | 100          | 60 - 140  | 89           | %     |           |           |
| 5057908  | D10-o-Xylene                     | 2017/07/06 | 104          | 60 - 130  | 98           | 60 - 130  | 89           | %     |           |           |
| 5057908  | D4-1,2-Dichloroethane            | 2017/07/06 | 104          | 60 - 140  | 106          | 60 - 140  | 110          | %     |           |           |
| 5057908  | D8-Toluene                       | 2017/07/06 | 107          | 60 - 140  | 106          | 60 - 140  | 94           | %     |           |           |
| 5057917  | o-Terphenyl                      | 2017/07/05 | 73           | 60 - 130  | 76           | 60 - 130  | 76           | %     |           |           |
| 5058053  | D10-Anthracene                   | 2017/07/05 | 80           | 50 - 130  | 76           | 50 - 130  | 77           | %     |           |           |
| 5058053  | D14-Terphenyl (FS)               | 2017/07/05 | 77           | 50 - 130  | 77           | 50 - 130  | 76           | %     |           |           |
| 5058053  | D8-Acenaphthylene                | 2017/07/05 | 80           | 50 - 130  | 75           | 50 - 130  | 76           | %     |           |           |
| 5058500  | 1,4-Difluorobenzene              | 2017/07/05 | 101          | 60 - 140  | 100          | 60 - 140  | 99           | %     |           |           |
| 5058500  | 4-Bromofluorobenzene             | 2017/07/05 | 102          | 60 - 140  | 103          | 60 - 140  | 98           | %     |           |           |
| 5058500  | D10-Ethylbenzene                 | 2017/07/05 | 96           | 60 - 140  | 90           | 60 - 140  | 91           | %     |           |           |
| 5058500  | D4-1,2-Dichloroethane            | 2017/07/05 | 100          | 60 - 140  | 97           | 60 - 140  | 98           | %     |           |           |
| 5055454  | Moisture                         | 2017/07/01 |              |           |              |           |              |       | 5.0       | 20        |
| 5056506  | Acid Extractable Antimony (Sb)   | 2017/07/07 | 100          | 75 - 125  | 102          | 80 - 120  | <0.20        | ug/g  |           |           |
| 5056506  | Acid Extractable Arsenic (As)    | 2017/07/07 | 101          | 75 - 125  | 104          | 80 - 120  | <1.0         | ug/g  | NC        | 30        |
| 5056506  | Acid Extractable Barium (Ba)     | 2017/07/07 | 103          | 75 - 125  | 95           | 80 - 120  | <0.50        | ug/g  |           |           |
| 5056506  | Acid Extractable Beryllium (Be)  | 2017/07/07 | 102          | 75 - 125  | 102          | 80 - 120  | <0.20        | ug/g  |           |           |
| 5056506  | Acid Extractable Boron (B)       | 2017/07/07 | 103          | 75 - 125  | 103          | 80 - 120  | <5.0         | ug/g  |           |           |
| 5056506  | Acid Extractable Cadmium (Cd)    | 2017/07/07 | 100          | 75 - 125  | 97           | 80 - 120  | <0.10        | ug/g  |           |           |
| 5056506  | Acid Extractable Chromium (Cr)   | 2017/07/07 | 104          | 75 - 125  | 100          | 80 - 120  | <1.0         | ug/g  |           |           |
| 5056506  | Acid Extractable Cobalt (Co)     | 2017/07/07 | 104          | 75 - 125  | 105          | 80 - 120  | <0.10        | ug/g  |           |           |
| 5056506  | Acid Extractable Copper (Cu)     | 2017/07/07 | 101          | 75 - 125  | 104          | 80 - 120  | <0.50        | ug/g  |           |           |
| 5056506  | Acid Extractable Lead (Pb)       | 2017/07/07 | 101          | 75 - 125  | 103          | 80 - 120  | <1.0         | ug/g  |           |           |
| 5056506  | Acid Extractable Molybdenum (Mo) | 2017/07/07 | 102          | 75 - 125  | 101          | 80 - 120  | <0.50        | ug/g  |           |           |
| 5056506  | Acid Extractable Nickel (Ni)     | 2017/07/07 | 102          | 75 - 125  | 104          | 80 - 120  | <0.50        | ug/g  |           |           |
| 5056506  | Acid Extractable Selenium (Se)   | 2017/07/07 | 102          | 75 - 125  | 105          | 80 - 120  | <0.50        | ug/g  |           |           |
| 5056506  | Acid Extractable Silver (Ag)     | 2017/07/07 | 102          | 75 - 125  | 102          | 80 - 120  | <0.20        | ug/g  |           |           |
| 5056506  | Acid Extractable Thallium (Tl)   | 2017/07/07 | 101          | 75 - 125  | 101          | 80 - 120  | <0.050       | ug/g  |           |           |
| 5056506  | Acid Extractable Uranium (U)     | 2017/07/07 | 104          | 75 - 125  | 106          | 80 - 120  | <0.050       | ug/g  |           |           |
| 5056506  | Acid Extractable Vanadium (V)    | 2017/07/07 | 98           | 75 - 125  | 103          | 80 - 120  | <5.0         | ug/g  |           |           |
| 5056506  | Acid Extractable Zinc (Zn)       | 2017/07/07 | 107          | 75 - 125  | 106          | 80 - 120  | <5.0         | ug/g  |           |           |
| 5057908  | 1,1,1,2-Tetrachloroethane        | 2017/07/06 | 102          | 60 - 140  | 104          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                           | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|-------------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                     |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5057908  | 1,1,1-Trichloroethane               | 2017/07/06 | 95           | 60 - 140  | 98           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | 1,1,2,2-Tetrachloroethane           | 2017/07/06 | 100          | 60 - 140  | 102          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | 1,1,2-Trichloroethane               | 2017/07/06 | 98           | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | 1,1-Dichloroethane                  | 2017/07/06 | 101          | 60 - 140  | 105          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | 1,1-Dichloroethylene                | 2017/07/06 | 104          | 60 - 140  | 108          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | 1,2-Dichlorobenzene                 | 2017/07/06 | 92           | 60 - 140  | 94           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | 1,2-Dichloroethane                  | 2017/07/06 | 97           | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | 1,2-Dichloropropane                 | 2017/07/06 | 91           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | 1,3-Dichlorobenzene                 | 2017/07/06 | 93           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | 1,4-Dichlorobenzene                 | 2017/07/06 | 89           | 60 - 140  | 94           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Acetone (2-Propanone)               | 2017/07/06 | 94           | 60 - 140  | 97           | 60 - 140  | <0.50        | ug/g  | NC        | 50        |
| 5057908  | Benzene                             | 2017/07/06 | 98           | 60 - 140  | 101          | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5057908  | Bromodichloromethane                | 2017/07/06 | 95           | 60 - 140  | 98           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Bromoform                           | 2017/07/06 | 102          | 60 - 140  | 104          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Bromomethane                        | 2017/07/06 | 96           | 60 - 140  | 100          | 60 - 140  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Carbon Tetrachloride                | 2017/07/06 | 94           | 60 - 140  | 97           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Chlorobenzene                       | 2017/07/06 | 93           | 60 - 140  | 96           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Chloroform                          | 2017/07/06 | 95           | 60 - 140  | 99           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | cis-1,2-Dichloroethylene            | 2017/07/06 | 94           | 60 - 140  | 99           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | cis-1,3-Dichloropropene             | 2017/07/06 | 79           | 60 - 140  | 75           | 60 - 130  | <0.030       | ug/g  | NC        | 50        |
| 5057908  | Dibromochloromethane                | 2017/07/06 | 101          | 60 - 140  | 103          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Dichlorodifluoromethane (FREON 12)  | 2017/07/06 | 105          | 60 - 140  | 118          | 60 - 140  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Ethylbenzene                        | 2017/07/06 | 89           | 60 - 140  | 92           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5057908  | Ethylene Dibromide                  | 2017/07/06 | 102          | 60 - 140  | 105          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | F1 (C6-C10) - BTEX                  | 2017/07/06 |              |           |              |           | <10          | ug/g  | NC        | 30        |
| 5057908  | F1 (C6-C10)                         | 2017/07/06 | 105          | 60 - 140  | 99           | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5057908  | Hexane                              | 2017/07/06 | 107          | 60 - 140  | 111          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Methyl Ethyl Ketone (2-Butanone)    | 2017/07/06 | 97           | 60 - 140  | 101          | 60 - 140  | <0.50        | ug/g  | NC        | 50        |
| 5057908  | Methyl Isobutyl Ketone              | 2017/07/06 | 95           | 60 - 140  | 99           | 60 - 130  | <0.50        | ug/g  | NC        | 50        |
| 5057908  | Methyl t-butyl ether (MTBE)         | 2017/07/06 | 92           | 60 - 140  | 94           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Methylene Chloride(Dichloromethane) | 2017/07/06 | 103          | 60 - 140  | 108          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | o-Xylene                            | 2017/07/06 | 90           | 60 - 140  | 93           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                         | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|-----------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                   |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5057908  | p+m-Xylene                        | 2017/07/06 | 89           | 60 - 140  | 93           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5057908  | Styrene                           | 2017/07/06 | 71           | 60 - 140  | 74           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Tetrachloroethylene               | 2017/07/06 | 90           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Toluene                           | 2017/07/06 | 95           | 60 - 140  | 99           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5057908  | Total Xylenes                     | 2017/07/06 |              |           |              |           | <0.020       | ug/g  | NC        | 50        |
| 5057908  | trans-1,2-Dichloroethylene        | 2017/07/06 | 95           | 60 - 140  | 102          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | trans-1,3-Dichloropropene         | 2017/07/06 | 88           | 60 - 140  | 83           | 60 - 130  | <0.040       | ug/g  | NC        | 50        |
| 5057908  | Trichloroethylene                 | 2017/07/06 | 92           | 60 - 140  | 96           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Trichlorofluoromethane (FREON 11) | 2017/07/06 | 101          | 60 - 140  | 106          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5057908  | Vinyl Chloride                    | 2017/07/06 | 95           | 60 - 140  | 104          | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5057917  | F2 (C10-C16 Hydrocarbons)         | 2017/07/05 | 85           | 50 - 130  | 88           | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5057917  | F3 (C16-C34 Hydrocarbons)         | 2017/07/05 | 88           | 50 - 130  | 89           | 80 - 120  | <50          | ug/g  | NC        | 30        |
| 5057917  | F4 (C34-C50 Hydrocarbons)         | 2017/07/05 | 81           | 50 - 130  | 83           | 80 - 120  | <50          | ug/g  | NC        | 30        |
| 5057924  | Moisture                          | 2017/07/05 |              |           |              |           |              |       | 0         | 20        |
| 5058053  | 1-Methylnaphthalene               | 2017/07/05 | 88           | 50 - 130  | 88           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | 2-Methylnaphthalene               | 2017/07/05 | 83           | 50 - 130  | 84           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Acenaphthene                      | 2017/07/05 | 82           | 50 - 130  | 81           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Acenaphthylene                    | 2017/07/05 | 79           | 50 - 130  | 74           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Anthracene                        | 2017/07/05 | 75           | 50 - 130  | 69           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Benzo(a)anthracene                | 2017/07/05 | 80           | 50 - 130  | 74           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Benzo(a)pyrene                    | 2017/07/05 | 86           | 50 - 130  | 88           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Benzo(b,j)fluoranthene            | 2017/07/05 | 91           | 50 - 130  | 100          | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Benzo(g,h,i)perylene              | 2017/07/05 | 97           | 50 - 130  | 104          | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Benzo(k)fluoranthene              | 2017/07/05 | 85           | 50 - 130  | 87           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Chrysene                          | 2017/07/05 | 88           | 50 - 130  | 87           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Dibenz(a,h)anthracene             | 2017/07/05 | 94           | 50 - 130  | 97           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Fluoranthene                      | 2017/07/05 | 81           | 50 - 130  | 78           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Fluorene                          | 2017/07/05 | 83           | 50 - 130  | 81           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Indeno(1,2,3-cd)pyrene            | 2017/07/05 | 86           | 50 - 130  | 87           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Naphthalene                       | 2017/07/05 | 68           | 50 - 130  | 71           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Phenanthrene                      | 2017/07/05 | 84           | 50 - 130  | 82           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5058053  | Pyrene                            | 2017/07/05 | 82           | 50 - 130  | 78           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                        | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|----------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                  |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5058500  | Benzene                          | 2017/07/05 | 86           | 60 - 140  | 90           | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5058500  | Ethylbenzene                     | 2017/07/05 | 92           | 60 - 140  | 100          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5058500  | F1 (C6-C10) - BTEX               | 2017/07/05 |              |           |              |           | <10          | ug/g  | NC        | 30        |
| 5058500  | F1 (C6-C10)                      | 2017/07/05 | 109          | 60 - 140  | 93           | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5058500  | o-Xylene                         | 2017/07/05 | 94           | 60 - 140  | 101          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5058500  | p+m-Xylene                       | 2017/07/05 | 96           | 60 - 140  | 105          | 60 - 140  | <0.040       | ug/g  | NC        | 50        |
| 5058500  | Toluene                          | 2017/07/05 | 86           | 60 - 140  | 92           | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5058500  | Total Xylenes                    | 2017/07/05 |              |           |              |           | <0.040       | ug/g  | NC        | 50        |
| 5058516  | Acid Extractable Antimony (Sb)   | 2017/07/06 | 102          | 75 - 125  | 103          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5058516  | Acid Extractable Arsenic (As)    | 2017/07/06 | 101          | 75 - 125  | 101          | 80 - 120  | <1.0         | ug/g  | NC        | 30        |
| 5058516  | Acid Extractable Barium (Ba)     | 2017/07/06 | 103          | 75 - 125  | 104          | 80 - 120  | <0.50        | ug/g  | 6.2       | 30        |
| 5058516  | Acid Extractable Beryllium (Be)  | 2017/07/06 | 100          | 75 - 125  | 100          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5058516  | Acid Extractable Boron (B)       | 2017/07/06 | 98           | 75 - 125  | 101          | 80 - 120  | <5.0         | ug/g  | NC        | 30        |
| 5058516  | Acid Extractable Cadmium (Cd)    | 2017/07/06 | 98           | 75 - 125  | 103          | 80 - 120  | <0.10        | ug/g  | NC        | 30        |
| 5058516  | Acid Extractable Chromium (Cr)   | 2017/07/06 | 100          | 75 - 125  | 104          | 80 - 120  | <1.0         | ug/g  | 3.1       | 30        |
| 5058516  | Acid Extractable Cobalt (Co)     | 2017/07/06 | 98           | 75 - 125  | 104          | 80 - 120  | <0.10        | ug/g  | 1.4       | 30        |
| 5058516  | Acid Extractable Copper (Cu)     | 2017/07/06 | 99           | 75 - 125  | 103          | 80 - 120  | <0.50        | ug/g  | 2.5       | 30        |
| 5058516  | Acid Extractable Lead (Pb)       | 2017/07/06 | 99           | 75 - 125  | 105          | 80 - 120  | <1.0         | ug/g  | 3.3       | 30        |
| 5058516  | Acid Extractable Molybdenum (Mo) | 2017/07/06 | 101          | 75 - 125  | 104          | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5058516  | Acid Extractable Nickel (Ni)     | 2017/07/06 | 95           | 75 - 125  | 105          | 80 - 120  | <0.50        | ug/g  | 5.5       | 30        |
| 5058516  | Acid Extractable Selenium (Se)   | 2017/07/06 | 99           | 75 - 125  | 103          | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5058516  | Acid Extractable Silver (Ag)     | 2017/07/06 | 101          | 75 - 125  | 107          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5058516  | Acid Extractable Thallium (Tl)   | 2017/07/06 | 98           | 75 - 125  | 106          | 80 - 120  | <0.050       | ug/g  | NC        | 30        |
| 5058516  | Acid Extractable Uranium (U)     | 2017/07/06 | 99           | 75 - 125  | 104          | 80 - 120  | <0.050       | ug/g  | 13        | 30        |
| 5058516  | Acid Extractable Vanadium (V)    | 2017/07/06 | 104          | 75 - 125  | 103          | 80 - 120  | <5.0         | ug/g  | 4.5       | 30        |
| 5058516  | Acid Extractable Zinc (Zn)       | 2017/07/06 | 100          | 75 - 125  | 94           | 80 - 120  | <5.0         | ug/g  | 3.8       | 30        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                         | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|-----------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                   |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5062252  | F4G-sg (Grav. Heavy Hydrocarbons) | 2017/07/07 | 96           | 65 - 135  | 101          | 65 - 135  | <100         | ug/g  | 0         | 50        |

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

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

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).

### VALIDATION SIGNATURE PAGE

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

*Cristina Carriere*

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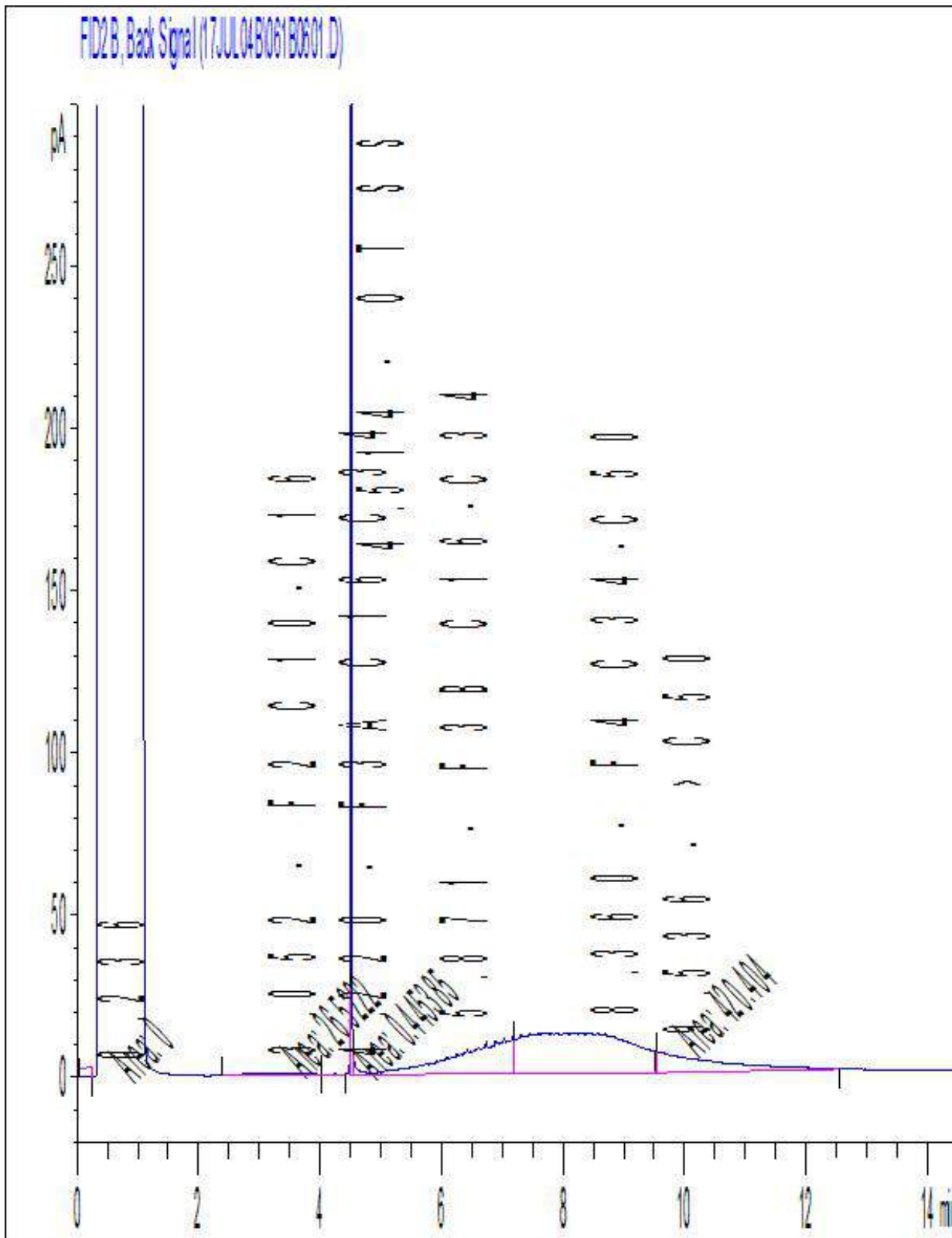
Cristina Carriere, Scientific Services

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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.

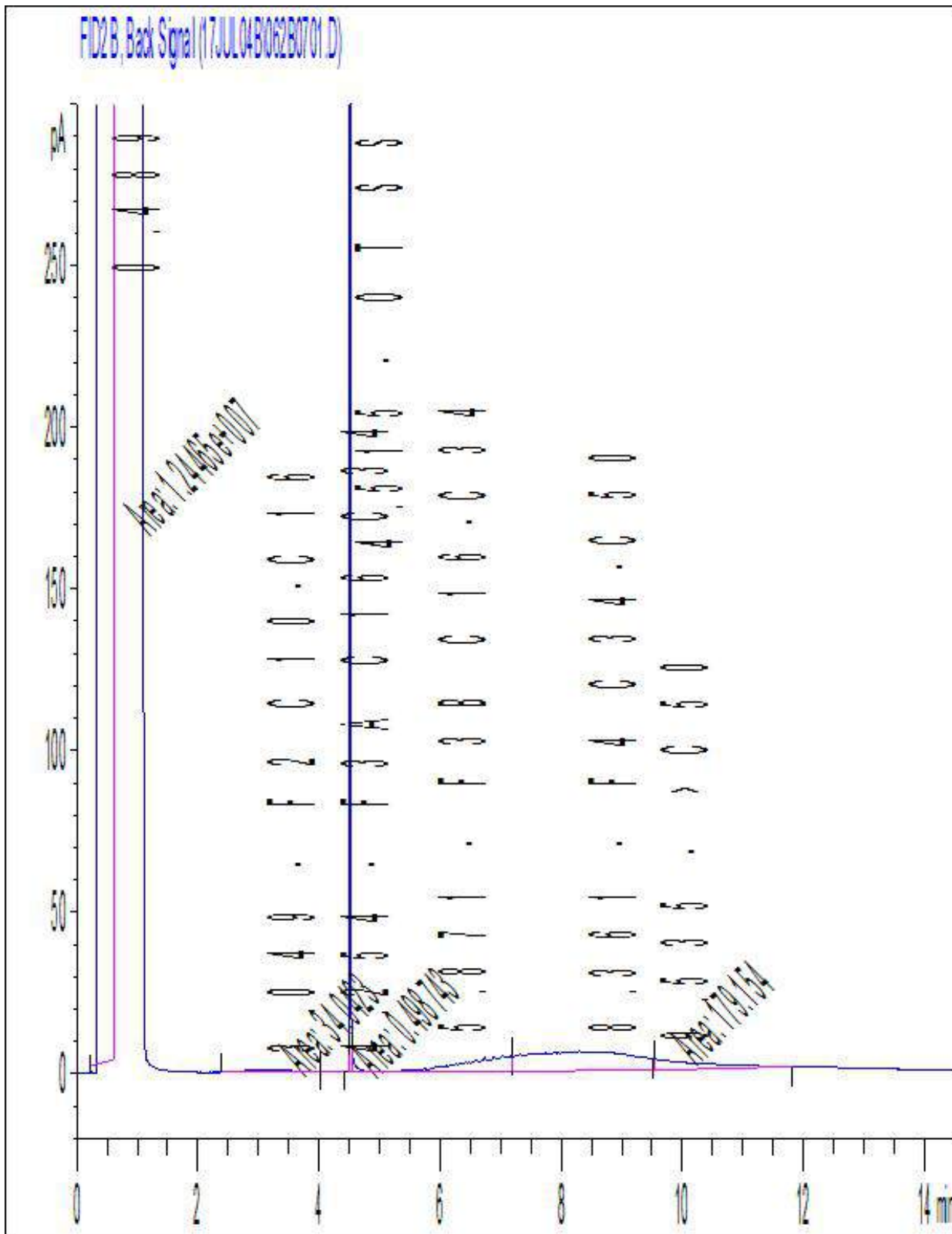


Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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

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.

**Attention: Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/13**  
Report #: R4594323  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B7D9999**

**Received: 2017/07/04, 17:05**

Sample Matrix: Soil  
# Samples Received: 3

| Analyses                                       | Quantity | Date       | Date       | Laboratory Method | Reference            |
|--|----------|------------|------------|-------------------|----------------------|
|  |          | Extracted  | Analyzed   |                   |                      |
| Methylnaphthalene Sum (1)                      | 1        | N/A        | 2017/07/11 | CAM SOP-00301     | EPA 8270D m          |
| Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2) | 2        | N/A        | 2017/07/10 | CAM SOP-00315     | CCME PHC-CWS m       |
| Petroleum Hydrocarbons F2-F4 in Soil (1, 3)    | 2        | 2017/07/07 | 2017/07/09 | CAM SOP-00316     | CCME CWS m           |
| Strong Acid Leachable Metals by ICPMS (1)      | 1        | 2017/07/11 | 2017/07/11 | CAM SOP-00447     | EPA 6020B m          |
| Moisture (1)                                   | 2        | N/A        | 2017/07/07 | CAM SOP-00445     | Carter 2nd ed 51.2 m |
| Moisture (1)                                   | 1        | N/A        | 2017/07/10 | CAM SOP-00445     | Carter 2nd ed 51.2 m |
| PAH Compounds in Soil by GC/MS (SIM) (1)       | 1        | 2017/07/07 | 2017/07/08 | CAM SOP-00318     | EPA 8270D 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.

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.

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.

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

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

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

Your Project #: TS-SO-29563  
Your C.O.C. #: 617077-15-01

**Attention:Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/13**  
Report #: R4594323  
Version: 2 - Revision

**CERTIFICATE OF ANALYSIS – REVISED REPORT**

**MAXXAM JOB #: B7D9999**

**Received: 2017/07/04, 17:05**

- (1) This test was performed by Maxxam Analytics Mississauga
- (2) 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.
- (3) 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.  
Alison Cameron, Project Manager  
Email: ACameron@maxxam.ca  
Phone# (613) 274-0573

=====  
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.

**O.REG 153 ICPCS METALS (SOIL)**

|  |              |                      |            |                 |
|--|--------------|----------------------|------------|-----------------|
| <b>Maxxam ID</b>   |              | ERJ082               |            |                 |
| <b>Sampling Date</b>   |              | 2017/07/04<br>13:00  |            |                 |
| <b>COC Number</b>  |              | 617077-15-01         |            |                 |
|  | <b>UNITS</b> | <b>BH2017-11 SS3</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Metals</b>  |              |                      |            |                 |
| Acid Extractable Antimony (Sb)                                       | ug/g         | 3.9                  | 0.20       | 5066786         |
| Acid Extractable Arsenic (As)  | ug/g         | 33                   | 1.0        | 5066786         |
| Acid Extractable Barium (Ba)   | ug/g         | 300                  | 0.50       | 5066786         |
| Acid Extractable Beryllium (Be)                                      | ug/g         | 0.44                 | 0.20       | 5066786         |
| Acid Extractable Boron (B)   | ug/g         | 11                   | 5.0        | 5066786         |
| Acid Extractable Cadmium (Cd)  | ug/g         | 0.80                 | 0.10       | 5066786         |
| Acid Extractable Chromium (Cr)                                       | ug/g         | 31                   | 1.0        | 5066786         |
| Acid Extractable Cobalt (Co)   | ug/g         | 7.0                  | 0.10       | 5066786         |
| Acid Extractable Copper (Cu)   | ug/g         | 100                  | 0.50       | 5066786         |
| Acid Extractable Lead (Pb)   | ug/g         | 410                  | 1.0        | 5066786         |
| Acid Extractable Molybdenum (Mo)                                     | ug/g         | 6.5                  | 0.50       | 5066786         |
| Acid Extractable Nickel (Ni)   | ug/g         | 29                   | 0.50       | 5066786         |
| Acid Extractable Selenium (Se)                                       | ug/g         | 1.2                  | 0.50       | 5066786         |
| Acid Extractable Silver (Ag)   | ug/g         | 0.37                 | 0.20       | 5066786         |
| Acid Extractable Thallium (Tl)                                       | ug/g         | 0.19                 | 0.050      | 5066786         |
| Acid Extractable Uranium (U)   | ug/g         | 1.2                  | 0.050      | 5066786         |
| Acid Extractable Vanadium (V)  | ug/g         | 24                   | 5.0        | 5066786         |
| Acid Extractable Zinc (Zn)   | ug/g         | 310                  | 5.0        | 5066786         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch |              |                      |            |                 |

**O.REG 153 PAHS (SOIL)**

|  |              |                      |            |                 |
|--|--------------|----------------------|------------|-----------------|
| <b>Maxxam ID</b>   |              | ERJ082               |            |                 |
| <b>Sampling Date</b>   |              | 2017/07/04<br>13:00  |            |                 |
| <b>COC Number</b>  |              | 617077-15-01         |            |                 |
|  | <b>UNITS</b> | <b>BH2017-11 SS3</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Inorganics</b>  |              |                      |            |                 |
| Moisture   | %            | 22                   | 1.0        | 5065361         |
| <b>Calculated Parameters</b>   |              |                      |            |                 |
| Methylnaphthalene, 2-(1-)  | ug/g         | 0.62                 | 0.071      | 5057870         |
| <b>Polyaromatic Hydrocarbons</b>                                     |              |                      |            |                 |
| Acenaphthene   | ug/g         | 0.26                 | 0.050      | 5062480         |
| Acenaphthylene   | ug/g         | 0.84                 | 0.050      | 5062480         |
| Anthracene   | ug/g         | 0.73                 | 0.050      | 5062480         |
| Benzo(a)anthracene   | ug/g         | 3.5                  | 0.050      | 5062480         |
| Benzo(a)pyrene   | ug/g         | 3.2                  | 0.050      | 5062480         |
| Benzo(b/j)fluoranthene   | ug/g         | 3.9                  | 0.050      | 5062480         |
| Benzo(g,h,i)perylene   | ug/g         | 2.1                  | 0.050      | 5062480         |
| Benzo(k)fluoranthene   | ug/g         | 1.4                  | 0.050      | 5062480         |
| Chrysene   | ug/g         | 2.9                  | 0.050      | 5062480         |
| Dibenz(a,h)anthracene  | ug/g         | 0.51                 | 0.050      | 5062480         |
| Fluoranthene   | ug/g         | 7.0                  | 0.050      | 5062480         |
| Fluorene   | ug/g         | 0.46                 | 0.050      | 5062480         |
| Indeno(1,2,3-cd)pyrene   | ug/g         | 2.5                  | 0.050      | 5062480         |
| 1-Methylnaphthalene  | ug/g         | 0.24                 | 0.050      | 5062480         |
| 2-Methylnaphthalene  | ug/g         | 0.38                 | 0.050      | 5062480         |
| Naphthalene  | ug/g         | 0.40                 | 0.050      | 5062480         |
| Phenanthrene   | ug/g         | 2.2                  | 0.050      | 5062480         |
| Pyrene   | ug/g         | 5.7                  | 0.050      | 5062480         |
| <b>Surrogate Recovery (%)</b>  |              |                      |            |                 |
| D10-Anthracene   | %            | 112                  |            | 5062480         |
| D14-Terphenyl (FS)   | %            | 105                  |            | 5062480         |
| D8-Acenaphthylene  | %            | 98                   |            | 5062480         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch |              |                      |            |                 |

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

| Maxxam ID                         |       | ERJ083              | ERJ084              |       |          |
|-----------------------------------|-------|---------------------|---------------------|-------|----------|
| Sampling Date                     |       | 2017/07/04<br>13:30 | 2017/07/04<br>13:40 |       |          |
| COC Number                        |       | 617077-15-01        | 617077-15-01        |       |          |
|                                   | UNITS | BH2017-11 SS11      | BH2017-11 SS13      | RDL   | QC Batch |
| <b>Inorganics</b>                 |       |                     |                     |       |          |
| Moisture                          | %     | 17                  | 15                  | 1.0   | 5063565  |
| <b>BTEX &amp; F1 Hydrocarbons</b> |       |                     |                     |       |          |
| Benzene                           | ug/g  | <0.020              | <0.020              | 0.020 | 5064239  |
| Toluene                           | ug/g  | <0.020              | <0.020              | 0.020 | 5064239  |
| Ethylbenzene                      | ug/g  | <0.020              | <0.020              | 0.020 | 5064239  |
| o-Xylene                          | ug/g  | <0.020              | <0.020              | 0.020 | 5064239  |
| p+m-Xylene                        | ug/g  | <0.040              | <0.040              | 0.040 | 5064239  |
| Total Xylenes                     | ug/g  | <0.040              | <0.040              | 0.040 | 5064239  |
| F1 (C6-C10)                       | ug/g  | <10                 | <10                 | 10    | 5064239  |
| F1 (C6-C10) - BTEX                | ug/g  | <10                 | <10                 | 10    | 5064239  |
| <b>F2-F4 Hydrocarbons</b>         |       |                     |                     |       |          |
| F2 (C10-C16 Hydrocarbons)         | ug/g  | <10                 | <10                 | 10    | 5063140  |
| F3 (C16-C34 Hydrocarbons)         | ug/g  | <50                 | <50                 | 50    | 5063140  |
| F4 (C34-C50 Hydrocarbons)         | ug/g  | <50                 | <50                 | 50    | 5063140  |
| Reached Baseline at C50           | ug/g  | Yes                 | Yes                 |       | 5063140  |
| <b>Surrogate Recovery (%)</b>     |       |                     |                     |       |          |
| 1,4-Difluorobenzene               | %     | 98                  | 99                  |       | 5064239  |
| 4-Bromofluorobenzene              | %     | 92                  | 91                  |       | 5064239  |
| D10-Ethylbenzene                  | %     | 122                 | 108                 |       | 5064239  |
| D4-1,2-Dichloroethane             | %     | 104                 | 105                 |       | 5064239  |
| o-Terphenyl                       | %     | 95                  | 97                  |       | 5063140  |
| RDL = Reportable Detection Limit  |       |                     |                     |       |          |
| QC Batch = Quality Control Batch  |       |                     |                     |       |          |

### TEST SUMMARY

**Maxxam ID:** ERJ082  
**Sample ID:** BH2017-11 SS3  
**Matrix:** Soil

**Collected:** 2017/07/04  
**Shipped:**  
**Received:** 2017/07/04

| Test Description                      | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst            |
|---------------------------------------|-----------------|---------|------------|---------------|--------------------|
| Methylnaphthalene Sum                 | CALC            | 5057870 | N/A        | 2017/07/11    | Automated Statchk  |
| Strong Acid Leachable Metals by ICPMS | ICP/MS          | 5066786 | 2017/07/11 | 2017/07/11    | Viviana Canzonieri |
| Moisture                              | BAL             | 5065361 | N/A        | 2017/07/10    | Valentina Kaftani  |
| PAH Compounds in Soil by GC/MS (SIM)  | GC/MS           | 5062480 | 2017/07/07 | 2017/07/08    | Mitesh Raj         |

**Maxxam ID:** ERJ083  
**Sample ID:** BH2017-11 SS11  
**Matrix:** Soil

**Collected:** 2017/07/04  
**Shipped:**  
**Received:** 2017/07/04

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst             |
|---|-----------------|---------|------------|---------------|---------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5064239 | N/A        | 2017/07/10    | Abdi Mohamud        |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5063140 | 2017/07/07 | 2017/07/09    | Atoosa Keshavarz    |
| Moisture                                | BAL             | 5063565 | N/A        | 2017/07/07    | Navpreet Singh Deol |

**Maxxam ID:** ERJ084  
**Sample ID:** BH2017-11 SS13  
**Matrix:** Soil

**Collected:** 2017/07/04  
**Shipped:**  
**Received:** 2017/07/04

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst             |
|---|-----------------|---------|------------|---------------|---------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5064239 | N/A        | 2017/07/10    | Abdi Mohamud        |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5063140 | 2017/07/07 | 2017/07/09    | Atoosa Keshavarz    |
| Moisture                                | BAL             | 5063565 | N/A        | 2017/07/07    | Navpreet Singh Deol |

### GENERAL COMMENTS

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

|           |        |
|-----------|--------|
| Package 1 | 12.0°C |
|-----------|--------|

Sample ERJ082 [BH2017-11 SS3] : PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample ERJ083 [BH2017-11 SS11] : F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample ERJ084 [BH2017-11 SS13] : Revised Report (2017-07-13): Client sample ID has been amended.

F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

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

### QUALITY ASSURANCE REPORT

| QC Batch | Parameter                 | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|---------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                           |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5062480  | D10-Anthracene            | 2017/07/07 | 95           | 50 - 130  | 86           | 50 - 130  | 93           | %     |           |           |
| 5062480  | D14-Terphenyl (FS)        | 2017/07/07 | 92           | 50 - 130  | 88           | 50 - 130  | 104          | %     |           |           |
| 5062480  | D8-Acenaphthylene         | 2017/07/07 | 82           | 50 - 130  | 78           | 50 - 130  | 81           | %     |           |           |
| 5063140  | o-Terphenyl               | 2017/07/08 | 95           | 60 - 130  | 98           | 60 - 130  | 94           | %     |           |           |
| 5064239  | 1,4-Difluorobenzene       | 2017/07/10 | 97           | 60 - 140  | 98           | 60 - 140  | 98           | %     |           |           |
| 5064239  | 4-Bromofluorobenzene      | 2017/07/10 | 99           | 60 - 140  | 96           | 60 - 140  | 93           | %     |           |           |
| 5064239  | D10-Ethylbenzene          | 2017/07/10 | 103          | 60 - 140  | 98           | 60 - 140  | 98           | %     |           |           |
| 5064239  | D4-1,2-Dichloroethane     | 2017/07/10 | 102          | 60 - 140  | 104          | 60 - 140  | 103          | %     |           |           |
| 5062480  | 1-Methylnaphthalene       | 2017/07/07 | 87           | 50 - 130  | 96           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | 2-Methylnaphthalene       | 2017/07/07 | 82           | 50 - 130  | 91           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Acenaphthene              | 2017/07/07 | 86           | 50 - 130  | 91           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Acenaphthylene            | 2017/07/07 | 88           | 50 - 130  | 91           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Anthracene                | 2017/07/07 | 83           | 50 - 130  | 81           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Benzo(a)anthracene        | 2017/07/07 | 101          | 50 - 130  | 98           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Benzo(a)pyrene            | 2017/07/07 | 90           | 50 - 130  | 90           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Benzo(b,j)fluoranthene    | 2017/07/07 | 89           | 50 - 130  | 89           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Benzo(g,h,i)perylene      | 2017/07/07 | 88           | 50 - 130  | 102          | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Benzo(k)fluoranthene      | 2017/07/07 | 83           | 50 - 130  | 102          | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Chrysene                  | 2017/07/07 | 94           | 50 - 130  | 94           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Dibenz(a,h)anthracene     | 2017/07/07 | 93           | 50 - 130  | 106          | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Fluoranthene              | 2017/07/07 | 99           | 50 - 130  | 97           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Fluorene                  | 2017/07/07 | 99           | 50 - 130  | 103          | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Indeno(1,2,3-cd)pyrene    | 2017/07/07 | 87           | 50 - 130  | 101          | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Naphthalene               | 2017/07/07 | 62           | 50 - 130  | 76           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Phenanthrene              | 2017/07/07 | 94           | 50 - 130  | 91           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5062480  | Pyrene                    | 2017/07/07 | 100          | 50 - 130  | 100          | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5063140  | F2 (C10-C16 Hydrocarbons) | 2017/07/09 | 98           | 50 - 130  | 98           | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5063140  | F3 (C16-C34 Hydrocarbons) | 2017/07/09 | 92           | 50 - 130  | 93           | 80 - 120  | <50          | ug/g  | NC        | 30        |
| 5063140  | F4 (C34-C50 Hydrocarbons) | 2017/07/09 | 109          | 50 - 130  | 108          | 80 - 120  | <50          | ug/g  | NC        | 30        |
| 5063565  | Moisture                  | 2017/07/07 |              |           |              |           |              |       | 3.7       | 20        |
| 5064239  | Benzene                   | 2017/07/10 | 93           | 60 - 140  | 98           | 60 - 140  | <0.020       | ug/g  | NC        | 50        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                        | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|----------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                  |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5064239  | Ethylbenzene                     | 2017/07/10 | 90           | 60 - 140  | 98           | 60 - 140  | <0.020       | ug/g  | 4.8       | 50        |
| 5064239  | F1 (C6-C10) - BTEX               | 2017/07/10 |              |           |              |           | <10          | ug/g  | NC        | 30        |
| 5064239  | F1 (C6-C10)                      | 2017/07/10 | 102          | 60 - 140  | 94           | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5064239  | o-Xylene                         | 2017/07/10 | 71           | 60 - 140  | 101          | 60 - 140  | <0.020       | ug/g  | 4.6       | 50        |
| 5064239  | p+m-Xylene                       | 2017/07/10 | 87           | 60 - 140  | 99           | 60 - 140  | <0.040       | ug/g  | 2.0       | 50        |
| 5064239  | Toluene                          | 2017/07/10 | 87           | 60 - 140  | 93           | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5064239  | Total Xylenes                    | 2017/07/10 |              |           |              |           | <0.040       | ug/g  | 1.9       | 50        |
| 5065361  | Moisture                         | 2017/07/10 |              |           |              |           |              |       | 1.4       | 20        |
| 5066786  | Acid Extractable Antimony (Sb)   | 2017/07/11 | 95           | 75 - 125  | 101          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5066786  | Acid Extractable Arsenic (As)    | 2017/07/11 | 99           | 75 - 125  | 104          | 80 - 120  | <1.0         | ug/g  | 18        | 30        |
| 5066786  | Acid Extractable Barium (Ba)     | 2017/07/11 | NC           | 75 - 125  | 107          | 80 - 120  | <0.50        | ug/g  | 2.6       | 30        |
| 5066786  | Acid Extractable Beryllium (Be)  | 2017/07/11 | 99           | 75 - 125  | 104          | 80 - 120  | <0.20        | ug/g  | 5.8       | 30        |
| 5066786  | Acid Extractable Boron (B)       | 2017/07/11 | 96           | 75 - 125  | 106          | 80 - 120  | <5.0         | ug/g  |           |           |
| 5066786  | Acid Extractable Cadmium (Cd)    | 2017/07/11 | 98           | 75 - 125  | 102          | 80 - 120  | <0.10        | ug/g  | 0.83      | 30        |
| 5066786  | Acid Extractable Chromium (Cr)   | 2017/07/11 | 104          | 75 - 125  | 106          | 80 - 120  | <1.0         | ug/g  | 11        | 30        |
| 5066786  | Acid Extractable Cobalt (Co)     | 2017/07/11 | 98           | 75 - 125  | 105          | 80 - 120  | <0.10        | ug/g  | 1.8       | 30        |
| 5066786  | Acid Extractable Copper (Cu)     | 2017/07/11 | 101          | 75 - 125  | 105          | 80 - 120  | <0.50        | ug/g  | 0.62      | 30        |
| 5066786  | Acid Extractable Lead (Pb)       | 2017/07/11 | 99           | 75 - 125  | 105          | 80 - 120  | <1.0         | ug/g  | 4.2       | 30        |
| 5066786  | Acid Extractable Molybdenum (Mo) | 2017/07/11 | 101          | 75 - 125  | 103          | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5066786  | Acid Extractable Nickel (Ni)     | 2017/07/11 | 99           | 75 - 125  | 103          | 80 - 120  | <0.50        | ug/g  | 6.2       | 30        |
| 5066786  | Acid Extractable Selenium (Se)   | 2017/07/11 | 98           | 75 - 125  | 102          | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5066786  | Acid Extractable Silver (Ag)     | 2017/07/11 | 102          | 75 - 125  | 104          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5066786  | Acid Extractable Thallium (Tl)   | 2017/07/11 | 101          | 75 - 125  | 105          | 80 - 120  | <0.050       | ug/g  | 4.6       | 30        |
| 5066786  | Acid Extractable Uranium (U)     | 2017/07/11 | 100          | 75 - 125  | 105          | 80 - 120  | <0.050       | ug/g  | 4.2       | 30        |
| 5066786  | Acid Extractable Vanadium (V)    | 2017/07/11 | 96           | 75 - 125  | 103          | 80 - 120  | <5.0         | ug/g  | 9.2       | 30        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                  | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|----------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                            |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5066786  | Acid Extractable Zinc (Zn) | 2017/07/11 | NC           | 75 - 125  | 103          | 80 - 120  | <5.0         | ug/g  | 9.5       | 30        |

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

**VALIDATION SIGNATURE PAGE**

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

*Cristina Carriere*

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Cristina Carriere, Scientific Services

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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.

04-Jul-17 17:05

Alison Cameron

**IMMEDIATE**

Company Name: #3824 DST Consulting Engineers Inc  
 Attention: Accounts Payable  
 Address: 2150 Thurston Dr Unit 203  
 Ottawa ON K1G 5T9  
 Tel: (613) 748-1415 x Fax: (613) 748-1356 x  
 Email: ap@dstgroup.com

REPORT TO:  
 Company Name: Eve Sabourin  
 Attention: Eve Sabourin  
 Address:  
 Tel:  
 Email: esabourin@dstgroup.com

PROJECT INFORMATION:  
 Quotation #: B61802  
 P.O. #:  
 Project: TS-SO-29563 MAF ENV-808  
 Project Name:  
 Site #:  
 Sampled By:

Barcode: B7D9999  
 Barcode: 817077  
 Barcode: C9817077-15-01

Bottle Order #:  
 Project Manager:  
 Alison Cameron

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

Regulation 153 (2011)  
 Table 1  Res/Park  Medium/Fine  
 Table 2  Ind/Comm  Coarse  
 Table 3  Agri/Other  For RSC  
 Table

Other Regulations  
 CCME  Sanitary Sewer Bylaw  
 Reg 558  Storm Sewer Bylaw  
 MISA Municipality  
 PWQO  
 Other

Special Instructions

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Field Filtered (please circle):  
 Metals / Hg / Cr / VI

O.Reg 153 Metals by HS & F144 (Soil)

O.Reg 153 PAHs (Soil)

O.Reg 153 ICP/MS Metals (Soil)  
 BTEX

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

Regular (Standard) TAT:  
 (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 Job for #)

| Sample Barcode Label | Sample (Location) Identification | Date Sampled | Time Sampled | Matrix | Field Filtered (please circle):<br>Metals / Hg / Cr / VI | O.Reg 153 Metals by HS & F144 (Soil) | O.Reg 153 PAHs (Soil) | O.Reg 153 ICP/MS Metals (Soil) | # of Bottles | Comments           |
|----------------------|----------------------------------|--------------|--------------|--------|--|--------------------------------------|-----------------------|--------------------------------|--------------|--------------------|
| 1                    | BH2017-11 SS3                    | 04/07/17     | 13:00        | Soil   |  | X                                    | X                     |                                | 3            |                    |
| 2                    | BH2017-11 SS1                    | ↓            | 13:30        | ↓      |  | X                                    |                       | X                              | 5            |                    |
| 3                    | BH2017-11 SS13                   | ↓            | 13:40        | ↓      |  | X                                    |                       | X                              | 3            |                    |
| 4                    | <del>BH2017-12SS1</del>          |              |              |        |  |                                      |                       |                                |              |                    |
| 5                    | <del>BH2017-12SS2</del>          |              |              |        |  |                                      |                       |                                |              |                    |
| 6                    | <del>BH2017-12SS3</del>          |              |              |        |  |                                      |                       |                                |              | RECEIVED IN OTTAWA |
| 7                    | <del>BH2017-18SS1</del>          |              |              |        |  |                                      |                       |                                |              | RECEIVED IN OTTAWA |
| 8                    | <del>BH2017-13SS2</del>          |              |              |        |  |                                      |                       |                                |              |                    |
| 9                    | <del>BH2017-13SS3</del>          |              |              |        |  |                                      |                       |                                |              |                    |
| 10                   |                                  |              |              |        |  |                                      |                       |                                |              | ON ICE             |

\* RELINQUISHED BY: (Signature/Print) Date: (YY/MM/DD) Time RECEIVED BY: (Signature/Print) Date: (YY/MM/DD) Time # jars used and not submitted

Eve Sabourin 14/07/04 17:00 Low Ferguson 2017/07/04 17:05

Time Sensitive Temperature (°C) on Receipt Custody Seal Present Intact Yes No

11, 12, 13

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-CCD.PDF.

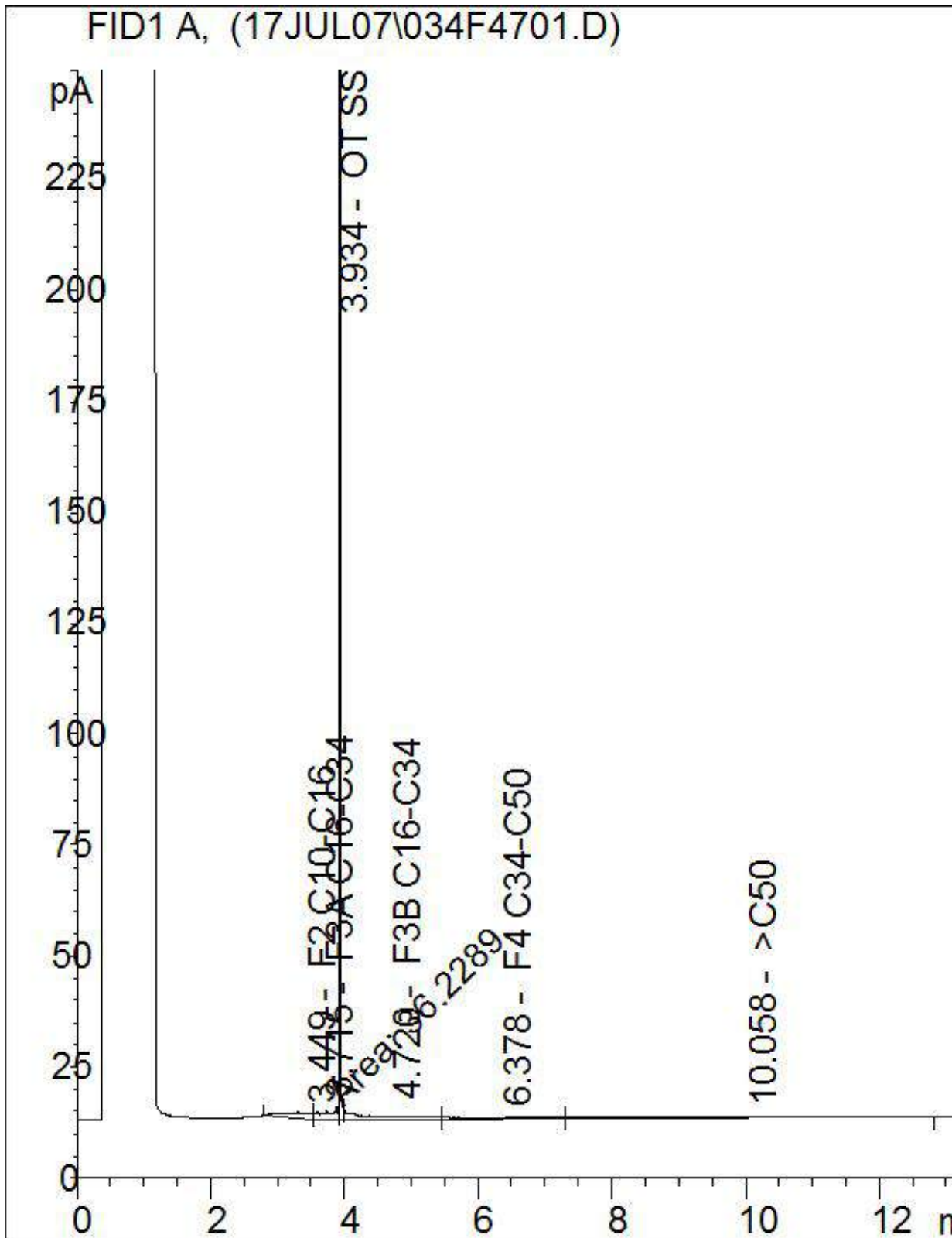
SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM.

White: Maxxa Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

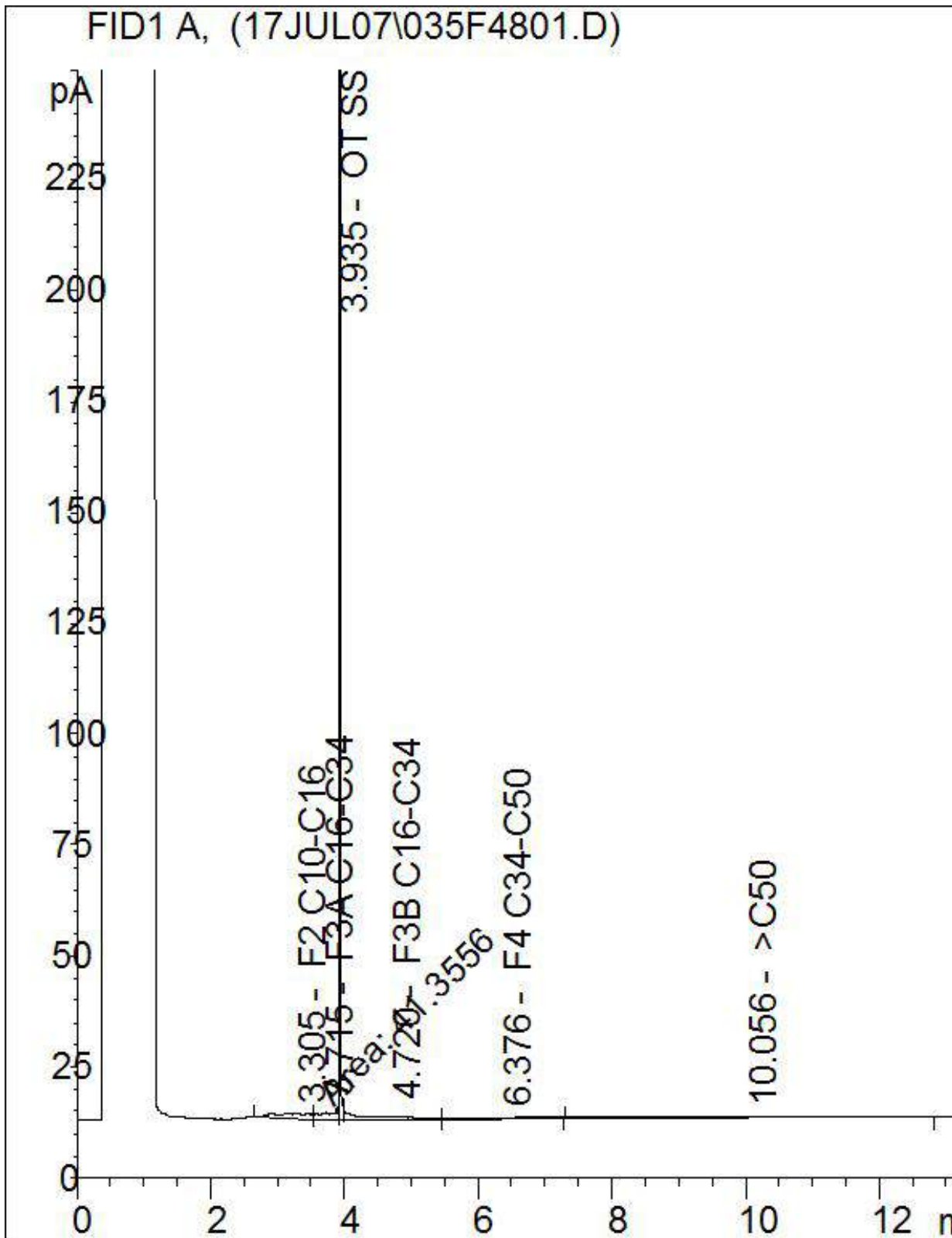
2017/07/04 22:50

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.

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.

**Attention:Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/14**  
Report #: R4598534  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7E2666**

**Received: 2017/07/07, 11:15**

Sample Matrix: Soil  
# Samples Received: 6

| Analyses                                       | Quantity | Date       | Date       | Laboratory Method | Reference            |
|--|----------|------------|------------|-------------------|----------------------|
|  |          | Extracted  | Analyzed   |                   |                      |
| Methylnaphthalene Sum (1)                      | 2        | N/A        | 2017/07/14 | CAM SOP-00301     | EPA 8270D m          |
| 1,3-Dichloropropene Sum (1)                    | 3        | N/A        | 2017/07/13 |                   | EPA 8260C m          |
| Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2) | 3        | N/A        | 2017/07/12 | CAM SOP-00315     | CCME PHC-CWS m       |
| Petroleum Hydrocarbons F2-F4 in Soil (1, 3)    | 3        | 2017/07/09 | 2017/07/12 | CAM SOP-00316     | CCME CWS m           |
| Petroleum Hydrocarbons F2-F4 in Soil (3)       | 3        | 2017/07/07 | 2017/07/07 | OTT SOP-00001     | CCME CWS             |
| F4G (CCME Hydrocarbons Gravimetric) (1)        | 1        | 2017/07/13 | 2017/07/13 | CAM SOP-00316     | CCME PHC-CWS m       |
| Strong Acid Leachable Metals by ICPMS (1)      | 1        | 2017/07/11 | 2017/07/12 | CAM SOP-00447     | EPA 6020B m          |
| Strong Acid Leachable Metals by ICPMS (1)      | 2        | 2017/07/12 | 2017/07/14 | CAM SOP-00447     | EPA 6020B m          |
| Moisture                                       | 3        | N/A        | 2017/07/10 | CAM SOP-00445     | McKeague 2nd ed 1978 |
| Moisture (1)                                   | 2        | N/A        | 2017/07/12 | CAM SOP-00445     | Carter 2nd ed 51.2 m |
| Moisture (1)                                   | 1        | N/A        | 2017/07/13 | CAM SOP-00445     | Carter 2nd ed 51.2 m |
| PAH Compounds in Soil by GC/MS (SIM) (1)       | 2        | 2017/07/12 | 2017/07/12 | CAM SOP-00318     | EPA 8270D m          |
| Volatile Organic Compounds and F1 PHCs (1)     | 3        | N/A        | 2017/07/13 | CAM SOP-00230     | 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.

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.

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.

Your Project #: TS-SO-29563  
Site Location: TRINITY 951GLADSTONE

**Attention:Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/14**  
Report #: R4598534  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7E2666**

**Received: 2017/07/07, 11:15**

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

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

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

- (1) This test was performed by Maxxam Analytics Mississauga
- (2) 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.
- (3) 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.  
Alison Cameron, Project Manager  
Email: ACameron@maxxam.ca  
Phone# (613) 274-0573

=====

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.

**O.REG 153 IC PMS METALS (SOIL)**

| Maxxam ID  |       | ERV884              |          | ERV886              | ERV887              |       |          |
|--|-------|---------------------|----------|---------------------|---------------------|-------|----------|
| Sampling Date  |       | 2017/07/06<br>08:20 |          | 2017/07/06<br>11:10 | 2017/07/06<br>14:30 |       |          |
|  | UNITS | BH 2017-2-SS9       | QC Batch | BH 2017-4-SS5       | BH 2017-9-SS4       | RDL   | QC Batch |
| <b>Metals</b>  |       |                     |          |                     |                     |       |          |
| Acid Extractable Antimony (Sb)                                       | ug/g  | <0.20               | 5067443  | <0.20               | <0.20               | 0.20  | 5069588  |
| Acid Extractable Arsenic (As)  | ug/g  | <1.0                | 5067443  | <1.0                | <1.0                | 1.0   | 5069588  |
| Acid Extractable Barium (Ba)   | ug/g  | 82                  | 5067443  | 110                 | 190                 | 0.50  | 5069588  |
| Acid Extractable Beryllium (Be)                                      | ug/g  | 0.33                | 5067443  | 0.36                | 0.56                | 0.20  | 5069588  |
| Acid Extractable Boron (B)   | ug/g  | <5.0                | 5067443  | 5.8                 | 5.8                 | 5.0   | 5069588  |
| Acid Extractable Cadmium (Cd)  | ug/g  | <0.10               | 5067443  | <0.10               | <0.10               | 0.10  | 5069588  |
| Acid Extractable Chromium (Cr)                                       | ug/g  | 18                  | 5067443  | 21                  | 42                  | 1.0   | 5069588  |
| Acid Extractable Cobalt (Co)   | ug/g  | 6.7                 | 5067443  | 8.0                 | 12                  | 0.10  | 5069588  |
| Acid Extractable Copper (Cu)   | ug/g  | 14                  | 5067443  | 15                  | 24                  | 0.50  | 5069588  |
| Acid Extractable Lead (Pb)   | ug/g  | 4.7                 | 5067443  | 4.8                 | 5.9                 | 1.0   | 5069588  |
| Acid Extractable Molybdenum (Mo)                                     | ug/g  | <0.50               | 5067443  | <0.50               | <0.50               | 0.50  | 5069588  |
| Acid Extractable Nickel (Ni)   | ug/g  | 13                  | 5067443  | 13                  | 26                  | 0.50  | 5069588  |
| Acid Extractable Selenium (Se)                                       | ug/g  | <0.50               | 5067443  | <0.50               | <0.50               | 0.50  | 5069588  |
| Acid Extractable Silver (Ag)   | ug/g  | <0.20               | 5067443  | <0.20               | <0.20               | 0.20  | 5069588  |
| Acid Extractable Thallium (Tl)                                       | ug/g  | 0.14                | 5067443  | 0.13                | 0.28                | 0.050 | 5069588  |
| Acid Extractable Uranium (U)   | ug/g  | 0.53                | 5067443  | 0.57                | 0.58                | 0.050 | 5069588  |
| Acid Extractable Vanadium (V)  | ug/g  | 32                  | 5067443  | 34                  | 62                  | 5.0   | 5069588  |
| Acid Extractable Zinc (Zn)   | ug/g  | 27                  | 5067443  | 30                  | 63                  | 5.0   | 5069588  |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch |       |                     |          |                     |                     |       |          |

**O.REG 153 PAHS (SOIL)**

| Maxxam ID  |       | ERV886              |        | ERV887              |       |          |
|--|-------|---------------------|--------|---------------------|-------|----------|
| Sampling Date  |       | 2017/07/06<br>11:10 |        | 2017/07/06<br>14:30 |       |          |
|  | UNITS | BH 2017-4-SS5       | RDL    | BH 2017-9-SS4       | RDL   | QC Batch |
| <b>Calculated Parameters</b>   |       |                     |        |                     |       |          |
| Methylnaphthalene, 2-(1-)  | ug/g  | 0.0073              | 0.0071 | <0.071              | 0.071 | 5062264  |
| <b>Polyaromatic Hydrocarbons</b>                                     |       |                     |        |                     |       |          |
| Acenaphthene   | ug/g  | <0.0050             | 0.0050 | <0.050              | 0.050 | 5069109  |
| Acenaphthylene   | ug/g  | <0.0050             | 0.0050 | <0.050              | 0.050 | 5069109  |
| Anthracene   | ug/g  | 0.014               | 0.0050 | <0.050              | 0.050 | 5069109  |
| Benzo(a)anthracene   | ug/g  | <0.0050             | 0.0050 | <0.050              | 0.050 | 5069109  |
| Benzo(a)pyrene   | ug/g  | <0.0050             | 0.0050 | <0.050              | 0.050 | 5069109  |
| Benzo(b/j)fluoranthene   | ug/g  | <0.0050             | 0.0050 | <0.050              | 0.050 | 5069109  |
| Benzo(g,h,i)perylene   | ug/g  | <0.0050             | 0.0050 | <0.050              | 0.050 | 5069109  |
| Benzo(k)fluoranthene   | ug/g  | <0.0050             | 0.0050 | <0.050              | 0.050 | 5069109  |
| Chrysene   | ug/g  | 0.0050              | 0.0050 | <0.050              | 0.050 | 5069109  |
| Dibenz(a,h)anthracene  | ug/g  | <0.0050             | 0.0050 | <0.050              | 0.050 | 5069109  |
| Fluoranthene   | ug/g  | 0.019               | 0.0050 | 0.067               | 0.050 | 5069109  |
| Fluorene   | ug/g  | 0.0055              | 0.0050 | <0.050              | 0.050 | 5069109  |
| Indeno(1,2,3-cd)pyrene   | ug/g  | <0.0050             | 0.0050 | <0.050              | 0.050 | 5069109  |
| 1-Methylnaphthalene  | ug/g  | 0.0073              | 0.0050 | <0.050              | 0.050 | 5069109  |
| 2-Methylnaphthalene  | ug/g  | <0.0050             | 0.0050 | <0.050              | 0.050 | 5069109  |
| Naphthalene  | ug/g  | <0.0050             | 0.0050 | <0.050              | 0.050 | 5069109  |
| Phenanthrene   | ug/g  | 0.022               | 0.0050 | 0.074               | 0.050 | 5069109  |
| Pyrene   | ug/g  | 0.014               | 0.0050 | 0.055               | 0.050 | 5069109  |
| <b>Surrogate Recovery (%)</b>  |       |                     |        |                     |       |          |
| D10-Anthracene   | %     | 98                  |        | 108                 |       | 5069109  |
| D14-Terphenyl (FS)   | %     | 90                  |        | 102                 |       | 5069109  |
| D8-Acenaphthylene  | %     | 93                  |        | 102                 |       | 5069109  |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch |       |                     |        |                     |       |          |

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

| Maxxam ID  |       | ERV883              | ERV885              | ERV888              |     |          |
|--|-------|---------------------|---------------------|---------------------|-----|----------|
| Sampling Date  |       | 2017/07/06<br>08:00 | 2017/07/06<br>11:00 | 2017/07/06<br>14:50 |     |          |
|  | UNITS | BH 2017-2-SS6       | BH 2017-4-SS4       | BH 2017-9-SS8       | RDL | QC Batch |
| <b>Inorganics</b>  |       |                     |                     |                     |     |          |
| Moisture   | %     | 30                  | 26                  | 15                  | 0.2 | 5062898  |
| <b>F2-F4 Hydrocarbons</b>  |       |                     |                     |                     |     |          |
| F2 (C10-C16 Hydrocarbons)  | ug/g  | <10                 | 55                  | <10                 | 10  | 5062902  |
| F3 (C16-C34 Hydrocarbons)  | ug/g  | <50                 | <50                 | <50                 | 50  | 5062902  |
| F4 (C34-C50 Hydrocarbons)  | ug/g  | <50                 | <50                 | <50                 | 50  | 5062902  |
| Reached Baseline at C50  | ug/g  | Yes                 | Yes                 | Yes                 |     | 5062902  |
| <b>Surrogate Recovery (%)</b>  |       |                     |                     |                     |     |          |
| o-Terphenyl  | %     | 97                  | 96                  | 93                  |     | 5062902  |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch |       |                     |                     |                     |     |          |

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

| Maxxam ID                           |       | ERV884              |          | ERV886              |          | ERV887              |       |          |
|-------------------------------------|-------|---------------------|----------|---------------------|----------|---------------------|-------|----------|
| Sampling Date                       |       | 2017/07/06<br>08:20 |          | 2017/07/06<br>11:10 |          | 2017/07/06<br>14:30 |       |          |
|                                     | UNITS | BH 2017-2-SS9       | QC Batch | BH 2017-4-SS5       | QC Batch | BH 2017-9-SS4       | RDL   | QC Batch |
| <b>Inorganics</b>                   |       |                     |          |                     |          |                     |       |          |
| Moisture                            | %     | 15                  | 5069158  | 15                  | 5068874  | 24                  | 1.0   | 5068874  |
| <b>Calculated Parameters</b>        |       |                     |          |                     |          |                     |       |          |
| 1,3-Dichloropropene (cis+trans)     | ug/g  | <0.050              | 5062265  | <0.050              | 5062265  | <0.050              | 0.050 | 5062873  |
| <b>Volatile Organics</b>            |       |                     |          |                     |          |                     |       |          |
| Acetone (2-Propanone)               | ug/g  | <0.50               | 5069471  | <0.50               | 5069471  | <0.50               | 0.50  | 5069471  |
| Benzene                             | ug/g  | <0.020              | 5069471  | <0.020              | 5069471  | <0.020              | 0.020 | 5069471  |
| Bromodichloromethane                | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Bromoform                           | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Bromomethane                        | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Carbon Tetrachloride                | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Chlorobenzene                       | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Chloroform                          | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Dibromochloromethane                | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| 1,2-Dichlorobenzene                 | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| 1,3-Dichlorobenzene                 | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| 1,4-Dichlorobenzene                 | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Dichlorodifluoromethane (FREON 12)  | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| 1,1-Dichloroethane                  | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| 1,2-Dichloroethane                  | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| 1,1-Dichloroethylene                | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| cis-1,2-Dichloroethylene            | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| trans-1,2-Dichloroethylene          | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| 1,2-Dichloropropane                 | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| cis-1,3-Dichloropropene             | ug/g  | <0.030              | 5069471  | <0.030              | 5069471  | <0.030              | 0.030 | 5069471  |
| trans-1,3-Dichloropropene           | ug/g  | <0.040              | 5069471  | <0.040              | 5069471  | <0.040              | 0.040 | 5069471  |
| Ethylbenzene                        | ug/g  | 0.33                | 5069471  | 0.13                | 5069471  | <0.020              | 0.020 | 5069471  |
| Ethylene Dibromide                  | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Hexane                              | ug/g  | 0.17                | 5069471  | 0.41                | 5069471  | <0.050              | 0.050 | 5069471  |
| Methylene Chloride(Dichloromethane) | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Methyl Ethyl Ketone (2-Butanone)    | ug/g  | <0.50               | 5069471  | <0.50               | 5069471  | <0.50               | 0.50  | 5069471  |
| Methyl Isobutyl Ketone              | ug/g  | <0.50               | 5069471  | <0.50               | 5069471  | <0.50               | 0.50  | 5069471  |
| Methyl t-butyl ether (MTBE)         | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Styrene                             | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| 1,1,1,2-Tetrachloroethane           | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| RDL = Reportable Detection Limit    |       |                     |          |                     |          |                     |       |          |
| QC Batch = Quality Control Batch    |       |                     |          |                     |          |                     |       |          |

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

| Maxxam ID                         |       | ERV884              |          | ERV886              |          | ERV887              |       |          |
|-----------------------------------|-------|---------------------|----------|---------------------|----------|---------------------|-------|----------|
| Sampling Date                     |       | 2017/07/06<br>08:20 |          | 2017/07/06<br>11:10 |          | 2017/07/06<br>14:30 |       |          |
|                                   | UNITS | BH 2017-2-SS9       | QC Batch | BH 2017-4-SS5       | QC Batch | BH 2017-9-SS4       | RDL   | QC Batch |
| 1,1,2,2-Tetrachloroethane         | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Tetrachloroethylene               | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Toluene                           | ug/g  | <0.020              | 5069471  | <0.020              | 5069471  | <0.020              | 0.020 | 5069471  |
| 1,1,1-Trichloroethane             | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| 1,1,2-Trichloroethane             | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Trichloroethylene                 | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Trichlorofluoromethane (FREON 11) | ug/g  | <0.050              | 5069471  | <0.050              | 5069471  | <0.050              | 0.050 | 5069471  |
| Vinyl Chloride                    | ug/g  | <0.020              | 5069471  | <0.020              | 5069471  | <0.020              | 0.020 | 5069471  |
| p+m-Xylene                        | ug/g  | 0.55                | 5069471  | <0.020              | 5069471  | <0.020              | 0.020 | 5069471  |
| o-Xylene                          | ug/g  | 0.039               | 5069471  | <0.020              | 5069471  | <0.020              | 0.020 | 5069471  |
| Total Xylenes                     | ug/g  | 0.59                | 5069471  | <0.020              | 5069471  | <0.020              | 0.020 | 5069471  |
| F1 (C6-C10)                       | ug/g  | <10                 | 5069471  | 30                  | 5069471  | <10                 | 10    | 5069471  |
| F1 (C6-C10) - BTEX                | ug/g  | <10                 | 5069471  | 30                  | 5069471  | <10                 | 10    | 5069471  |
| <b>F2-F4 Hydrocarbons</b>         |       |                     |          |                     |          |                     |       |          |
| F2 (C10-C16 Hydrocarbons)         | ug/g  | <10                 | 5064666  | <10                 | 5064666  | <10                 | 10    | 5064666  |
| F3 (C16-C34 Hydrocarbons)         | ug/g  | <50                 | 5064666  | <50                 | 5064666  | 170                 | 50    | 5064666  |
| F4 (C34-C50 Hydrocarbons)         | ug/g  | <50                 | 5064666  | <50                 | 5064666  | 380                 | 50    | 5064666  |
| Reached Baseline at C50           | ug/g  | Yes                 | 5064666  | Yes                 | 5064666  | No                  |       | 5064666  |
| <b>Surrogate Recovery (%)</b>     |       |                     |          |                     |          |                     |       |          |
| o-Terphenyl                       | %     | 98                  | 5064666  | 95                  | 5064666  | 95                  |       | 5064666  |
| 4-Bromofluorobenzene              | %     | 93                  | 5069471  | 96                  | 5069471  | 95                  |       | 5069471  |
| D10-o-Xylene                      | %     | 92                  | 5069471  | 100                 | 5069471  | 103                 |       | 5069471  |
| D4-1,2-Dichloroethane             | %     | 103                 | 5069471  | 105                 | 5069471  | 106                 |       | 5069471  |
| D8-Toluene                        | %     | 98                  | 5069471  | 99                  | 5069471  | 98                  |       | 5069471  |
| RDL = Reportable Detection Limit  |       |                     |          |                     |          |                     |       |          |
| QC Batch = Quality Control Batch  |       |                     |          |                     |          |                     |       |          |

**PETROLEUM HYDROCARBONS (CCME)**

| Maxxam ID                         |       | ERV883              | ERV885              | ERV887              | ERV888              |       |          |
|-----------------------------------|-------|---------------------|---------------------|---------------------|---------------------|-------|----------|
| Sampling Date                     |       | 2017/07/06<br>08:00 | 2017/07/06<br>11:00 | 2017/07/06<br>14:30 | 2017/07/06<br>14:50 |       |          |
|                                   | UNITS | BH 2017-2-SS6       | BH 2017-4-SS4       | BH 2017-9-SS4       | BH 2017-9-SS8       | RDL   | QC Batch |
| <b>BTEX &amp; F1 Hydrocarbons</b> |       |                     |                     |                     |                     |       |          |
| Benzene                           | ug/g  | <0.020              | <0.020              |                     | <0.020              | 0.020 | 5069977  |
| Toluene                           | ug/g  | <0.020              | <0.020              |                     | 0.059               | 0.020 | 5069977  |
| Ethylbenzene                      | ug/g  | <0.020              | <0.020              |                     | 0.19                | 0.020 | 5069977  |
| o-Xylene                          | ug/g  | <0.020              | <0.020              |                     | 0.16                | 0.020 | 5069977  |
| p+m-Xylene                        | ug/g  | <0.040              | <0.040              |                     | 0.71                | 0.040 | 5069977  |
| Total Xylenes                     | ug/g  | <0.040              | <0.040              |                     | 0.87                | 0.040 | 5069977  |
| F1 (C6-C10)                       | ug/g  | <10                 | 33                  |                     | 15                  | 10    | 5069977  |
| F1 (C6-C10) - BTEX                | ug/g  | <10                 | 33                  |                     | 14                  | 10    | 5069977  |
| <b>F2-F4 Hydrocarbons</b>         |       |                     |                     |                     |                     |       |          |
| F4G-sg (Grav. Heavy Hydrocarbons) | ug/g  |                     |                     | 920                 |                     | 100   | 5071068  |
| <b>Surrogate Recovery (%)</b>     |       |                     |                     |                     |                     |       |          |
| 1,4-Difluorobenzene               | %     | 113                 | 93                  |                     | 113                 |       | 5069977  |
| 4-Bromofluorobenzene              | %     | 102                 | 98                  |                     | 100                 |       | 5069977  |
| D10-Ethylbenzene                  | %     | 94                  | 100                 |                     | 96                  |       | 5069977  |
| D4-1,2-Dichloroethane             | %     | 115                 | 100                 |                     | 116                 |       | 5069977  |
| RDL = Reportable Detection Limit  |       |                     |                     |                     |                     |       |          |
| QC Batch = Quality Control Batch  |       |                     |                     |                     |                     |       |          |

### TEST SUMMARY

**Maxxam ID:** ERV883  
**Sample ID:** BH 2017-2-SS6  
**Matrix:** Soil

**Collected:** 2017/07/06  
**Shipped:**  
**Received:** 2017/07/07

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst          |
|---|-----------------|---------|------------|---------------|------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5069977 | N/A        | 2017/07/12    | Georgeta Rusu    |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5062902 | 2017/07/07 | 2017/07/07    | Liliana Gaburici |
| Moisture                                | BAL             | 5062898 | N/A        | 2017/07/10    | Liliana Gaburici |

**Maxxam ID:** ERV884  
**Sample ID:** BH 2017-2-SS9  
**Matrix:** Soil

**Collected:** 2017/07/06  
**Shipped:**  
**Received:** 2017/07/07

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|--|-----------------|---------|------------|---------------|-------------------|
| 1,3-Dichloropropene Sum                | CALC            | 5062265 | N/A        | 2017/07/13    | Automated Statchk |
| Petroleum Hydrocarbons F2-F4 in Soil   | GC/FID          | 5064666 | 2017/07/09 | 2017/07/12    | (Kent) Maolin Li  |
| Strong Acid Leachable Metals by ICPMS  | ICP/MS          | 5067443 | 2017/07/11 | 2017/07/12    | Thao Nguyen       |
| Moisture                               | BAL             | 5069158 | N/A        | 2017/07/13    | Valentina Kaftani |
| Volatile Organic Compounds and F1 PHCs | GC/MSFD         | 5069471 | N/A        | 2017/07/13    | Xueming Jiang     |

**Maxxam ID:** ERV885  
**Sample ID:** BH 2017-4-SS4  
**Matrix:** Soil

**Collected:** 2017/07/06  
**Shipped:**  
**Received:** 2017/07/07

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst          |
|---|-----------------|---------|------------|---------------|------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5069977 | N/A        | 2017/07/12    | Georgeta Rusu    |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5062902 | 2017/07/07 | 2017/07/07    | Liliana Gaburici |
| Moisture                                | BAL             | 5062898 | N/A        | 2017/07/10    | Liliana Gaburici |

**Maxxam ID:** ERV886  
**Sample ID:** BH 2017-4-SS5  
**Matrix:** Soil

**Collected:** 2017/07/06  
**Shipped:**  
**Received:** 2017/07/07

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|--|-----------------|---------|------------|---------------|-------------------|
| Methylnaphthalene Sum                  | CALC            | 5062264 | N/A        | 2017/07/14    | Automated Statchk |
| 1,3-Dichloropropene Sum                | CALC            | 5062265 | N/A        | 2017/07/13    | Automated Statchk |
| Petroleum Hydrocarbons F2-F4 in Soil   | GC/FID          | 5064666 | 2017/07/09 | 2017/07/12    | (Kent) Maolin Li  |
| Strong Acid Leachable Metals by ICPMS  | ICP/MS          | 5069588 | 2017/07/12 | 2017/07/14    | Daniel Teclu      |
| Moisture                               | BAL             | 5068874 | N/A        | 2017/07/12    | Prgya Panchal     |
| PAH Compounds in Soil by GC/MS (SIM)   | GC/MS           | 5069109 | 2017/07/12 | 2017/07/12    | Jett Wu           |
| Volatile Organic Compounds and F1 PHCs | GC/MSFD         | 5069471 | N/A        | 2017/07/13    | Xueming Jiang     |

**Maxxam ID:** ERV887  
**Sample ID:** BH 2017-9-SS4  
**Matrix:** Soil

**Collected:** 2017/07/06  
**Shipped:**  
**Received:** 2017/07/07

| Test Description                     | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|--------------------------------------|-----------------|---------|------------|---------------|-------------------|
| Methylnaphthalene Sum                | CALC            | 5062264 | N/A        | 2017/07/14    | Automated Statchk |
| 1,3-Dichloropropene Sum              | CALC            | 5062873 | N/A        | 2017/07/13    | Automated Statchk |
| Petroleum Hydrocarbons F2-F4 in Soil | GC/FID          | 5064666 | 2017/07/09 | 2017/07/12    | (Kent) Maolin Li  |

### TEST SUMMARY

**Maxxam ID:** ERV887  
**Sample ID:** BH 2017-9-SS4  
**Matrix:** Soil

**Collected:** 2017/07/06  
**Shipped:**  
**Received:** 2017/07/07

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst         |
|--|-----------------|---------|------------|---------------|-----------------|
| F4G (CCME Hydrocarbons Gravimetric)    | BAL             | 5071068 | 2017/07/13 | 2017/07/13    | Debra Deslandes |
| Strong Acid Leachable Metals by ICPMS  | ICP/MS          | 5069588 | 2017/07/12 | 2017/07/14    | Daniel Teclu    |
| Moisture                               | BAL             | 5068874 | N/A        | 2017/07/12    | Prgya Panchal   |
| PAH Compounds in Soil by GC/MS (SIM)   | GC/MS           | 5069109 | 2017/07/12 | 2017/07/12    | Jett Wu         |
| Volatile Organic Compounds and F1 PHCs | GC/MSFD         | 5069471 | N/A        | 2017/07/13    | Xueming Jiang   |

**Maxxam ID:** ERV888  
**Sample ID:** BH 2017-9-SS8  
**Matrix:** Soil

**Collected:** 2017/07/06  
**Shipped:**  
**Received:** 2017/07/07

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst          |
|---|-----------------|---------|------------|---------------|------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5069977 | N/A        | 2017/07/12    | Georgeta Rusu    |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5062902 | 2017/07/07 | 2017/07/07    | Liliana Gaburici |
| Moisture                                | BAL             | 5062898 | N/A        | 2017/07/10    | Liliana Gaburici |

### GENERAL COMMENTS

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

|           |        |
|-----------|--------|
| Package 1 | 10.0°C |
|-----------|--------|

Sample ERV884 [BH 2017-2-SS9] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample ERV885 [BH 2017-4-SS4] : F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample ERV886 [BH 2017-4-SS5] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample ERV887 [BH 2017-9-SS4] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.  
PAH analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Sample ERV888 [BH 2017-9-SS8] : F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

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

### QUALITY ASSURANCE REPORT

| QC Batch | Parameter                        | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|----------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                  |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5062902  | o-Terphenyl                      | 2017/07/07 | 101          | 30 - 130  | 99           | 30 - 130  | 97           | %     |           |           |
| 5064666  | o-Terphenyl                      | 2017/07/10 | 96           | 60 - 130  | 95           | 60 - 130  | 96           | %     |           |           |
| 5069109  | D10-Anthracene                   | 2017/07/12 | 97           | 50 - 130  | 99           | 50 - 130  | 97           | %     |           |           |
| 5069109  | D14-Terphenyl (FS)               | 2017/07/12 | 104          | 50 - 130  | 100          | 50 - 130  | 98           | %     |           |           |
| 5069109  | D8-Acenaphthylene                | 2017/07/12 | 84           | 50 - 130  | 92           | 50 - 130  | 83           | %     |           |           |
| 5069471  | 4-Bromofluorobenzene             | 2017/07/12 | 96           | 60 - 140  | 96           | 60 - 140  | 94           | %     |           |           |
| 5069471  | D10-o-Xylene                     | 2017/07/12 | 98           | 60 - 130  | 90           | 60 - 130  | 93           | %     |           |           |
| 5069471  | D4-1,2-Dichloroethane            | 2017/07/12 | 105          | 60 - 140  | 105          | 60 - 140  | 105          | %     |           |           |
| 5069471  | D8-Toluene                       | 2017/07/12 | 102          | 60 - 140  | 102          | 60 - 140  | 99           | %     |           |           |
| 5069977  | 1,4-Difluorobenzene              | 2017/07/12 | 97           | 60 - 140  | 112          | 60 - 140  | 90           | %     |           |           |
| 5069977  | 4-Bromofluorobenzene             | 2017/07/12 | 101          | 60 - 140  | 103          | 60 - 140  | 101          | %     |           |           |
| 5069977  | D10-Ethylbenzene                 | 2017/07/12 | 104          | 60 - 140  | 96           | 60 - 140  | 86           | %     |           |           |
| 5069977  | D4-1,2-Dichloroethane            | 2017/07/12 | 102          | 60 - 140  | 115          | 60 - 140  | 99           | %     |           |           |
| 5062898  | Moisture                         | 2017/07/10 |              |           |              |           |              |       | 2.3       | 50        |
| 5062902  | F2 (C10-C16 Hydrocarbons)        | 2017/07/07 | 101          | 50 - 130  | 99           | 80 - 120  | <10          | ug/g  | 11        | 50        |
| 5062902  | F3 (C16-C34 Hydrocarbons)        | 2017/07/07 | 101          | 50 - 130  | 99           | 80 - 120  | <50          | ug/g  | 14        | 50        |
| 5062902  | F4 (C34-C50 Hydrocarbons)        | 2017/07/07 | 101          | 50 - 130  | 99           | 80 - 120  | <50          | ug/g  | NC        | 50        |
| 5064666  | F2 (C10-C16 Hydrocarbons)        | 2017/07/10 | 99           | 50 - 130  | 98           | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5064666  | F3 (C16-C34 Hydrocarbons)        | 2017/07/10 | 101          | 50 - 130  | 100          | 80 - 120  | <50          | ug/g  | NC        | 30        |
| 5064666  | F4 (C34-C50 Hydrocarbons)        | 2017/07/10 | 102          | 50 - 130  | 101          | 80 - 120  | <50          | ug/g  | NC        | 30        |
| 5067443  | Acid Extractable Antimony (Sb)   | 2017/07/12 | 100          | 75 - 125  | 99           | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5067443  | Acid Extractable Arsenic (As)    | 2017/07/12 | 101          | 75 - 125  | 99           | 80 - 120  | <1.0         | ug/g  | 2.2       | 30        |
| 5067443  | Acid Extractable Barium (Ba)     | 2017/07/12 | NC           | 75 - 125  | 105          | 80 - 120  | <0.50        | ug/g  | 2.7       | 30        |
| 5067443  | Acid Extractable Beryllium (Be)  | 2017/07/12 | 110          | 75 - 125  | 105          | 80 - 120  | <0.20        | ug/g  | 1.7       | 30        |
| 5067443  | Acid Extractable Boron (B)       | 2017/07/12 | 107          | 75 - 125  | 90           | 80 - 120  | <5.0         | ug/g  | NC        | 30        |
| 5067443  | Acid Extractable Cadmium (Cd)    | 2017/07/12 | 100          | 75 - 125  | 96           | 80 - 120  | <0.10        | ug/g  | NC        | 30        |
| 5067443  | Acid Extractable Chromium (Cr)   | 2017/07/12 | 109          | 75 - 125  | 103          | 80 - 120  | <1.0         | ug/g  | 1.7       | 30        |
| 5067443  | Acid Extractable Cobalt (Co)     | 2017/07/12 | 104          | 75 - 125  | 100          | 80 - 120  | <0.10        | ug/g  | 1.1       | 30        |
| 5067443  | Acid Extractable Copper (Cu)     | 2017/07/12 | 105          | 75 - 125  | 101          | 80 - 120  | <0.50        | ug/g  | 0.88      | 30        |
| 5067443  | Acid Extractable Lead (Pb)       | 2017/07/12 | 100          | 75 - 125  | 100          | 80 - 120  | <1.0         | ug/g  | 3.0       | 30        |
| 5067443  | Acid Extractable Molybdenum (Mo) | 2017/07/12 | 105          | 75 - 125  | 97           | 80 - 120  | <0.50        | ug/g  | NC        | 30        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                      | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|--------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5067443  | Acid Extractable Nickel (Ni)   | 2017/07/12 | 109          | 75 - 125  | 101          | 80 - 120  | <0.50        | ug/g  | 10        | 30        |
| 5067443  | Acid Extractable Selenium (Se) | 2017/07/12 | 104          | 75 - 125  | 103          | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5067443  | Acid Extractable Silver (Ag)   | 2017/07/12 | 105          | 75 - 125  | 100          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5067443  | Acid Extractable Thallium (Tl) | 2017/07/12 | 98           | 75 - 125  | 98           | 80 - 120  | <0.050       | ug/g  | 0.74      | 30        |
| 5067443  | Acid Extractable Uranium (U)   | 2017/07/12 | 108          | 75 - 125  | 106          | 80 - 120  | <0.050       | ug/g  | 0.89      | 30        |
| 5067443  | Acid Extractable Vanadium (V)  | 2017/07/12 | 113          | 75 - 125  | 101          | 80 - 120  | <5.0         | ug/g  | 0.55      | 30        |
| 5067443  | Acid Extractable Zinc (Zn)     | 2017/07/12 | NC           | 75 - 125  | 98           | 80 - 120  | <5.0         | ug/g  | 6.6       | 30        |
| 5068874  | Moisture                       | 2017/07/12 |              |           |              |           |              |       | 5.3       | 20        |
| 5069109  | 1-Methylnaphthalene            | 2017/07/12 | 98           | 50 - 130  | 107          | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | 2-Methylnaphthalene            | 2017/07/12 | 89           | 50 - 130  | 98           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Acenaphthene                   | 2017/07/12 | 84           | 50 - 130  | 88           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Acenaphthylene                 | 2017/07/12 | 93           | 50 - 130  | 100          | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Anthracene                     | 2017/07/12 | 84           | 50 - 130  | 88           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Benzo(a)anthracene             | 2017/07/12 | 89           | 50 - 130  | 91           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Benzo(a)pyrene                 | 2017/07/12 | 89           | 50 - 130  | 93           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Benzo(b,j)fluoranthene         | 2017/07/12 | 86           | 50 - 130  | 91           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Benzo(g,h,i)perylene           | 2017/07/12 | 85           | 50 - 130  | 85           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Benzo(k)fluoranthene           | 2017/07/12 | 84           | 50 - 130  | 90           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Chrysene                       | 2017/07/12 | 90           | 50 - 130  | 94           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Dibenz(a,h)anthracene          | 2017/07/12 | 85           | 50 - 130  | 86           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Fluoranthene                   | 2017/07/12 | 112          | 50 - 130  | 96           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Fluorene                       | 2017/07/12 | 86           | 50 - 130  | 96           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Indeno(1,2,3-cd)pyrene         | 2017/07/12 | 81           | 50 - 130  | 84           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Naphthalene                    | 2017/07/12 | 69           | 50 - 130  | 82           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Phenanthrene                   | 2017/07/12 | 88           | 50 - 130  | 90           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069109  | Pyrene                         | 2017/07/12 | 100          | 50 - 130  | 98           | 50 - 130  | <0.0050      | ug/g  | NC        | 40        |
| 5069158  | Moisture                       | 2017/07/13 |              |           |              |           |              |       | 5.5       | 20        |
| 5069471  | 1,1,1,2-Tetrachloroethane      | 2017/07/13 | 109          | 60 - 140  | 108          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | 1,1,1-Trichloroethane          | 2017/07/13 | 97           | 60 - 140  | 97           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | 1,1,2,2-Tetrachloroethane      | 2017/07/13 | 110          | 60 - 140  | 109          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | 1,1,2-Trichloroethane          | 2017/07/13 | 108          | 60 - 140  | 106          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                           | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|-------------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                     |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5069471  | 1,1-Dichloroethane                  | 2017/07/13 | 104          | 60 - 140  | 103          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | 1,1-Dichloroethylene                | 2017/07/13 | 106          | 60 - 140  | 105          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | 1,2-Dichlorobenzene                 | 2017/07/13 | 100          | 60 - 140  | 99           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | 1,2-Dichloroethane                  | 2017/07/13 | 101          | 60 - 140  | 100          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | 1,2-Dichloropropane                 | 2017/07/13 | 92           | 60 - 140  | 91           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | 1,3-Dichlorobenzene                 | 2017/07/13 | 102          | 60 - 140  | 100          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | 1,4-Dichlorobenzene                 | 2017/07/13 | 98           | 60 - 140  | 98           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Acetone (2-Propanone)               | 2017/07/13 | 99           | 60 - 140  | 97           | 60 - 140  | <0.50        | ug/g  | NC        | 50        |
| 5069471  | Benzene                             | 2017/07/13 | 102          | 60 - 140  | 101          | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5069471  | Bromodichloromethane                | 2017/07/13 | 102          | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Bromoform                           | 2017/07/13 | 108          | 60 - 140  | 107          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Bromomethane                        | 2017/07/13 | 98           | 60 - 140  | 96           | 60 - 140  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Carbon Tetrachloride                | 2017/07/13 | 98           | 60 - 140  | 97           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Chlorobenzene                       | 2017/07/13 | 97           | 60 - 140  | 97           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Chloroform                          | 2017/07/13 | 100          | 60 - 140  | 100          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | cis-1,2-Dichloroethylene            | 2017/07/13 | 98           | 60 - 140  | 97           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | cis-1,3-Dichloropropene             | 2017/07/13 | 81           | 60 - 140  | 80           | 60 - 130  | <0.030       | ug/g  | NC        | 50        |
| 5069471  | Dibromochloromethane                | 2017/07/13 | 106          | 60 - 140  | 105          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Dichlorodifluoromethane (FREON 12)  | 2017/07/13 | 104          | 60 - 140  | 102          | 60 - 140  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Ethylbenzene                        | 2017/07/13 | 96           | 60 - 140  | 96           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5069471  | Ethylene Dibromide                  | 2017/07/13 | 109          | 60 - 140  | 108          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | F1 (C6-C10) - BTEX                  | 2017/07/13 |              |           |              |           | <10          | ug/g  | NC        | 30        |
| 5069471  | F1 (C6-C10)                         | 2017/07/13 | 101          | 60 - 140  | 98           | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5069471  | Hexane                              | 2017/07/13 | 103          | 60 - 140  | 102          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Methyl Ethyl Ketone (2-Butanone)    | 2017/07/13 | 101          | 60 - 140  | 99           | 60 - 140  | <0.50        | ug/g  | NC        | 50        |
| 5069471  | Methyl Isobutyl Ketone              | 2017/07/13 | 98           | 60 - 140  | 96           | 60 - 130  | <0.50        | ug/g  | NC        | 50        |
| 5069471  | Methyl t-butyl ether (MTBE)         | 2017/07/13 | 94           | 60 - 140  | 93           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Methylene Chloride(Dichloromethane) | 2017/07/13 | 100          | 60 - 140  | 99           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | o-Xylene                            | 2017/07/13 | 95           | 60 - 140  | 94           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5069471  | p+m-Xylene                          | 2017/07/13 | 95           | 60 - 140  | 94           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5069471  | Styrene                             | 2017/07/13 | 93           | 60 - 140  | 92           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                         | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|-----------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                   |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5069471  | Tetrachloroethylene               | 2017/07/13 | 97           | 60 - 140  | 96           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Toluene                           | 2017/07/13 | 94           | 60 - 140  | 94           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5069471  | Total Xylenes                     | 2017/07/13 |              |           |              |           | <0.020       | ug/g  | NC        | 50        |
| 5069471  | trans-1,2-Dichloroethylene        | 2017/07/13 | 97           | 60 - 140  | 96           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | trans-1,3-Dichloropropene         | 2017/07/13 | 86           | 60 - 140  | 85           | 60 - 130  | <0.040       | ug/g  | NC        | 50        |
| 5069471  | Trichloroethylene                 | 2017/07/13 | 97           | 60 - 140  | 96           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Trichlorofluoromethane (FREON 11) | 2017/07/13 | 104          | 60 - 140  | 103          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5069471  | Vinyl Chloride                    | 2017/07/13 | 98           | 60 - 140  | 97           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5069588  | Acid Extractable Antimony (Sb)    | 2017/07/13 | 100          | 75 - 125  | 97           | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5069588  | Acid Extractable Arsenic (As)     | 2017/07/13 | 96           | 75 - 125  | 100          | 80 - 120  | <1.0         | ug/g  | NC        | 30        |
| 5069588  | Acid Extractable Barium (Ba)      | 2017/07/13 | 98           | 75 - 125  | 98           | 80 - 120  | <0.50        | ug/g  | 2.5       | 30        |
| 5069588  | Acid Extractable Beryllium (Be)   | 2017/07/13 | 97           | 75 - 125  | 97           | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5069588  | Acid Extractable Boron (B)        | 2017/07/13 | 98           | 75 - 125  | 99           | 80 - 120  | <5.0         | ug/g  | NC        | 30        |
| 5069588  | Acid Extractable Cadmium (Cd)     | 2017/07/13 | 102          | 75 - 125  | 98           | 80 - 120  | <0.10        | ug/g  | NC        | 30        |
| 5069588  | Acid Extractable Chromium (Cr)    | 2017/07/13 | 103          | 75 - 125  | 101          | 80 - 120  | <1.0         | ug/g  | 0.71      | 30        |
| 5069588  | Acid Extractable Cobalt (Co)      | 2017/07/13 | 99           | 75 - 125  | 99           | 80 - 120  | <0.10        | ug/g  | 1.4       | 30        |
| 5069588  | Acid Extractable Copper (Cu)      | 2017/07/13 | 101          | 75 - 125  | 102          | 80 - 120  | <0.50        | ug/g  | 4.1       | 30        |
| 5069588  | Acid Extractable Lead (Pb)        | 2017/07/13 | 101          | 75 - 125  | 100          | 80 - 120  | <1.0         | ug/g  | 3.6       | 30        |
| 5069588  | Acid Extractable Molybdenum (Mo)  | 2017/07/13 | 102          | 75 - 125  | 97           | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5069588  | Acid Extractable Nickel (Ni)      | 2017/07/13 | 99           | 75 - 125  | 104          | 80 - 120  | <0.50        | ug/g  | 2.3       | 30        |
| 5069588  | Acid Extractable Selenium (Se)    | 2017/07/13 | 100          | 75 - 125  | 102          | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5069588  | Acid Extractable Silver (Ag)      | 2017/07/13 | 103          | 75 - 125  | 102          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5069588  | Acid Extractable Thallium (Tl)    | 2017/07/13 | 102          | 75 - 125  | 100          | 80 - 120  | <0.050       | ug/g  | NC        | 30        |
| 5069588  | Acid Extractable Uranium (U)      | 2017/07/13 | 102          | 75 - 125  | 99           | 80 - 120  | <0.050       | ug/g  | 2.1       | 30        |
| 5069588  | Acid Extractable Vanadium (V)     | 2017/07/13 | 102          | 75 - 125  | 102          | 80 - 120  | <5.0         | ug/g  | 1.2       | 30        |
| 5069588  | Acid Extractable Zinc (Zn)        | 2017/07/13 | 100          | 75 - 125  | 101          | 80 - 120  | <5.0         | ug/g  | 8.7       | 30        |
| 5069977  | Benzene                           | 2017/07/12 | 103          | 60 - 140  | 122          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5069977  | Ethylbenzene                      | 2017/07/12 | 99           | 60 - 140  | 100          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5069977  | F1 (C6-C10) - BTEX                | 2017/07/12 |              |           |              |           | <10          | ug/g  | NC        | 30        |
| 5069977  | F1 (C6-C10)                       | 2017/07/12 | 83           | 60 - 140  | 102          | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5069977  | o-Xylene                          | 2017/07/12 | 102          | 60 - 140  | 103          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |

### QUALITY ASSURANCE REPORT(CONT'D)

| QC Batch | Parameter                         | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|-----------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                   |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5069977  | p+m-Xylene                        | 2017/07/12 | 99           | 60 - 140  | 101          | 60 - 140  | <0.040       | ug/g  | NC        | 50        |
| 5069977  | Toluene                           | 2017/07/12 | 86           | 60 - 140  | 101          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5069977  | Total Xylenes                     | 2017/07/12 |              |           |              |           | <0.040       | ug/g  | NC        | 50        |
| 5071068  | F4G-sg (Grav. Heavy Hydrocarbons) | 2017/07/13 | 106          | 65 - 135  | 102          | 65 - 135  | <100         | ug/g  | 22        | 50        |

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

### VALIDATION SIGNATURE PAGE

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



Brad Newman, Scientific Specialist



Cristina Carriere, Scientific Services



Paul Rubinato, Analyst, Maxxam Analytics

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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.



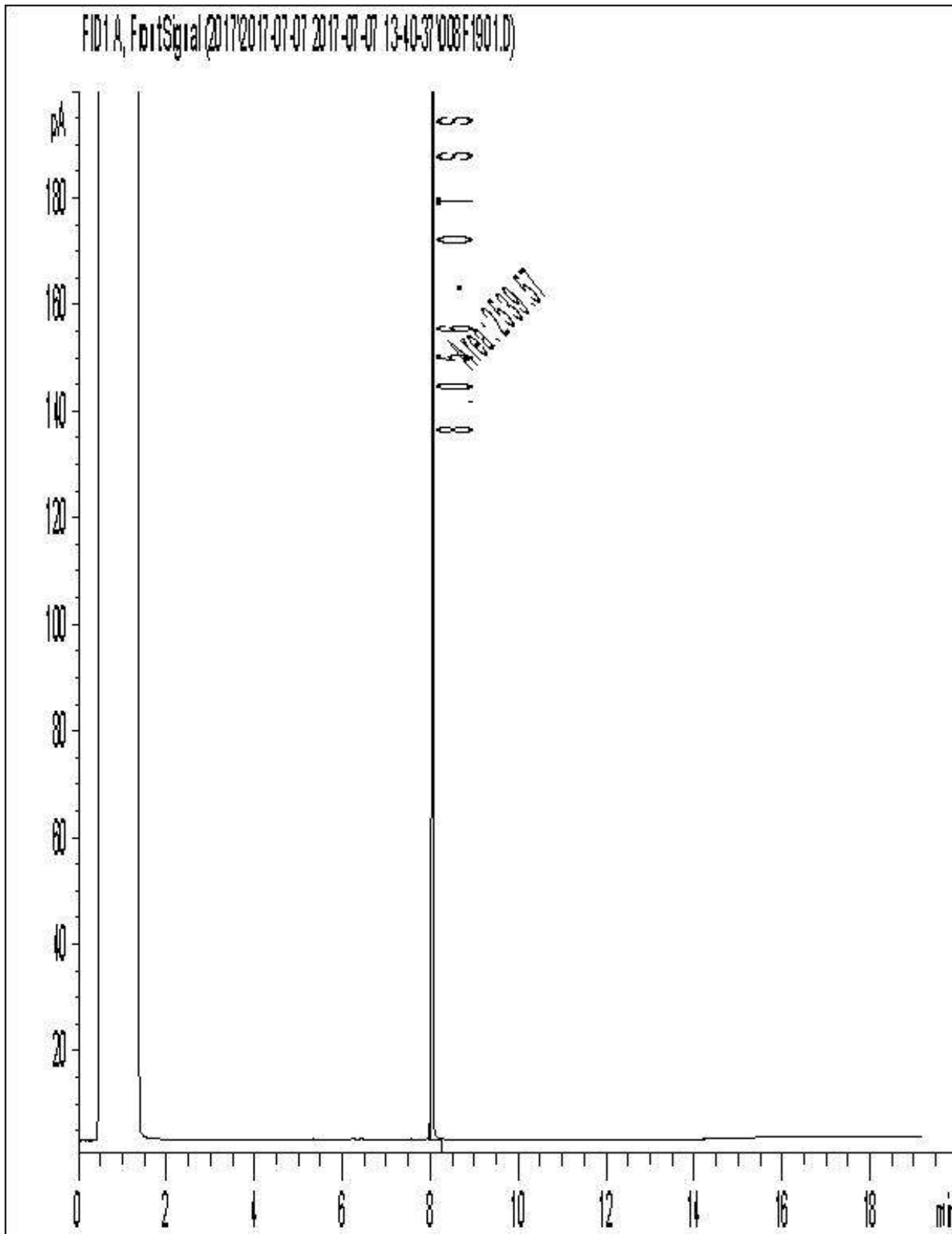
6740 Campobello Road, Mississauga, Ontario L5N 2L8  
 Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266  
 CAM FCD-01191/3

**CHAIN OF CUSTODY RECORD**

Page 1 of 1

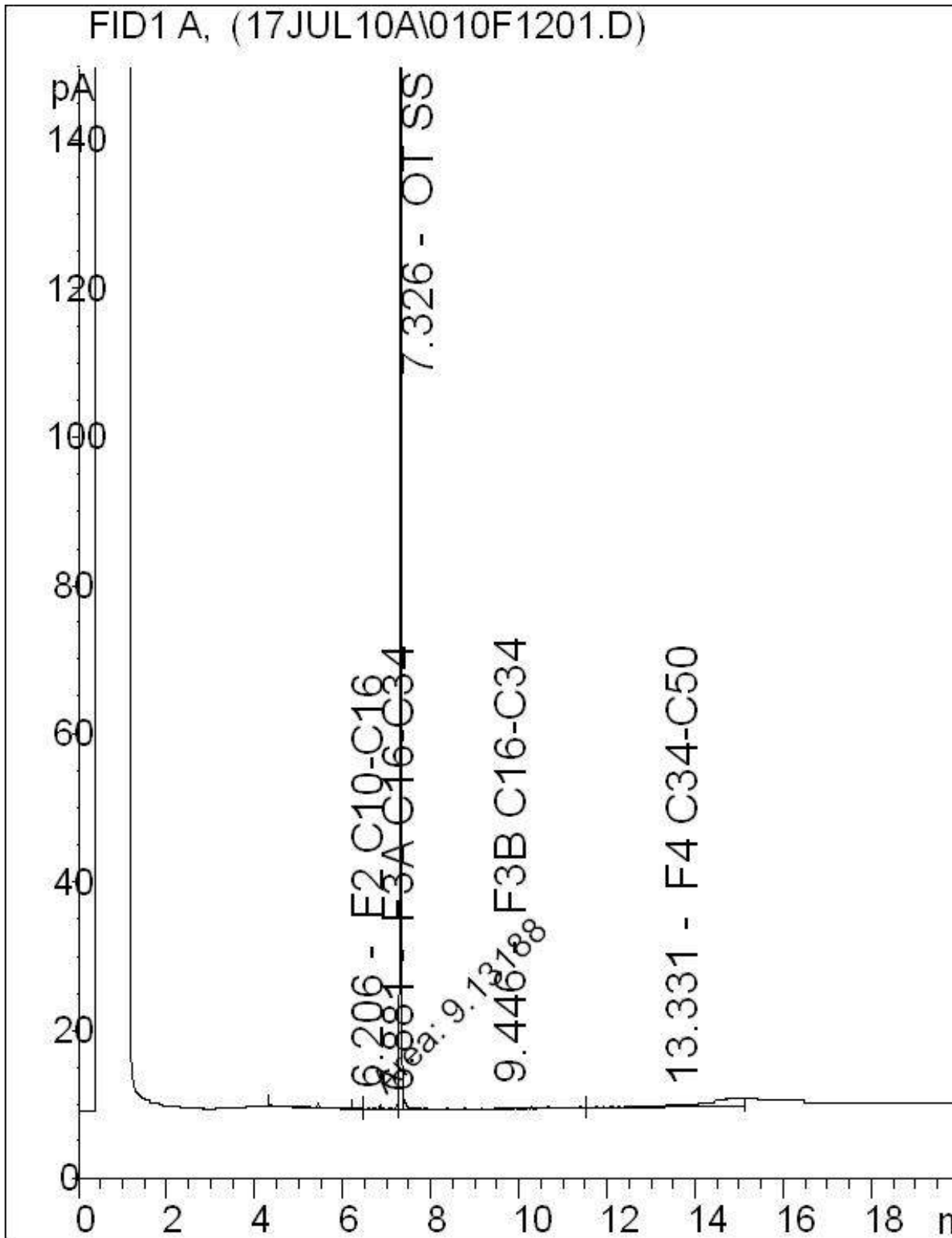
| Invoice Information  |                           | Report Information (if differs from invoice)  |               | Project Information (where applicable)  |  | Turnaround Time (TAT) Required   |               |  |                             |                     |  |     |                     |                    |
|--|---------------------------|---|---------------|---|--|--|---------------|--|-----------------------------|---------------------|--|-----|---------------------|--------------------|
| Company Name: <u>DST Consulting Engineers Inc.</u>   |                           | Company Name: <u>DST</u>  |               | Quotation #: _____  |  | <input checked="" type="checkbox"/> Regular TAT (5-7 days) Most analyses                         |               |  |                             |                     |  |     |                     |                    |
| Contact Name: <u>Accounts Payable</u>  |                           | Contact Name: <u>Eve Sabourin</u>   |               | P.O. #/ AFE#: _____   |  | PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS  |               |  |                             |                     |  |     |                     |                    |
| Address: <u>2150 Thurston Dr Unit 203</u>  |                           | Address: <u>2150 Thurston dr</u>  |               | Project #: <u>1550-29563</u>  |  | Rush TAT (Surcharges will be applied)  |               |  |                             |                     |  |     |                     |                    |
| Ottawa ON K1G 5T9  |                           |   |               | Site Location: <u>Trinity, 951 Ghdstone</u>   |  | <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days |               |  |                             |                     |  |     |                     |                    |
| Phone: (613) 748-1415 Fax: (613) 748-1356  |                           | Phone: <u>613-697-4225</u> Fax: _____   |               | Site #: _____   |  | Date Required: _____   |               |  |                             |                     |  |     |                     |                    |
| Email: <u>ap@dstgroup.com</u>  |                           | Email: <u>esabourin@dstgroup.com</u>  |               | Sampled By: <u>[Signature] 8 AM</u>   |  | Rush Confirmation #: _____   |               |  |                             |                     |  |     |                     |                    |
| MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY   |                           |   |               |   |  |  |               |  |                             |                     |  |     |                     |                    |
| <b>Regulation 153</b><br><input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Med/ Fine<br><input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse<br><input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/ Other<br><input type="checkbox"/> Table _____<br>FOR RSC (PLEASE CIRCLE) Y / N |                           | <b>Other Regulations</b><br><input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw<br><input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw<br><input type="checkbox"/> PWQO Region _____<br><input type="checkbox"/> Other (Specify) _____<br><input type="checkbox"/> REG 558 (MIN. 3 DAY TAT REQUIRED) |               | <b>Analysis Requested</b><br>FIELD FILTERED (CIRCLE) Metals / Hg / CrVI<br>BTEX/ PHC F1<br>PHG F2 - F4<br>VOCs<br>REG 153 METALS & INORGANICS<br>REG 153 CPMS METALS<br>REG 153 METALS (Hg, Cr VI, CPMS Metals, HWS - B)<br>PAH |  |  |               | <b>LABORATORY USE ONLY</b><br>CUSTODY SEAL Y / N<br>Present Intact<br>10, 10, 10<br>COOLING MEDIA PRESENT: <input checked="" type="checkbox"/> Y / N |                             |                     |  |     |                     |                    |
| Include Criteria on Certificate of Analysis: Y / N   |                           |   |               |   |  |  |               |  |                             |                     |  |     |                     |                    |
| SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM   |                           |   |               |   |  |  |               |  |                             |                     |  |     |                     |                    |
| SAMPLE IDENTIFICATION  | DATE SAMPLED (YYYY/MM/DD) | TIME SAMPLED (HH:MM)  | MATRIX        | # OF CONTAINERS SUBMITTED   | FIELD FILTERED (CIRCLE) Metals / Hg / CrVI | BTEX/ PHC F1   | PHG F2 - F4   | VOCs   | REG 153 METALS & INORGANICS | REG 153 CPMS METALS | REG 153 METALS (Hg, Cr VI, CPMS Metals, HWS - B) | PAH | ID - DO NOT ANALYZE | COMMENTS           |
| 1 BH2017-2-556   | 2017/07/06                | 8:00  | Soil          | 3   | X  | X  |               |  |                             |                     |  |     |                     | 07-Jul-17 11:15    |
| 2 BH2017-2-559   |                           | 8:20  |               | 3   | X  | X  | X             | X  |                             |                     |  |     |                     | Alison Cameron     |
| 3 BH2017-4-554   |                           | 11:00   |               | 3   | X  | X  |               |  |                             |                     |  |     |                     |                    |
| 4 BH2017-4-555   |                           | 11:10   |               | 3   | X  | X  | X             | X  |                             |                     |  | X   |                     | B7E2666            |
| 5 BH2017-9-554   |                           | 14:30   |               | 3   | X  | X  | X             | X  |                             |                     |  | X   |                     | KIV ATT 001        |
| 6 BH2017-9-558   |                           | 14:50   |               | 3   | X  | X  |               |  |                             |                     |  |     |                     | RECEIVED IN OTTAWA |
| 7  |                           |   |               |   |  |  |               |  |                             |                     |  |     |                     | Onice              |
| 8  |                           |   |               |   |  |  |               |  |                             |                     |  |     |                     |                    |
| 9  |                           |   |               |   |  |  |               |  |                             |                     |  |     |                     |                    |
| 10   |                           |   |               |   |  |  |               |  |                             |                     |  |     |                     |                    |
| RELINQUISHED BY: (Signature/Print)   |                           | DATE: (YYYY/MM/DD)  | TIME: (HH:MM) | RECEIVED BY: (Signature/Print)  |  | DATE: (YYYY/MM/DD)   | TIME: (HH:MM) | MAXXAM JOB #   |                             |                     |  |     |                     |                    |
| C. Pite / Carol Pietka   |                           | 2017/07/07  | 11:15         | Mariana Vascon / Vascon   |  | 2017/07/07   | 11:15         |  |                             |                     |  |     |                     |                    |

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



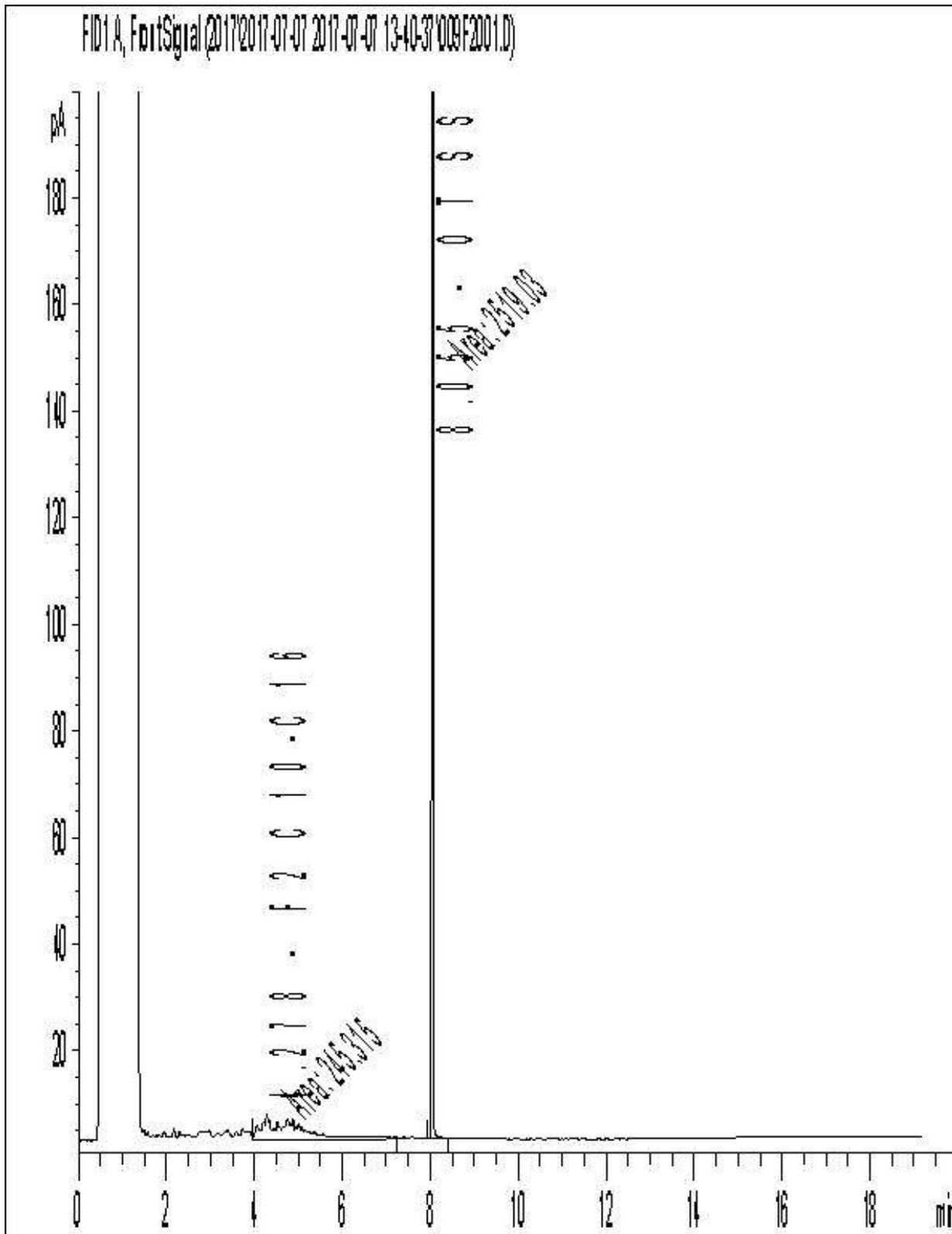
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



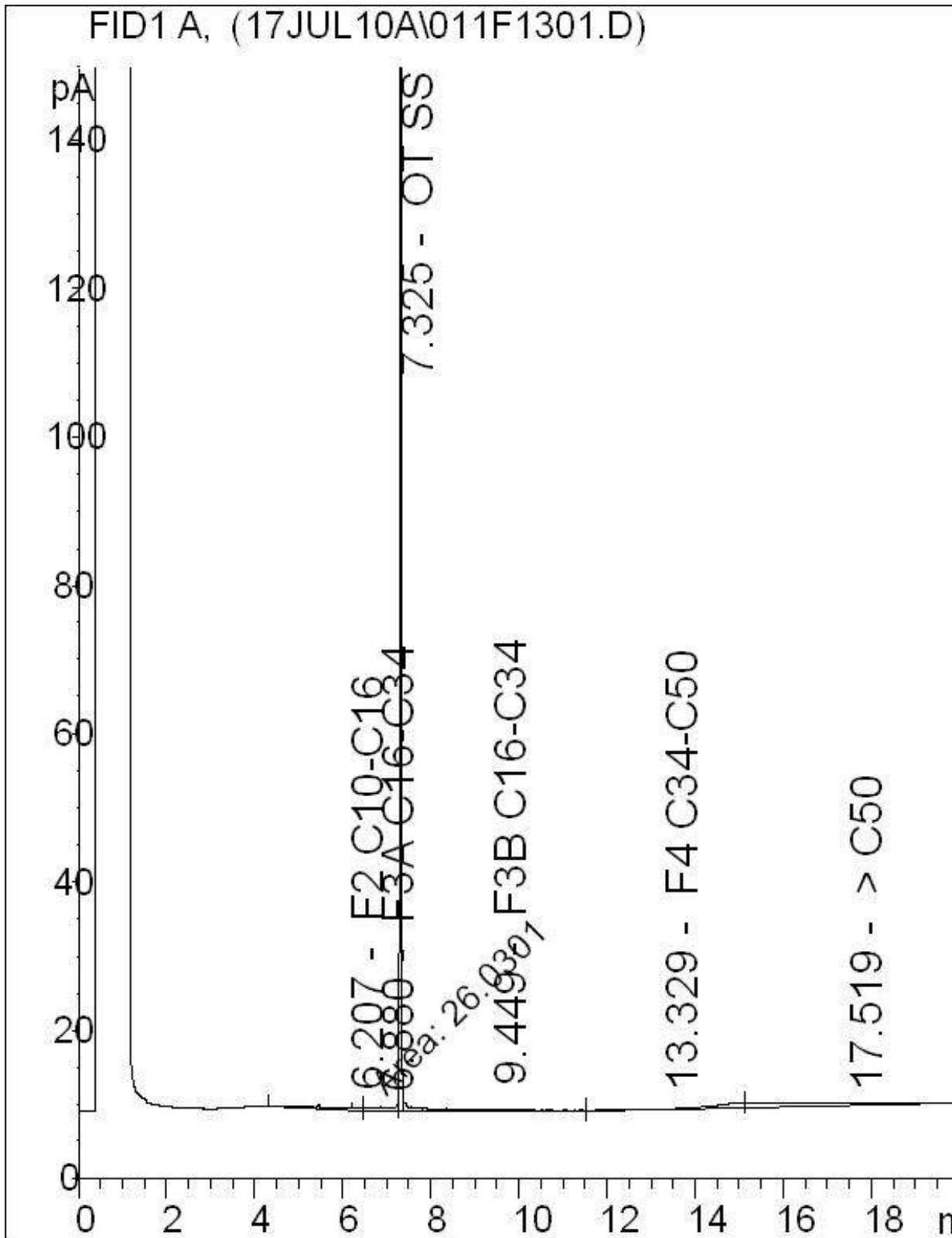
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



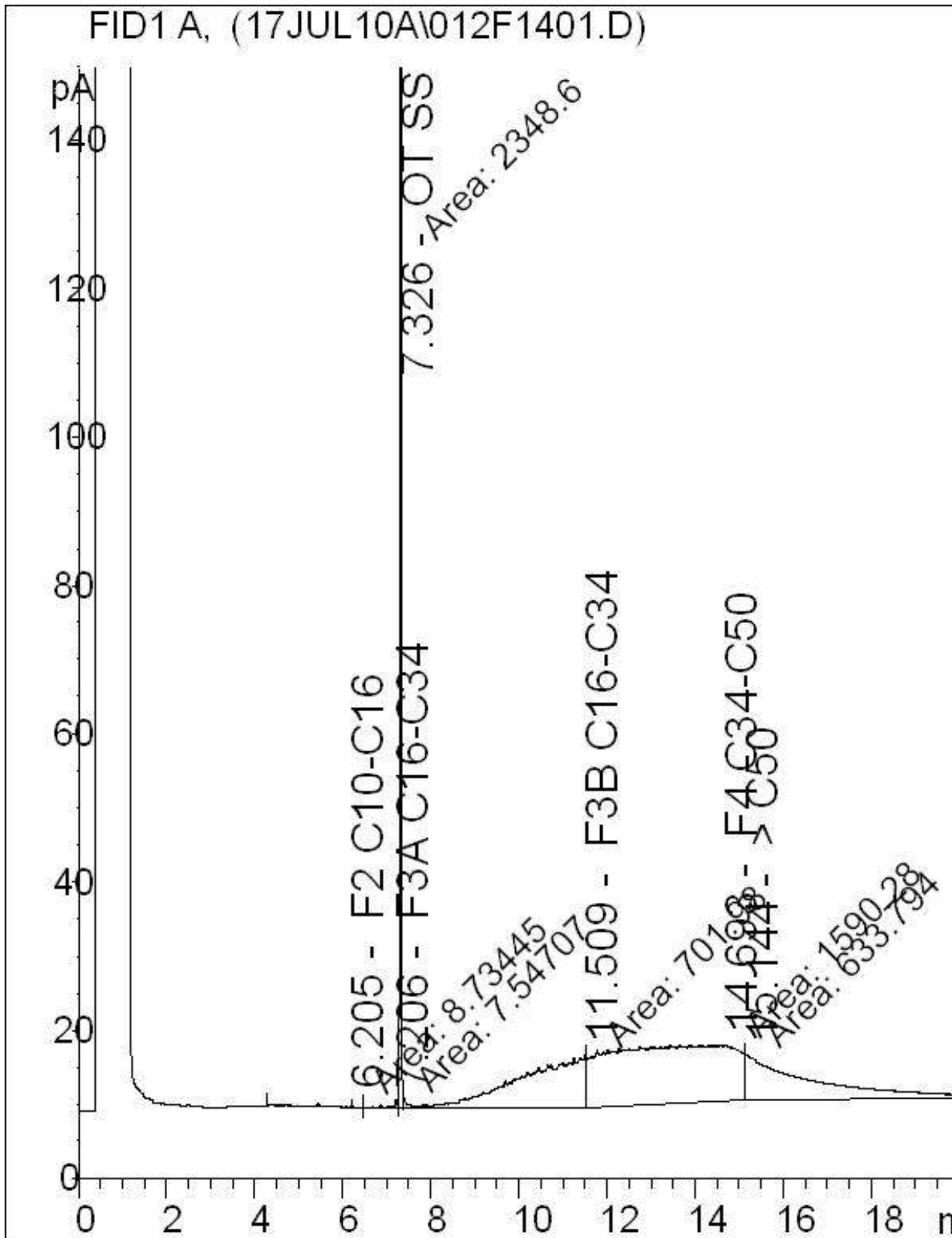
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



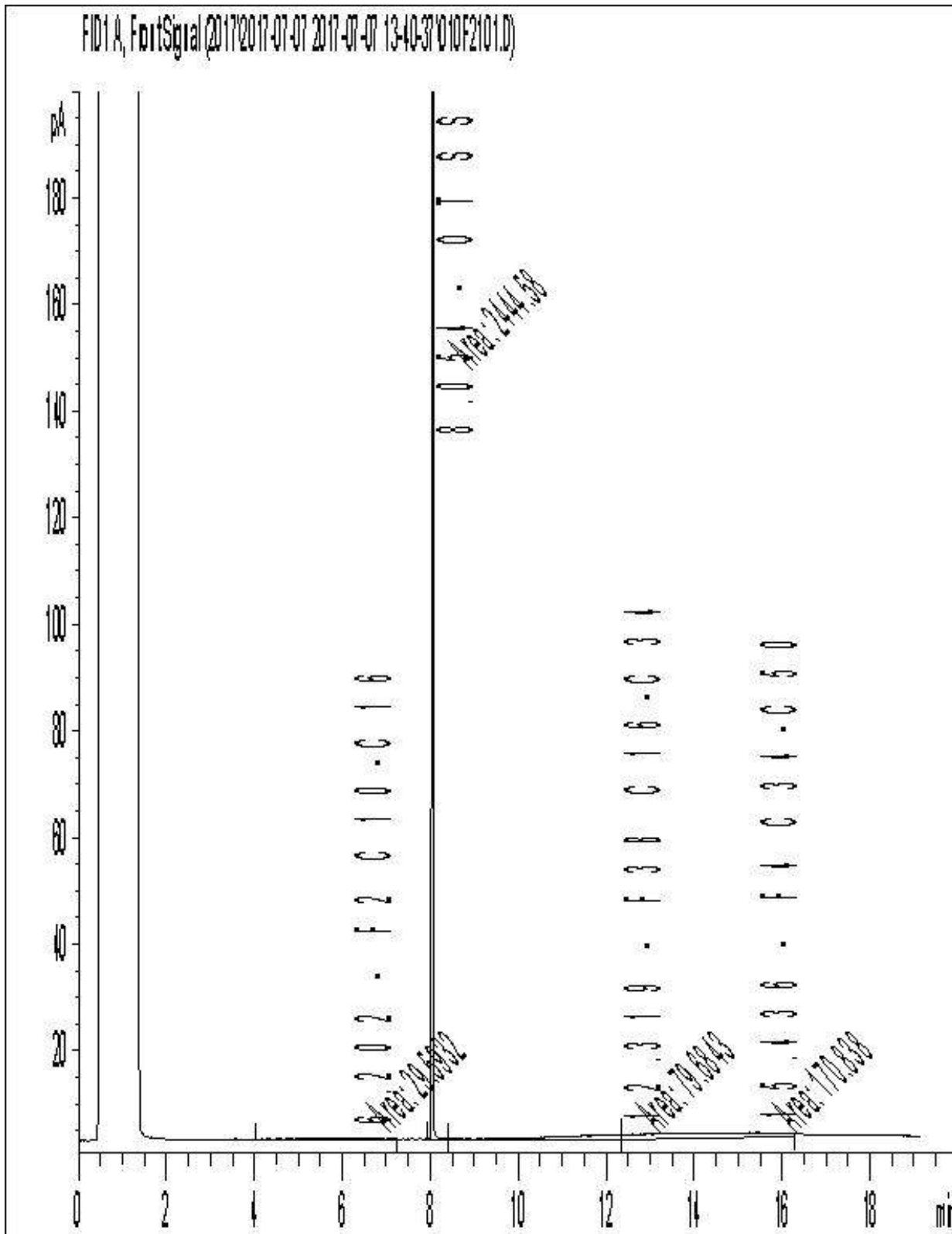
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

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.

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.

**Attention: Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/13**  
Report #: R4595985  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7E2706**

**Received: 2017/07/06, 09:30**

Sample Matrix: Soil  
# Samples Received: 4

| Analyses                                       | Quantity | Date       | Date       | Laboratory Method | Reference            |
|--|----------|------------|------------|-------------------|----------------------|
|  |          | Extracted  | Analyzed   |                   |                      |
| 1,3-Dichloropropene Sum (1)                    | 1        | N/A        | 2017/07/13 |                   | EPA 8260C m          |
| Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2) | 3        | N/A        | 2017/07/12 | CAM SOP-00315     | CCME PHC-CWS m       |
| Petroleum Hydrocarbons F2-F4 in Soil (1, 3)    | 4        | 2017/07/11 | 2017/07/12 | CAM SOP-00316     | CCME CWS m           |
| F4G (CCME Hydrocarbons Gravimetric) (1)        | 1        | 2017/07/13 | 2017/07/13 | CAM SOP-00316     | CCME PHC-CWS m       |
| Strong Acid Leachable Metals by ICPMS (1)      | 2        | 2017/07/12 | 2017/07/12 | CAM SOP-00447     | EPA 6020B m          |
| Moisture (1)                                   | 4        | N/A        | 2017/07/11 | CAM SOP-00445     | Carter 2nd ed 51.2 m |
| Volatile Organic Compounds and F1 PHCs (1)     | 1        | N/A        | 2017/07/12 | CAM SOP-00230     | 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.

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.

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.

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

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

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

Your Project #: TS-SO-29563  
Your C.O.C. #: 617077-03-01

**Attention:Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/13**  
Report #: R4595985  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7E2706**

**Received: 2017/07/06, 09:30**

- (1) This test was performed by Maxxam Analytics Mississauga
- (2) 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.
- (3) 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.  
Alison Cameron, Project Manager  
Email: ACameron@maxxam.ca  
Phone# (613) 274-0573

=====  
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.

**O.REG 153 ICPMS METALS (SOIL)**

| Maxxam ID                        |              | ERW223              | ERW225              |            |                 |
|----------------------------------|--------------|---------------------|---------------------|------------|-----------------|
| Sampling Date                    |              | 2017/07/05<br>09:30 | 2017/07/05<br>11:00 |            |                 |
| COC Number                       |              | 617077-03-01        | 617077-03-01        |            |                 |
|                                  | <b>UNITS</b> | <b>BH2017-1 SS7</b> | <b>BH2017-3 SS2</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Metals</b>                    |              |                     |                     |            |                 |
| Acid Extractable Antimony (Sb)   | ug/g         | <0.20               | 0.45                | 0.20       | 5069242         |
| Acid Extractable Arsenic (As)    | ug/g         | <1.0                | 3.5                 | 1.0        | 5069242         |
| Acid Extractable Barium (Ba)     | ug/g         | 68                  | 160                 | 0.50       | 5069242         |
| Acid Extractable Beryllium (Be)  | ug/g         | 0.25                | 0.56                | 0.20       | 5069242         |
| Acid Extractable Boron (B)       | ug/g         | 5.1                 | 8.1                 | 5.0        | 5069242         |
| Acid Extractable Cadmium (Cd)    | ug/g         | <0.10               | 0.22                | 0.10       | 5069242         |
| Acid Extractable Chromium (Cr)   | ug/g         | 14                  | 40                  | 1.0        | 5069242         |
| Acid Extractable Cobalt (Co)     | ug/g         | 6.0                 | 10                  | 0.10       | 5069242         |
| Acid Extractable Copper (Cu)     | ug/g         | 11                  | 35                  | 0.50       | 5069242         |
| Acid Extractable Lead (Pb)       | ug/g         | 5.0                 | 38                  | 1.0        | 5069242         |
| Acid Extractable Molybdenum (Mo) | ug/g         | <0.50               | 0.90                | 0.50       | 5069242         |
| Acid Extractable Nickel (Ni)     | ug/g         | 10                  | 26                  | 0.50       | 5069242         |
| Acid Extractable Selenium (Se)   | ug/g         | <0.50               | <0.50               | 0.50       | 5069242         |
| Acid Extractable Silver (Ag)     | ug/g         | <0.20               | <0.20               | 0.20       | 5069242         |
| Acid Extractable Thallium (Tl)   | ug/g         | 0.10                | 0.23                | 0.050      | 5069242         |
| Acid Extractable Uranium (U)     | ug/g         | 0.42                | 0.82                | 0.050      | 5069242         |
| Acid Extractable Vanadium (V)    | ug/g         | 25                  | 56                  | 5.0        | 5069242         |
| Acid Extractable Zinc (Zn)       | ug/g         | 24                  | 79                  | 5.0        | 5069242         |
| RDL = Reportable Detection Limit |              |                     |                     |            |                 |
| QC Batch = Quality Control Batch |              |                     |                     |            |                 |

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

| Maxxam ID                                |       | ERW223              | ERW223                     | ERW225              | ERW226              |       |          |
|--|-------|---------------------|----------------------------|---------------------|---------------------|-------|----------|
| Sampling Date                            |       | 2017/07/05<br>09:30 | 2017/07/05<br>09:30        | 2017/07/05<br>11:00 | 2017/07/05<br>11:30 |       |          |
| COC Number                               |       | 617077-03-01        | 617077-03-01               | 617077-03-01        | 617077-03-01        |       |          |
|  | UNITS | BH2017-1 SS7        | BH2017-1<br>SS7<br>Lab-Dup | BH2017-3 SS2        | BH2017-3 SS11       | RDL   | QC Batch |
| <b>Inorganics</b>                        |       |                     |                            |                     |                     |       |          |
| Moisture                                 | %     | 12                  |                            | 13                  | 11                  | 1.0   | 5066843  |
| <b>BTEX &amp; F1 Hydrocarbons</b>        |       |                     |                            |                     |                     |       |          |
| Benzene                                  | ug/g  | <0.020              | <0.020                     | <0.020              | <0.020              | 0.020 | 5067957  |
| Toluene                                  | ug/g  | 0.042               | 0.050                      | <0.020              | 0.030               | 0.020 | 5067957  |
| Ethylbenzene                             | ug/g  | 0.037               | 0.040                      | <0.020              | <0.020              | 0.020 | 5067957  |
| o-Xylene                                 | ug/g  | 1.1                 | 1.1                        | <0.020              | 0.038               | 0.020 | 5067957  |
| p+m-Xylene                               | ug/g  | 3.8                 | 3.7                        | <0.040              | 0.091               | 0.040 | 5067957  |
| Total Xylenes                            | ug/g  | 4.9                 | 4.8                        | <0.040              | 0.13                | 0.040 | 5067957  |
| F1 (C6-C10)                              | ug/g  | 200                 | 190                        | <10                 | <10                 | 10    | 5067957  |
| F1 (C6-C10) - BTEX                       | ug/g  | 200                 | 180                        | <10                 | <10                 | 10    | 5067957  |
| <b>F2-F4 Hydrocarbons</b>                |       |                     |                            |                     |                     |       |          |
| F2 (C10-C16 Hydrocarbons)                | ug/g  | 78                  |                            | 23                  | 16                  | 10    | 5068391  |
| F3 (C16-C34 Hydrocarbons)                | ug/g  | <50                 |                            | 170                 | <50                 | 50    | 5068391  |
| F4 (C34-C50 Hydrocarbons)                | ug/g  | <50                 |                            | 630                 | <50                 | 50    | 5068391  |
| Reached Baseline at C50                  | ug/g  | Yes                 |                            | No                  | Yes                 |       | 5068391  |
| <b>Surrogate Recovery (%)</b>            |       |                     |                            |                     |                     |       |          |
| 1,4-Difluorobenzene                      | %     | 96                  | 92                         | 91                  | 100                 |       | 5067957  |
| 4-Bromofluorobenzene                     | %     | 98                  | 97                         | 96                  | 96                  |       | 5067957  |
| D10-Ethylbenzene                         | %     | 87                  | 85                         | 84                  | 78                  |       | 5067957  |
| D4-1,2-Dichloroethane                    | %     | 107                 | 97                         | 100                 | 100                 |       | 5067957  |
| o-Terphenyl                              | %     | 92                  |                            | 95                  | 95                  |       | 5068391  |
| RDL = Reportable Detection Limit         |       |                     |                            |                     |                     |       |          |
| QC Batch = Quality Control Batch         |       |                     |                            |                     |                     |       |          |
| Lab-Dup = Laboratory Initiated Duplicate |       |                     |                            |                     |                     |       |          |

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

| Maxxam ID  |       | ERW224              | ERW224                      |       |          |
|--|-------|---------------------|-----------------------------|-------|----------|
| Sampling Date  |       | 2017/07/05<br>09:45 | 2017/07/05<br>09:45         |       |          |
| COC Number   |       | 617077-03-01        | 617077-03-01                |       |          |
|  | UNITS | BH2017-1 SS12       | BH2017-1<br>SS12<br>Lab-Dup | RDL   | QC Batch |
| <b>Inorganics</b>  |       |                     |                             |       |          |
| Moisture   | %     | 11                  | 10                          | 1.0   | 5066843  |
| <b>Calculated Parameters</b>   |       |                     |                             |       |          |
| 1,3-Dichloropropene (cis+trans)  | ug/g  | <0.050              |                             | 0.050 | 5065483  |
| <b>Volatile Organics</b>   |       |                     |                             |       |          |
| Acetone (2-Propanone)  | ug/g  | <0.50               |                             | 0.50  | 5067283  |
| Benzene  | ug/g  | 0.93                |                             | 0.020 | 5067283  |
| Bromodichloromethane   | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Bromoform  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Bromomethane   | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Carbon Tetrachloride   | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Chlorobenzene  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Chloroform   | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Dibromochloromethane   | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| 1,2-Dichlorobenzene  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| 1,3-Dichlorobenzene  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| 1,4-Dichlorobenzene  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Dichlorodifluoromethane (FREON 12)   | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| 1,1-Dichloroethane   | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| 1,2-Dichloroethane   | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| 1,1-Dichloroethylene   | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| cis-1,2-Dichloroethylene   | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| trans-1,2-Dichloroethylene   | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| 1,2-Dichloropropane  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| cis-1,3-Dichloropropene  | ug/g  | <0.030              |                             | 0.030 | 5067283  |
| trans-1,3-Dichloropropene  | ug/g  | <0.040              |                             | 0.040 | 5067283  |
| Ethylbenzene   | ug/g  | 8.1                 |                             | 0.020 | 5067283  |
| Ethylene Dibromide   | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Hexane   | ug/g  | 11                  |                             | 0.050 | 5067283  |
| Methylene Chloride(Dichloromethane)  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Methyl Ethyl Ketone (2-Butanone)   | ug/g  | <0.50               |                             | 0.50  | 5067283  |
| Methyl Isobutyl Ketone   | ug/g  | <0.50               |                             | 0.50  | 5067283  |
| Methyl t-butyl ether (MTBE)  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Styrene  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate |       |                     |                             |       |          |

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

| Maxxam ID  |       | ERW224              | ERW224                      |       |          |
|--|-------|---------------------|-----------------------------|-------|----------|
| Sampling Date  |       | 2017/07/05<br>09:45 | 2017/07/05<br>09:45         |       |          |
| COC Number   |       | 617077-03-01        | 617077-03-01                |       |          |
|  | UNITS | BH2017-1 SS12       | BH2017-1<br>SS12<br>Lab-Dup | RDL   | QC Batch |
| 1,1,1,2-Tetrachloroethane  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| 1,1,2,2-Tetrachloroethane  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Tetrachloroethylene  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Toluene  | ug/g  | 11                  |                             | 0.020 | 5067283  |
| 1,1,1-Trichloroethane  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| 1,1,2-Trichloroethane  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Trichloroethylene  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Trichlorofluoromethane (FREON 11)  | ug/g  | <0.050              |                             | 0.050 | 5067283  |
| Vinyl Chloride   | ug/g  | <0.020              |                             | 0.020 | 5067283  |
| p+m-Xylene   | ug/g  | 31                  |                             | 0.10  | 5067283  |
| o-Xylene   | ug/g  | 11                  |                             | 0.020 | 5067283  |
| Total Xylenes  | ug/g  | 41                  |                             | 0.10  | 5067283  |
| F1 (C6-C10)  | ug/g  | 520                 |                             | 50    | 5067283  |
| F1 (C6-C10) - BTEX   | ug/g  | 460                 |                             | 50    | 5067283  |
| <b>F2-F4 Hydrocarbons</b>  |       |                     |                             |       |          |
| F2 (C10-C16 Hydrocarbons)  | ug/g  | 470                 |                             | 10    | 5068391  |
| F3 (C16-C34 Hydrocarbons)  | ug/g  | <50                 |                             | 50    | 5068391  |
| F4 (C34-C50 Hydrocarbons)  | ug/g  | <50                 |                             | 50    | 5068391  |
| Reached Baseline at C50  | ug/g  | Yes                 |                             |       | 5068391  |
| <b>Surrogate Recovery (%)</b>  |       |                     |                             |       |          |
| o-Terphenyl  | %     | 95                  |                             |       | 5068391  |
| 4-Bromofluorobenzene   | %     | 99                  |                             |       | 5067283  |
| D10-o-Xylene   | %     | 90                  |                             |       | 5067283  |
| D4-1,2-Dichloroethane  | %     | 100                 |                             |       | 5067283  |
| D8-Toluene   | %     | 107                 |                             |       | 5067283  |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate |       |                     |                             |       |          |

**PETROLEUM HYDROCARBONS (CCME)**

|                                   |              |                     |            |                 |
|-----------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                  |              | ERW225              |            |                 |
| <b>Sampling Date</b>              |              | 2017/07/05<br>11:00 |            |                 |
| <b>COC Number</b>                 |              | 617077-03-01        |            |                 |
|                                   | <b>UNITS</b> | <b>BH2017-3 SS2</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>F2-F4 Hydrocarbons</b>         |              |                     |            |                 |
| F4G-sg (Grav. Heavy Hydrocarbons) | ug/g         | 2400                | 100        | 5071068         |
| RDL = Reportable Detection Limit  |              |                     |            |                 |
| QC Batch = Quality Control Batch  |              |                     |            |                 |

### TEST SUMMARY

**Maxxam ID:** ERW223  
**Sample ID:** BH2017-1 SS7  
**Matrix:** Soil

**Collected:** 2017/07/05  
**Shipped:**  
**Received:** 2017/07/06

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst            |
|---|-----------------|---------|------------|---------------|--------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5067957 | N/A        | 2017/07/12    | Georgeta Rusu      |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5068391 | 2017/07/11 | 2017/07/12    | Atoosa Keshavarz   |
| Strong Acid Leachable Metals by ICPMS   | ICP/MS          | 5069242 | 2017/07/12 | 2017/07/12    | Viviana Canzonieri |
| Moisture                                | BAL             | 5066843 | N/A        | 2017/07/11    | Prgya Panchal      |

**Maxxam ID:** ERW223 Dup  
**Sample ID:** BH2017-1 SS7  
**Matrix:** Soil

**Collected:** 2017/07/05  
**Shipped:**  
**Received:** 2017/07/06

| Test Description                        | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst       |
|---|-----------------|---------|-----------|---------------|---------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5067957 | N/A       | 2017/07/12    | Georgeta Rusu |

**Maxxam ID:** ERW224  
**Sample ID:** BH2017-1 SS12  
**Matrix:** Soil

**Collected:** 2017/07/05  
**Shipped:**  
**Received:** 2017/07/06

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|--|-----------------|---------|------------|---------------|-------------------|
| 1,3-Dichloropropene Sum                | CALC            | 5065483 | N/A        | 2017/07/13    | Automated Statchk |
| Petroleum Hydrocarbons F2-F4 in Soil   | GC/FID          | 5068391 | 2017/07/11 | 2017/07/12    | Atoosa Keshavarz  |
| Moisture                               | BAL             | 5066843 | N/A        | 2017/07/11    | Prgya Panchal     |
| Volatile Organic Compounds and F1 PHCs | GC/MSFD         | 5067283 | N/A        | 2017/07/12    | Xueming Jiang     |

**Maxxam ID:** ERW224 Dup  
**Sample ID:** BH2017-1 SS12  
**Matrix:** Soil

**Collected:** 2017/07/05  
**Shipped:**  
**Received:** 2017/07/06

| Test Description | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst       |
|------------------|-----------------|---------|-----------|---------------|---------------|
| Moisture         | BAL             | 5066843 | N/A       | 2017/07/11    | Prgya Panchal |

**Maxxam ID:** ERW225  
**Sample ID:** BH2017-3 SS2  
**Matrix:** Soil

**Collected:** 2017/07/05  
**Shipped:**  
**Received:** 2017/07/06

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst            |
|---|-----------------|---------|------------|---------------|--------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5067957 | N/A        | 2017/07/12    | Georgeta Rusu      |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5068391 | 2017/07/11 | 2017/07/12    | Atoosa Keshavarz   |
| F4G (CCME Hydrocarbons Gravimetric)     | BAL             | 5071068 | 2017/07/13 | 2017/07/13    | Debra Deslandes    |
| Strong Acid Leachable Metals by ICPMS   | ICP/MS          | 5069242 | 2017/07/12 | 2017/07/12    | Viviana Canzonieri |
| Moisture                                | BAL             | 5066843 | N/A        | 2017/07/11    | Prgya Panchal      |

**Maxxam ID:** ERW226  
**Sample ID:** BH2017-3 SS11  
**Matrix:** Soil

**Collected:** 2017/07/05  
**Shipped:**  
**Received:** 2017/07/06

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst          |
|---|-----------------|---------|------------|---------------|------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5067957 | N/A        | 2017/07/12    | Georgeta Rusu    |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5068391 | 2017/07/11 | 2017/07/12    | Atoosa Keshavarz |

**TEST SUMMARY**

**Maxxam ID:** ERW226  
**Sample ID:** BH2017-3 SS11  
**Matrix:** Soil

**Collected:** 2017/07/05  
**Shipped:**  
**Received:** 2017/07/06

| Test Description | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst       |
|------------------|-----------------|---------|-----------|---------------|---------------|
| Moisture         | BAL             | 5066843 | N/A       | 2017/07/11    | Prgya Panchal |

### GENERAL COMMENTS

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

|           |       |
|-----------|-------|
| Package 1 | 2.0°C |
|-----------|-------|

Sample ERW224 [BH2017-1 SS12] : VOC Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency. Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly. In order to meet required regulatory criteria, results for selected compounds (obtained by a separate analysis using an appropriate low dilution) are included in the report.

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

**QUALITY ASSURANCE REPORT**

| QC Batch | Parameter                 | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|---------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                           |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5067283  | 4-Bromofluorobenzene      | 2017/07/12 | 98           | 60 - 140  | 98           | 60 - 140  | 96           | %     |           |           |
| 5067283  | D10-o-Xylene              | 2017/07/12 | 92           | 60 - 130  | 98           | 60 - 130  | 112          | %     |           |           |
| 5067283  | D4-1,2-Dichloroethane     | 2017/07/12 | 102          | 60 - 140  | 103          | 60 - 140  | 102          | %     |           |           |
| 5067283  | D8-Toluene                | 2017/07/12 | 100          | 60 - 140  | 99           | 60 - 140  | 98           | %     |           |           |
| 5067957  | 1,4-Difluorobenzene       | 2017/07/12 | 93           | 60 - 140  | 100          | 60 - 140  | 112          | %     |           |           |
| 5067957  | 4-Bromofluorobenzene      | 2017/07/12 | 100          | 60 - 140  | 96           | 60 - 140  | 99           | %     |           |           |
| 5067957  | D10-Ethylbenzene          | 2017/07/12 | 90           | 60 - 140  | 86           | 60 - 140  | 82           | %     |           |           |
| 5067957  | D4-1,2-Dichloroethane     | 2017/07/12 | 106          | 60 - 140  | 102          | 60 - 140  | 119          | %     |           |           |
| 5068391  | o-Terphenyl               | 2017/07/11 | 89           | 60 - 130  | 92           | 60 - 130  | 78           | %     |           |           |
| 5066843  | Moisture                  | 2017/07/11 |              |           |              |           |              |       | 1.9       | 20        |
| 5067283  | 1,1,1,2-Tetrachloroethane | 2017/07/12 | 102          | 60 - 140  | 107          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | 1,1,1-Trichloroethane     | 2017/07/12 | 92           | 60 - 140  | 98           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | 1,1,2,2-Tetrachloroethane | 2017/07/12 | 104          | 60 - 140  | 106          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | 1,1,2-Trichloroethane     | 2017/07/12 | 101          | 60 - 140  | 104          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | 1,1-Dichloroethane        | 2017/07/12 | 98           | 60 - 140  | 105          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | 1,1-Dichloroethylene      | 2017/07/12 | 100          | 60 - 140  | 108          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | 1,2-Dichlorobenzene       | 2017/07/12 | 95           | 60 - 140  | 99           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | 1,2-Dichloroethane        | 2017/07/12 | 96           | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | 1,2-Dichloropropane       | 2017/07/12 | 88           | 60 - 140  | 93           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | 1,3-Dichlorobenzene       | 2017/07/12 | 98           | 60 - 140  | 104          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | 1,4-Dichlorobenzene       | 2017/07/12 | 96           | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Acetone (2-Propanone)     | 2017/07/12 | 93           | 60 - 140  | 100          | 60 - 140  | <0.50        | ug/g  | NC        | 50        |
| 5067283  | Benzene                   | 2017/07/12 | 97           | 60 - 140  | 103          | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5067283  | Bromodichloromethane      | 2017/07/12 | 96           | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Bromoform                 | 2017/07/12 | 103          | 60 - 140  | 105          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Bromomethane              | 2017/07/12 | 95           | 60 - 140  | 101          | 60 - 140  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Carbon Tetrachloride      | 2017/07/12 | 92           | 60 - 140  | 99           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Chlorobenzene             | 2017/07/12 | 93           | 60 - 140  | 97           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Chloroform                | 2017/07/12 | 95           | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | cis-1,2-Dichloroethylene  | 2017/07/12 | 93           | 60 - 140  | 99           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | cis-1,3-Dichloropropene   | 2017/07/12 | 84           | 60 - 140  | 88           | 60 - 130  | <0.030       | ug/g  | NC        | 50        |
| 5067283  | Dibromochloromethane      | 2017/07/12 | 100          | 60 - 140  | 103          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                           | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|-------------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                     |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5067283  | Dichlorodifluoromethane (FREON 12)  | 2017/07/12 | 97           | 60 - 140  | 107          | 60 - 140  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Ethylbenzene                        | 2017/07/12 | 92           | 60 - 140  | 96           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5067283  | Ethylene Dibromide                  | 2017/07/12 | 103          | 60 - 140  | 106          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | F1 (C6-C10) - BTEX                  | 2017/07/12 |              |           |              |           | <10          | ug/g  | NC        | 30        |
| 5067283  | F1 (C6-C10)                         | 2017/07/12 | 108          | 60 - 140  | 89           | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5067283  | Hexane                              | 2017/07/12 | 94           | 60 - 140  | 105          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Methyl Ethyl Ketone (2-Butanone)    | 2017/07/12 | 95           | 60 - 140  | 101          | 60 - 140  | <0.50        | ug/g  | NC        | 50        |
| 5067283  | Methyl Isobutyl Ketone              | 2017/07/12 | 92           | 60 - 140  | 96           | 60 - 130  | <0.50        | ug/g  | NC        | 50        |
| 5067283  | Methyl t-butyl ether (MTBE)         | 2017/07/12 | 89           | 60 - 140  | 93           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Methylene Chloride(Dichloromethane) | 2017/07/12 | 94           | 60 - 140  | 100          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | o-Xylene                            | 2017/07/12 | 90           | 60 - 140  | 95           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5067283  | p+m-Xylene                          | 2017/07/12 | 91           | 60 - 140  | 96           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5067283  | Styrene                             | 2017/07/12 | 89           | 60 - 140  | 94           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Tetrachloroethylene                 | 2017/07/12 | 92           | 60 - 140  | 97           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Toluene                             | 2017/07/12 | 89           | 60 - 140  | 94           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5067283  | Total Xylenes                       | 2017/07/12 |              |           |              |           | <0.020       | ug/g  | NC        | 50        |
| 5067283  | trans-1,2-Dichloroethylene          | 2017/07/12 | 94           | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | trans-1,3-Dichloropropene           | 2017/07/12 | 91           | 60 - 140  | 92           | 60 - 130  | <0.040       | ug/g  | NC        | 50        |
| 5067283  | Trichloroethylene                   | 2017/07/12 | 94           | 60 - 140  | 100          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Trichlorofluoromethane (FREON 11)   | 2017/07/12 | 98           | 60 - 140  | 106          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5067283  | Vinyl Chloride                      | 2017/07/12 | 92           | 60 - 140  | 100          | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5067957  | Benzene                             | 2017/07/12 | 70           | 60 - 140  | 91           | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5067957  | Ethylbenzene                        | 2017/07/12 | 75           | 60 - 140  | 89           | 60 - 140  | <0.020       | ug/g  | 8.2       | 50        |
| 5067957  | F1 (C6-C10) - BTEX                  | 2017/07/12 |              |           |              |           | <10          | ug/g  | 8.5       | 30        |
| 5067957  | F1 (C6-C10)                         | 2017/07/12 | NC           | 60 - 140  | 88           | 80 - 120  | <10          | ug/g  | 8.3       | 30        |
| 5067957  | o-Xylene                            | 2017/07/12 | NC           | 60 - 140  | 93           | 60 - 140  | <0.020       | ug/g  | 1.0       | 50        |
| 5067957  | p+m-Xylene                          | 2017/07/12 | NC           | 60 - 140  | 89           | 60 - 140  | <0.040       | ug/g  | 2.2       | 50        |
| 5067957  | Toluene                             | 2017/07/12 | 64           | 60 - 140  | 86           | 60 - 140  | <0.020       | ug/g  | 18        | 50        |
| 5067957  | Total Xylenes                       | 2017/07/12 |              |           |              |           | <0.040       | ug/g  | 2.0       | 50        |
| 5068391  | F2 (C10-C16 Hydrocarbons)           | 2017/07/12 | 97           | 50 - 130  | 100          | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5068391  | F3 (C16-C34 Hydrocarbons)           | 2017/07/11 | 91           | 50 - 130  | 93           | 80 - 120  | <50          | ug/g  |           |           |
| 5068391  | F4 (C34-C50 Hydrocarbons)           | 2017/07/11 | 92           | 50 - 130  | 94           | 80 - 120  | <50          | ug/g  |           |           |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                         | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|-----------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                   |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5069242  | Acid Extractable Antimony (Sb)    | 2017/07/12 | 97           | 75 - 125  | 99           | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5069242  | Acid Extractable Arsenic (As)     | 2017/07/12 | 103          | 75 - 125  | 105          | 80 - 120  | <1.0         | ug/g  | 0.11      | 30        |
| 5069242  | Acid Extractable Barium (Ba)      | 2017/07/12 | 99           | 75 - 125  | 96           | 80 - 120  | <0.50        | ug/g  | 1.6       | 30        |
| 5069242  | Acid Extractable Beryllium (Be)   | 2017/07/12 | 99           | 75 - 125  | 99           | 80 - 120  | <0.20        | ug/g  | 8.2       | 30        |
| 5069242  | Acid Extractable Boron (B)        | 2017/07/12 | 97           | 75 - 125  | 96           | 80 - 120  | <5.0         | ug/g  | NC        | 30        |
| 5069242  | Acid Extractable Cadmium (Cd)     | 2017/07/12 | 99           | 75 - 125  | 97           | 80 - 120  | <0.10        | ug/g  | NC        | 30        |
| 5069242  | Acid Extractable Chromium (Cr)    | 2017/07/12 | 108          | 75 - 125  | 105          | 80 - 120  | <1.0         | ug/g  | 6.9       | 30        |
| 5069242  | Acid Extractable Cobalt (Co)      | 2017/07/12 | 104          | 75 - 125  | 104          | 80 - 120  | <0.10        | ug/g  | 4.1       | 30        |
| 5069242  | Acid Extractable Copper (Cu)      | 2017/07/12 | 100          | 75 - 125  | 102          | 80 - 120  | <0.50        | ug/g  | 1.9       | 30        |
| 5069242  | Acid Extractable Lead (Pb)        | 2017/07/12 | 99           | 75 - 125  | 99           | 80 - 120  | <1.0         | ug/g  | 4.4       | 30        |
| 5069242  | Acid Extractable Molybdenum (Mo)  | 2017/07/12 | 99           | 75 - 125  | 97           | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5069242  | Acid Extractable Nickel (Ni)      | 2017/07/12 | 104          | 75 - 125  | 108          | 80 - 120  | <0.50        | ug/g  | 2.9       | 30        |
| 5069242  | Acid Extractable Selenium (Se)    | 2017/07/12 | 103          | 75 - 125  | 104          | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5069242  | Acid Extractable Silver (Ag)      | 2017/07/12 | 105          | 75 - 125  | 101          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5069242  | Acid Extractable Thallium (Tl)    | 2017/07/12 | 101          | 75 - 125  | 99           | 80 - 120  | <0.050       | ug/g  | NC        | 30        |
| 5069242  | Acid Extractable Uranium (U)      | 2017/07/12 | 97           | 75 - 125  | 95           | 80 - 120  | <0.050       | ug/g  | 4.9       | 30        |
| 5069242  | Acid Extractable Vanadium (V)     | 2017/07/12 | 106          | 75 - 125  | 106          | 80 - 120  | <5.0         | ug/g  | 0.23      | 30        |
| 5069242  | Acid Extractable Zinc (Zn)        | 2017/07/12 | NC           | 75 - 125  | 102          | 80 - 120  | <5.0         | ug/g  | 1.5       | 30        |
| 5071068  | F4G-sg (Grav. Heavy Hydrocarbons) | 2017/07/13 | 106          | 65 - 135  | 102          | 65 - 135  | <100         | ug/g  | 22        | 50        |

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

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

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

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



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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

### 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

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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 Analytics International Corporation o/a Maxxam Analytics  
 6740 Campbell Road, Mississauga, Ontario Canada L5H 2L8 Tel: (905) 817-5700 Toll-free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

|  |  |                               |  |                             |  |                             |  |
|--|--|-------------------------------|--|-----------------------------|--|-----------------------------|--|
| <b>INVOICE TO:</b>                               |  | <b>REPORT TO:</b>             |  | <b>PROJECT INFORMATION:</b> |  | <b>Laboratory Use Only:</b> |  |
| Company Name: #3824 DST Consulting Engineers Inc |  | Company Name:                 |  | Quotation #: B61802         |  | Maxxam Job #:               |  |
| Attention: Accounts Payable                      |  | Attention: Eve Sabourin       |  | P.O. #:                     |  | Bottle Order #:             |  |
| Address: 2150 Thurston Dr Unit 203               |  | Address:                      |  | Project: TS-SO-29563        |  | COC #:                      |  |
| Ottawa ON K1G 5T9                                |  |                               |  | Project Name:               |  | Project Manager:            |  |
| Tel: (613) 748-1415 x Fax: (613) 748-1356 x      |  | Tel: Fax:                     |  | Site #:                     |  | Alison Cameron              |  |
| Email: ap@dstgroup.com                           |  | Email: esabourin@dstgroup.com |  | Sampled By:                 |  | C#617077-03-01              |  |

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

| <b>Regulation 153 (2011)</b><br><input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Medium/Fine<br><input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse<br><input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input type="checkbox"/> For RSC<br><input type="checkbox"/> Table |                                  | <b>Other Regulations</b><br><input type="checkbox"/> GCME <input type="checkbox"/> Sanitary Sewer Bylaw<br><input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw<br><input type="checkbox"/> MISA Municipality _____<br><input type="checkbox"/> PWQO<br><input type="checkbox"/> Other _____ |              | <b>Special Instructions</b> |   | Field Filled (please circle):<br>Metals / Hg / Cr / V<br>O Reg 153 by HS & F.F.P.4 (Soil)<br>O Reg 153 PA-Hg (Soil)<br>O Reg 153 CPMS Metals (Soil) | <b>ANALYSIS REQUESTED (PLEASE BE SPECIFIC)</b><br>BTEX<br>VOC |   |  |  |  |  |  |  |  |  | <b>Turnaround Time (TAT) Required:</b><br>Please provide advance notice for rush projects<br><b>Regular (Standard) TAT:</b><br>(will be applied if Rush TAT is not specified): <input checked="" type="checkbox"/><br>Standard TAT = 5-7 Working days for most tests.<br>Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.<br><b>Job Specific Rush TAT (if applies to entire submission)</b><br>Date Required: _____ Time Required: _____<br>Rush Confirmation Number: _____ (call lab for #) |  |
|--|----------------------------------|---|--------------|-----------------------------|---|---|---|---|--|--|--|--|--|--|--|--|---|--|
| <b>Include Criteria on Certificate of Analysis (Y/N)?</b>  |                                  |   |              |                             |   |   | # of Bottles: _____<br>Comments: _____                        |   |  |  |  |  |  |  |  |  |   |  |
| Sample Barcode Label   | Sample (Location) Identification | Date Sampled  | Time Sampled | Matrix                      |   |   |   |   |  |  |  |  |  |  |  |  |   |  |
| 1  | BH2017-1 SS3                     | 05/07/17  | 9:30         | Soil                        | X | X   | X   |   |  |  |  |  |  |  |  |  |   |  |
| 2  | BH2017-1 SS2                     |   | 9:45         |                             | X |   | X   | X |  |  |  |  |  |  |  |  |   |  |
| 3  | BH2017-3 SS10                    |   | 12:00        |                             | X | X   | X   |   |  |  |  |  |  |  |  |  |   |  |
| 4  | BH2017-3 SS11                    |   | 11:30        |                             | X |   | X   |   |  |  |  |  |  |  |  |  |   |  |
| 5  | BH2017-2 SS12                    |   |              |                             |   |   |   |   |  |  |  |  |  |  |  |  |   |  |
| 6  | BH2017-2 SS13                    |   |              |                             |   |   |   |   |  |  |  |  |  |  |  |  |   |  |
| 7  | BH2017-3 SS1                     |   |              |                             |   |   |   |   |  |  |  |  |  |  |  |  |   |  |
| 8  | BH2017-3 SS2                     |   |              |                             |   |   |   |   |  |  |  |  |  |  |  |  |   |  |
| 9  | BH2017-3 SS3                     |   |              |                             |   |   |   |   |  |  |  |  |  |  |  |  |   |  |
| 10   | BH2017-3 SS4                     |   |              |                             |   |   |   |   |  |  |  |  |  |  |  |  |   |  |

RECEIVED IN OTTAWA

06-Jul-17 09:30  
 Alison Cameron  
 B7E2706  
 HGR ENV-420  
 ON ICE

|                                      |  |                  |       |                                |  |                  |      |                               |                     |                             |                      |     |    |
|--------------------------------------|--|------------------|-------|--------------------------------|--|------------------|------|-------------------------------|---------------------|-----------------------------|----------------------|-----|----|
| * RELINQUISHED BY: (Signature/Print) |  | Date: (YY/MM/DD) | Time  | RECEIVED BY: (Signature/Print) |  | Date: (YY/MM/DD) | Time | # Jars used and not submitted | Laboratory Use Only |                             |                      |     |    |
| <i>Eve Sabourin</i>                  |  | 17/07/05         | 18:00 | <i>Karen Jayaraman</i>         |  | 20/07/06         | 9:30 |                               | Time Sensitive      | Temperature (°C) on Receipt | Custody Seal Present | Yes | No |
|                                      |  | 17/07/05         | 18:00 |                                |  |                  |      |                               |                     | 21/2/2                      | 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.

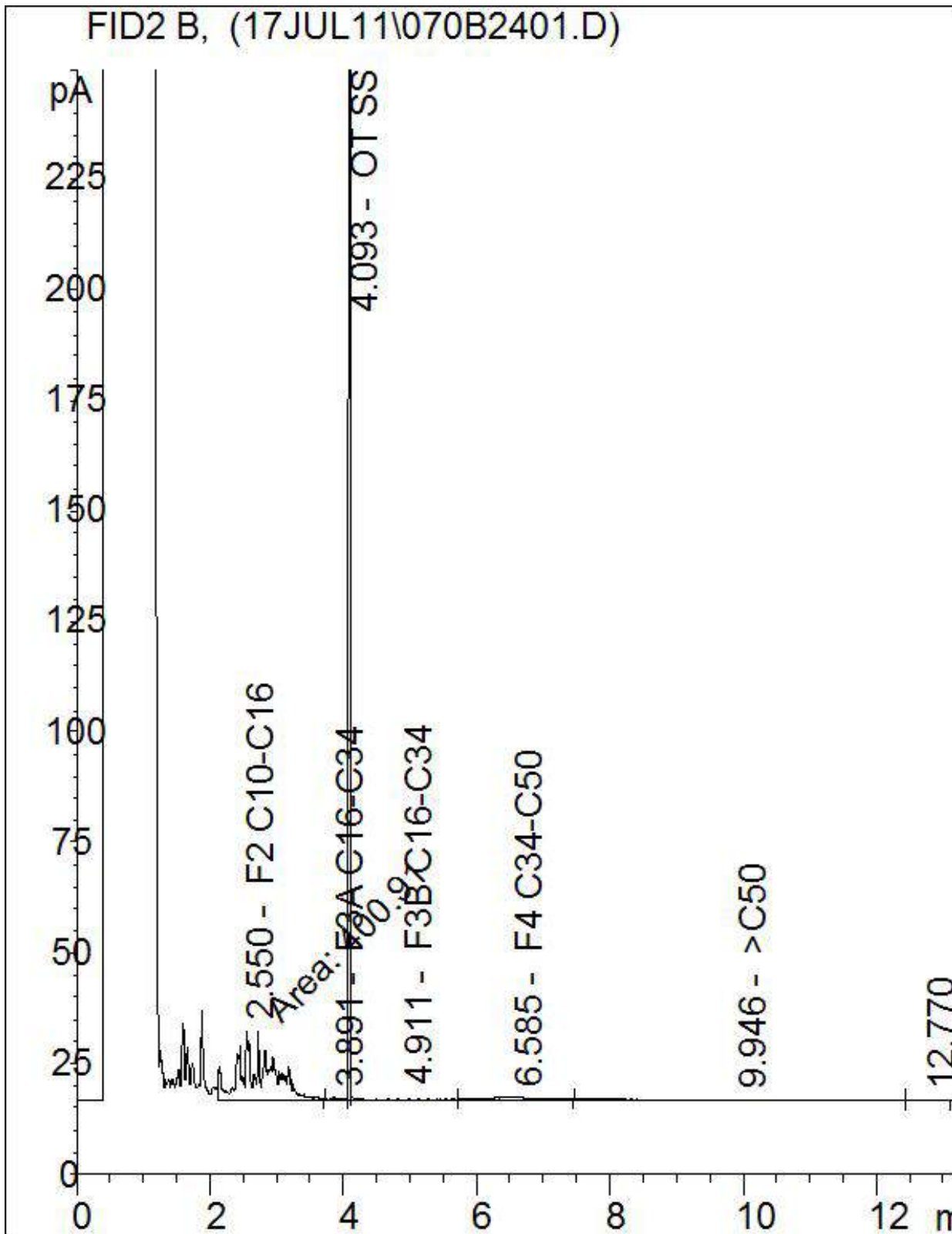
\* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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

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

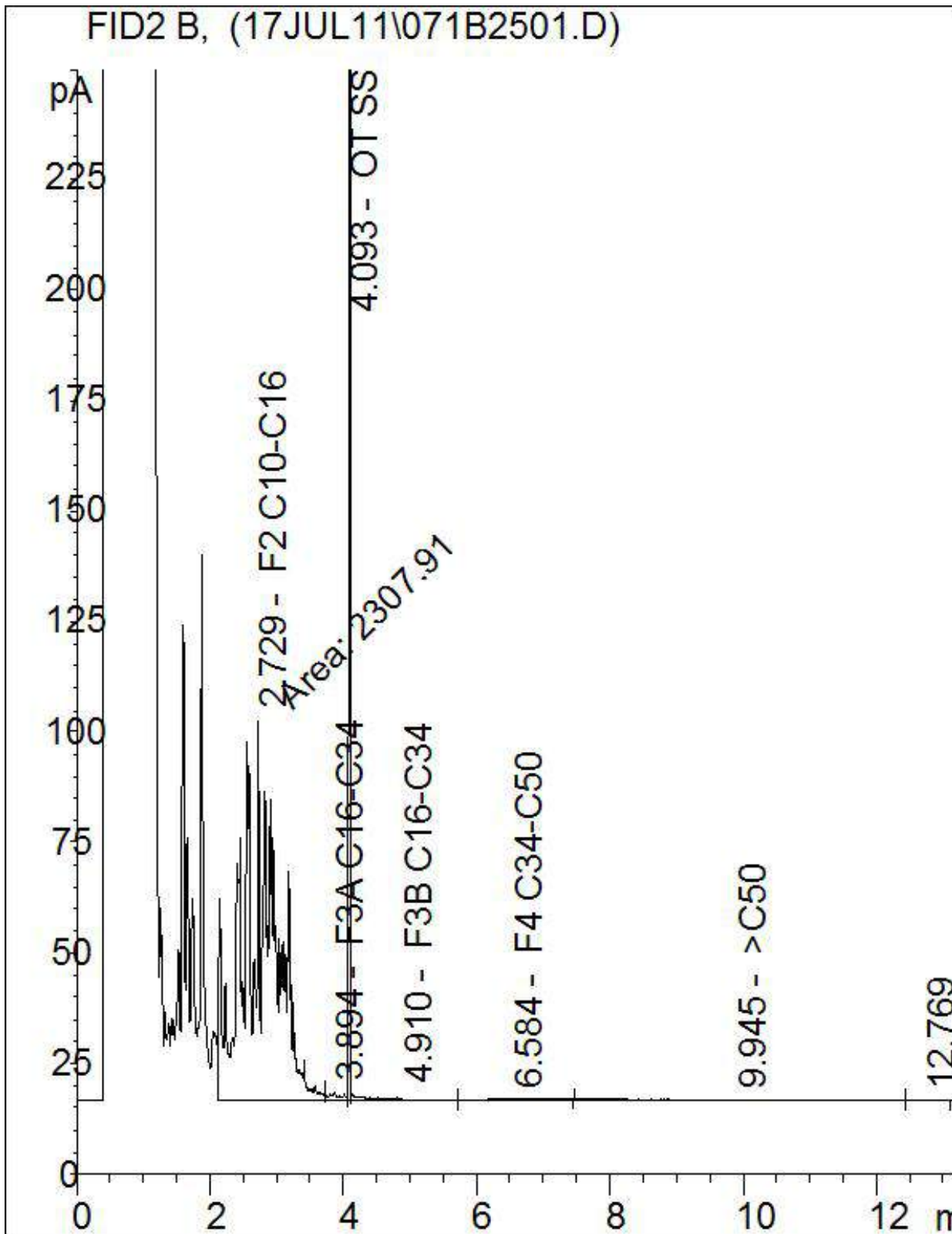
Alison Cameron 8/18  
20/07/06 12:45

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



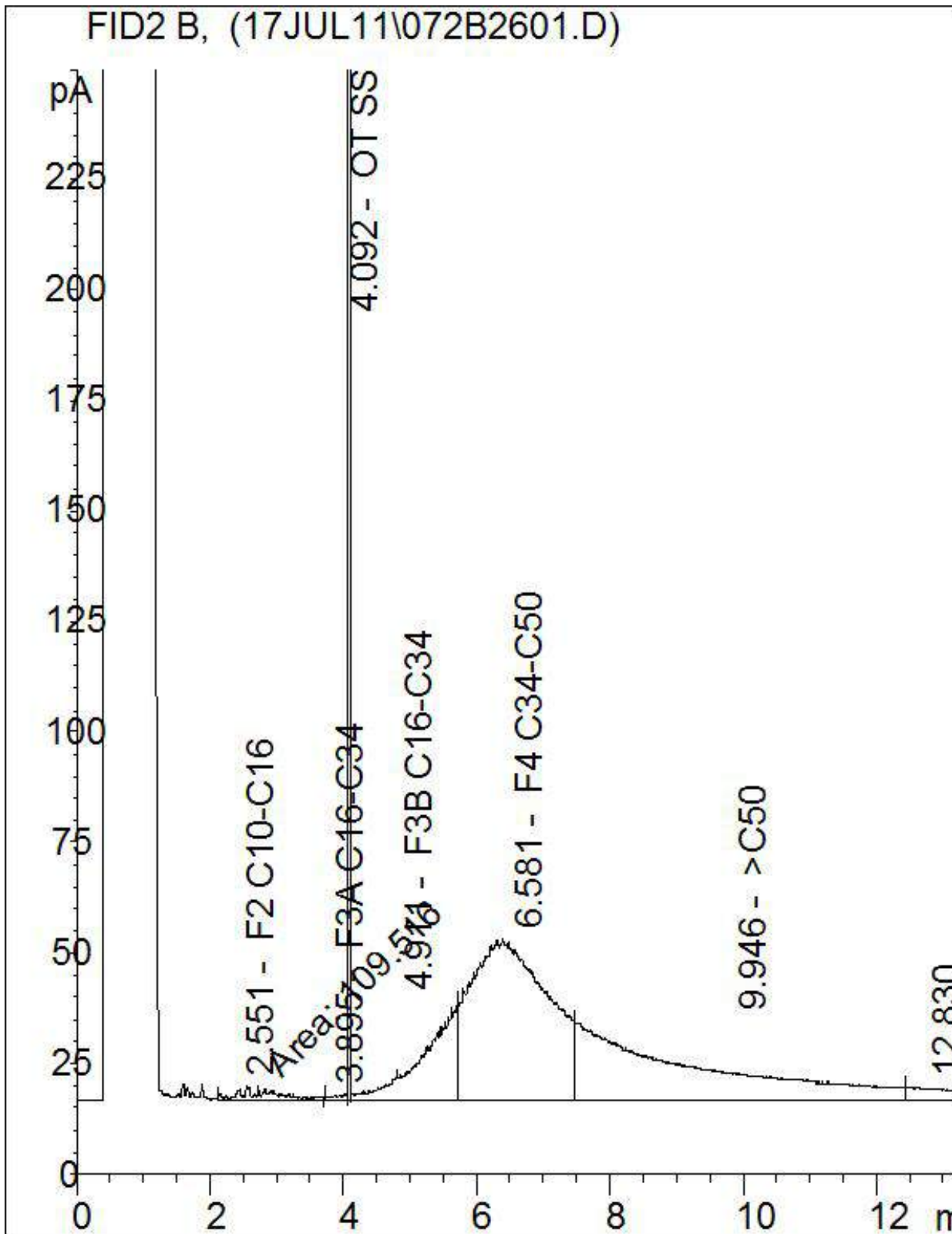
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



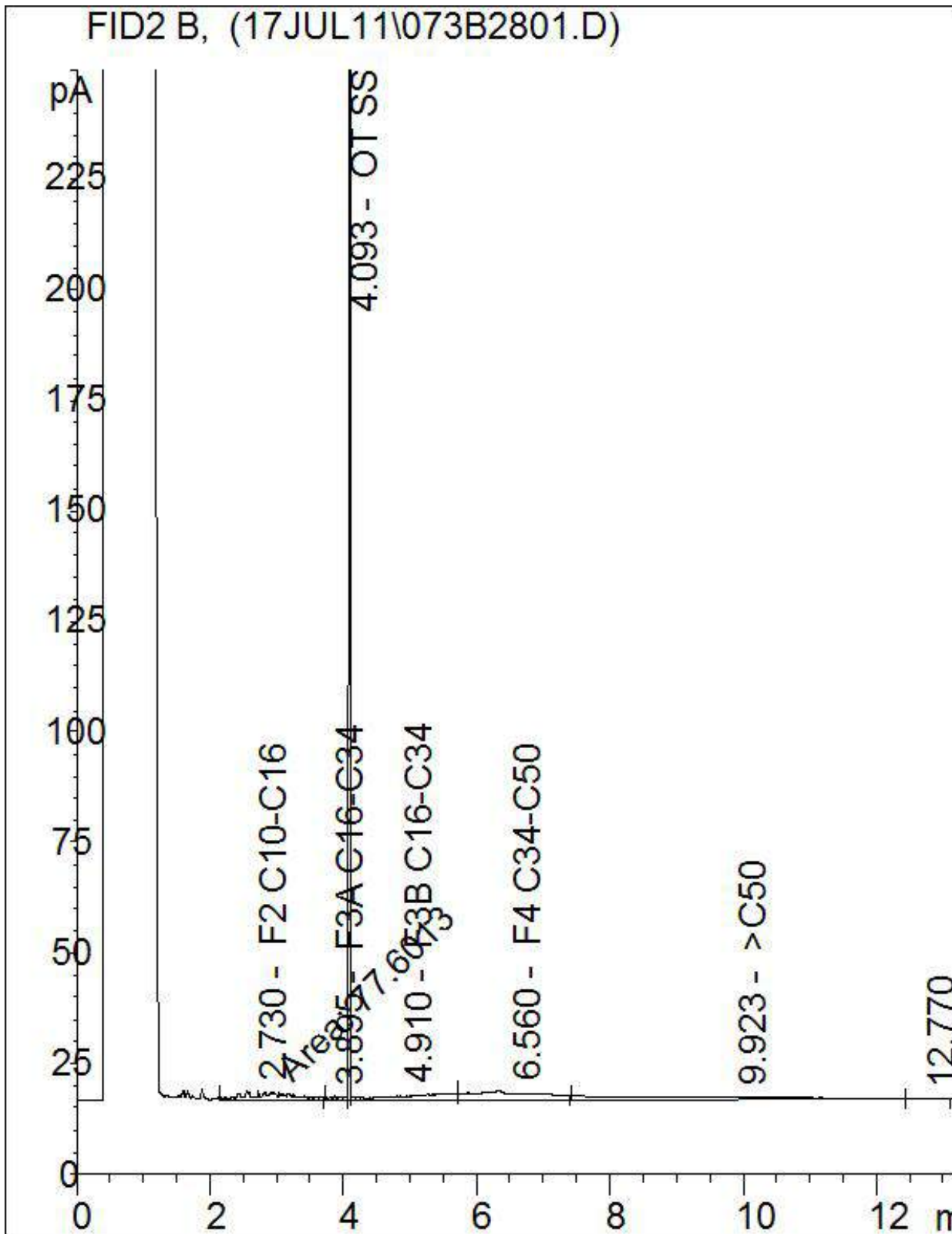
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

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.

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.

**Attention:Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/14**  
Report #: R4599408  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7E5306**

**Received: 2017/07/10, 14:40**

Sample Matrix: Soil  
# Samples Received: 6

| Analyses                                       | Quantity | Date       | Date       | Laboratory Method | Reference            |
|--|----------|------------|------------|-------------------|----------------------|
|  |          | Extracted  | Analyzed   |                   |                      |
| 1,3-Dichloropropene Sum (1)                    | 4        | N/A        | 2017/07/14 |                   | EPA 8260C m          |
| Petroleum Hydro. CCME F1 & BTEX in Soil (1, 2) | 2        | N/A        | 2017/07/13 | CAM SOP-00315     | CCME PHC-CWS m       |
| Petroleum Hydrocarbons F2-F4 in Soil (1, 3)    | 6        | 2017/07/13 | 2017/07/14 | CAM SOP-00316     | CCME CWS m           |
| Strong Acid Leachable Metals by ICPMS (1)      | 3        | 2017/07/13 | 2017/07/14 | CAM SOP-00447     | EPA 6020B m          |
| Moisture (1)                                   | 6        | N/A        | 2017/07/13 | CAM SOP-00445     | Carter 2nd ed 51.2 m |
| Volatile Organic Compounds and F1 PHCs (1)     | 4        | N/A        | 2017/07/14 | CAM SOP-00230     | 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.

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.

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.

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

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

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

Your Project #: TS-SO-29563  
Your C.O.C. #: 617077-16-01

**Attention:Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/14**  
Report #: R4599408  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7E5306**

**Received: 2017/07/10, 14:40**

- (1) This test was performed by Maxxam Analytics Mississauga
- (2) 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.
- (3) 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.  
Alison Cameron, Project Manager  
Email: ACameron@maxxam.ca  
Phone# (613) 274-0573

=====  
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.

**O.REG 153 ICPMS METALS (SOIL)**

| Maxxam ID                        |       | ESJ278              | ESJ280              | ESJ282              |       |          |
|----------------------------------|-------|---------------------|---------------------|---------------------|-------|----------|
| Sampling Date                    |       | 2017/07/07<br>14:00 | 2017/07/07<br>12:00 | 2017/07/10<br>09:00 |       |          |
| COC Number                       |       | 617077-16-01        | 617077-16-01        | 617077-16-01        |       |          |
|                                  | UNITS | BH2017-05-SS7       | BH2017-06-SS12      | BH2017-8-SS5        | RDL   | QC Batch |
| <b>Metals</b>                    |       |                     |                     |                     |       |          |
| Acid Extractable Antimony (Sb)   | ug/g  | <0.20               | <0.20               | 0.21                | 0.20  | 5071935  |
| Acid Extractable Arsenic (As)    | ug/g  | 1.4                 | <1.0                | 2.0                 | 1.0   | 5071935  |
| Acid Extractable Barium (Ba)     | ug/g  | 320                 | 56                  | 370                 | 0.50  | 5071935  |
| Acid Extractable Beryllium (Be)  | ug/g  | 0.74                | 0.26                | 0.78                | 0.20  | 5071935  |
| Acid Extractable Boron (B)       | ug/g  | 8.1                 | 6.4                 | 7.7                 | 5.0   | 5071935  |
| Acid Extractable Cadmium (Cd)    | ug/g  | <0.10               | <0.10               | 0.10                | 0.10  | 5071935  |
| Acid Extractable Chromium (Cr)   | ug/g  | 100                 | 15                  | 120                 | 1.0   | 5071935  |
| Acid Extractable Cobalt (Co)     | ug/g  | 21                  | 5.4                 | 22                  | 0.10  | 5071935  |
| Acid Extractable Copper (Cu)     | ug/g  | 48                  | 11                  | 54                  | 0.50  | 5071935  |
| Acid Extractable Lead (Pb)       | ug/g  | 13                  | 4.0                 | 10                  | 1.0   | 5071935  |
| Acid Extractable Molybdenum (Mo) | ug/g  | 0.54                | 0.55                | 0.53                | 0.50  | 5071935  |
| Acid Extractable Nickel (Ni)     | ug/g  | 55                  | 9.7                 | 64                  | 0.50  | 5071935  |
| Acid Extractable Selenium (Se)   | ug/g  | <0.50               | <0.50               | <0.50               | 0.50  | 5071935  |
| Acid Extractable Silver (Ag)     | ug/g  | <0.20               | <0.20               | <0.20               | 0.20  | 5071935  |
| Acid Extractable Thallium (Tl)   | ug/g  | 0.36                | 0.068               | 0.38                | 0.050 | 5071935  |
| Acid Extractable Uranium (U)     | ug/g  | 0.66                | 0.90                | 0.57                | 0.050 | 5071935  |
| Acid Extractable Vanadium (V)    | ug/g  | 92                  | 23                  | 90                  | 5.0   | 5071935  |
| Acid Extractable Zinc (Zn)       | ug/g  | 110                 | 19                  | 110                 | 5.0   | 5071935  |
| RDL = Reportable Detection Limit |       |                     |                     |                     |       |          |
| QC Batch = Quality Control Batch |       |                     |                     |                     |       |          |

**O.REG 153 PETROLEUM HYDROCARBONS (SOIL)**

| Maxxam ID  |              | ESJ279                | ESJ282              |            |                 |
|--|--------------|-----------------------|---------------------|------------|-----------------|
| Sampling Date  |              | 2017/07/07<br>14:30   | 2017/07/10<br>09:00 |            |                 |
| COC Number   |              | 617077-16-01          | 617077-16-01        |            |                 |
|  | <b>UNITS</b> | <b>BH2017-05-SS12</b> | <b>BH2017-8-SS5</b> | <b>RDL</b> | <b>QC Batch</b> |
| <b>Inorganics</b>  |              |                       |                     |            |                 |
| Moisture   | %            | 16                    | 27                  | 1.0        | 5071367         |
| <b>BTEX &amp; F1 Hydrocarbons</b>                                    |              |                       |                     |            |                 |
| Benzene  | ug/g         | 0.11                  | <0.020              | 0.020      | 5071390         |
| Toluene  | ug/g         | <0.020                | <0.020              | 0.020      | 5071390         |
| Ethylbenzene   | ug/g         | <0.020                | <0.020              | 0.020      | 5071390         |
| o-Xylene   | ug/g         | <0.020                | <0.020              | 0.020      | 5071390         |
| p+m-Xylene   | ug/g         | <0.040                | <0.040              | 0.040      | 5071390         |
| Total Xylenes  | ug/g         | <0.040                | <0.040              | 0.040      | 5071390         |
| F1 (C6-C10)  | ug/g         | <10                   | <10                 | 10         | 5071390         |
| F1 (C6-C10) - BTEX   | ug/g         | <10                   | <10                 | 10         | 5071390         |
| <b>F2-F4 Hydrocarbons</b>  |              |                       |                     |            |                 |
| F2 (C10-C16 Hydrocarbons)  | ug/g         | <10                   | <10                 | 10         | 5071933         |
| F3 (C16-C34 Hydrocarbons)  | ug/g         | <50                   | <50                 | 50         | 5071933         |
| F4 (C34-C50 Hydrocarbons)  | ug/g         | <50                   | <50                 | 50         | 5071933         |
| Reached Baseline at C50  | ug/g         | Yes                   | Yes                 |            | 5071933         |
| <b>Surrogate Recovery (%)</b>  |              |                       |                     |            |                 |
| 1,4-Difluorobenzene  | %            | 97                    | 97                  |            | 5071390         |
| 4-Bromofluorobenzene   | %            | 94                    | 95                  |            | 5071390         |
| D10-Ethylbenzene   | %            | 92                    | 102                 |            | 5071390         |
| D4-1,2-Dichloroethane  | %            | 98                    | 98                  |            | 5071390         |
| o-Terphenyl  | %            | 92                    | 93                  |            | 5071933         |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch |              |                       |                     |            |                 |

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

| Maxxam ID                           |       | ESJ278              | ESJ280              | ESJ281              | ESJ283              |       |          |
|-------------------------------------|-------|---------------------|---------------------|---------------------|---------------------|-------|----------|
| Sampling Date                       |       | 2017/07/07<br>14:00 | 2017/07/07<br>12:00 | 2017/07/07<br>13:00 | 2017/07/10<br>09:45 |       |          |
| COC Number                          |       | 617077-16-01        | 617077-16-01        | 617077-16-01        | 617077-16-01        |       |          |
|                                     | UNITS | BH2017-05-SS7       | BH2017-06-SS12      | BH2017-05-A-SS3     | BH2017-8-SS12       | RDL   | QC Batch |
| <b>Inorganics</b>                   |       |                     |                     |                     |                     |       |          |
| Moisture                            | %     | 27                  | 12                  | 9.8                 | 15                  | 1.0   | 5071367  |
| <b>Calculated Parameters</b>        |       |                     |                     |                     |                     |       |          |
| 1,3-Dichloropropene (cis+trans)     | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5067248  |
| <b>Volatile Organics</b>            |       |                     |                     |                     |                     |       |          |
| Acetone (2-Propanone)               | ug/g  | <0.50               | <0.50               | <0.50               | <0.50               | 0.50  | 5072360  |
| Benzene                             | ug/g  | <0.020              | <0.020              | 0.039               | <0.020              | 0.020 | 5072360  |
| Bromodichloromethane                | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Bromoform                           | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Bromomethane                        | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Carbon Tetrachloride                | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Chlorobenzene                       | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Chloroform                          | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Dibromochloromethane                | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| 1,2-Dichlorobenzene                 | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| 1,3-Dichlorobenzene                 | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| 1,4-Dichlorobenzene                 | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Dichlorodifluoromethane (FREON 12)  | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| 1,1-Dichloroethane                  | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| 1,2-Dichloroethane                  | ug/g  | <0.050              | <0.050              | 0.20                | <0.050              | 0.050 | 5072360  |
| 1,1-Dichloroethylene                | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| cis-1,2-Dichloroethylene            | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| trans-1,2-Dichloroethylene          | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| 1,2-Dichloropropane                 | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| cis-1,3-Dichloropropene             | ug/g  | <0.030              | <0.030              | <0.030              | <0.030              | 0.030 | 5072360  |
| trans-1,3-Dichloropropene           | ug/g  | <0.040              | <0.040              | <0.040              | <0.040              | 0.040 | 5072360  |
| Ethylbenzene                        | ug/g  | <0.020              | <0.020              | 0.056               | <0.020              | 0.020 | 5072360  |
| Ethylene Dibromide                  | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Hexane                              | ug/g  | <0.050              | <0.050              | <0.050              | 0.25                | 0.050 | 5072360  |
| Methylene Chloride(Dichloromethane) | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Methyl Ethyl Ketone (2-Butanone)    | ug/g  | <0.50               | <0.50               | <0.50               | <0.50               | 0.50  | 5072360  |
| Methyl Isobutyl Ketone              | ug/g  | <0.50               | <0.50               | <0.50               | <0.50               | 0.50  | 5072360  |
| Methyl t-butyl ether (MTBE)         | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Styrene                             | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| 1,1,1,2-Tetrachloroethane           | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| 1,1,2,2-Tetrachloroethane           | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| RDL = Reportable Detection Limit    |       |                     |                     |                     |                     |       |          |
| QC Batch = Quality Control Batch    |       |                     |                     |                     |                     |       |          |

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

| Maxxam ID                         |       | ESJ278              | ESJ280              | ESJ281              | ESJ283              |       |          |
|-----------------------------------|-------|---------------------|---------------------|---------------------|---------------------|-------|----------|
| Sampling Date                     |       | 2017/07/07<br>14:00 | 2017/07/07<br>12:00 | 2017/07/07<br>13:00 | 2017/07/10<br>09:45 |       |          |
| COC Number                        |       | 617077-16-01        | 617077-16-01        | 617077-16-01        | 617077-16-01        |       |          |
|                                   | UNITS | BH2017-05-SS7       | BH2017-06-SS12      | BH2017-05-A-SS3     | BH2017-8-SS12       | RDL   | QC Batch |
| Tetrachloroethylene               | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Toluene                           | ug/g  | <0.020              | <0.020              | 0.32                | <0.020              | 0.020 | 5072360  |
| 1,1,1-Trichloroethane             | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| 1,1,2-Trichloroethane             | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Trichloroethylene                 | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Trichlorofluoromethane (FREON 11) | ug/g  | <0.050              | <0.050              | <0.050              | <0.050              | 0.050 | 5072360  |
| Vinyl Chloride                    | ug/g  | <0.020              | <0.020              | <0.020              | <0.020              | 0.020 | 5072360  |
| p+m-Xylene                        | ug/g  | <0.020              | <0.020              | 0.35                | 0.029               | 0.020 | 5072360  |
| o-Xylene                          | ug/g  | <0.020              | <0.020              | 0.091               | <0.020              | 0.020 | 5072360  |
| Total Xylenes                     | ug/g  | <0.020              | <0.020              | 0.44                | 0.029               | 0.020 | 5072360  |
| F1 (C6-C10)                       | ug/g  | 60                  | <10                 | <10                 | <10                 | 10    | 5072360  |
| F1 (C6-C10) - BTEX                | ug/g  | 60                  | <10                 | <10                 | <10                 | 10    | 5072360  |
| <b>F2-F4 Hydrocarbons</b>         |       |                     |                     |                     |                     |       |          |
| F2 (C10-C16 Hydrocarbons)         | ug/g  | 160                 | <10                 | 260                 | <10                 | 10    | 5071933  |
| F3 (C16-C34 Hydrocarbons)         | ug/g  | 340                 | <50                 | 2300                | <50                 | 50    | 5071933  |
| F4 (C34-C50 Hydrocarbons)         | ug/g  | 79                  | <50                 | 490                 | <50                 | 50    | 5071933  |
| Reached Baseline at C50           | ug/g  | Yes                 | Yes                 | Yes                 | Yes                 |       | 5071933  |
| <b>Surrogate Recovery (%)</b>     |       |                     |                     |                     |                     |       |          |
| o-Terphenyl                       | %     | 93                  | 92                  | 96                  | 95                  |       | 5071933  |
| 4-Bromofluorobenzene              | %     | 104                 | 99                  | 101                 | 98                  |       | 5072360  |
| D10-o-Xylene                      | %     | 94                  | 83                  | 95                  | 90                  |       | 5072360  |
| D4-1,2-Dichloroethane             | %     | 89                  | 89                  | 88                  | 81                  |       | 5072360  |
| D8-Toluene                        | %     | 91                  | 94                  | 95                  | 97                  |       | 5072360  |
| RDL = Reportable Detection Limit  |       |                     |                     |                     |                     |       |          |
| QC Batch = Quality Control Batch  |       |                     |                     |                     |                     |       |          |

### TEST SUMMARY

**Maxxam ID:** ESJ278  
**Sample ID:** BH2017-05-SS7  
**Matrix:** Soil

**Collected:** 2017/07/07  
**Shipped:**  
**Received:** 2017/07/10

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst            |
|--|-----------------|---------|------------|---------------|--------------------|
| 1,3-Dichloropropene Sum                | CALC            | 5067248 | N/A        | 2017/07/14    | Automated Statchk  |
| Petroleum Hydrocarbons F2-F4 in Soil   | GC/FID          | 5071933 | 2017/07/13 | 2017/07/14    | Zhiyue (Frank) Zhu |
| Strong Acid Leachable Metals by ICPMS  | ICP/MS          | 5071935 | 2017/07/13 | 2017/07/14    | Daniel Teclu       |
| Moisture                               | BAL             | 5071367 | N/A        | 2017/07/13    | Min Yang           |
| Volatile Organic Compounds and F1 PHCs | GC/MSFD         | 5072360 | N/A        | 2017/07/14    | Karen Hughes       |

**Maxxam ID:** ESJ279  
**Sample ID:** BH2017-05-SS12  
**Matrix:** Soil

**Collected:** 2017/07/07  
**Shipped:**  
**Received:** 2017/07/10

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst            |
|---|-----------------|---------|------------|---------------|--------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5071390 | N/A        | 2017/07/13    | Haibin Wu          |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5071933 | 2017/07/13 | 2017/07/14    | Zhiyue (Frank) Zhu |
| Moisture                                | BAL             | 5071367 | N/A        | 2017/07/13    | Min Yang           |

**Maxxam ID:** ESJ280  
**Sample ID:** BH2017-06-SS12  
**Matrix:** Soil

**Collected:** 2017/07/07  
**Shipped:**  
**Received:** 2017/07/10

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst            |
|--|-----------------|---------|------------|---------------|--------------------|
| 1,3-Dichloropropene Sum                | CALC            | 5067248 | N/A        | 2017/07/14    | Automated Statchk  |
| Petroleum Hydrocarbons F2-F4 in Soil   | GC/FID          | 5071933 | 2017/07/13 | 2017/07/14    | Zhiyue (Frank) Zhu |
| Strong Acid Leachable Metals by ICPMS  | ICP/MS          | 5071935 | 2017/07/13 | 2017/07/14    | Daniel Teclu       |
| Moisture                               | BAL             | 5071367 | N/A        | 2017/07/13    | Min Yang           |
| Volatile Organic Compounds and F1 PHCs | GC/MSFD         | 5072360 | N/A        | 2017/07/14    | Karen Hughes       |

**Maxxam ID:** ESJ281  
**Sample ID:** BH2017-05-A-SS3  
**Matrix:** Soil

**Collected:** 2017/07/07  
**Shipped:**  
**Received:** 2017/07/10

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst            |
|--|-----------------|---------|------------|---------------|--------------------|
| 1,3-Dichloropropene Sum                | CALC            | 5067248 | N/A        | 2017/07/14    | Automated Statchk  |
| Petroleum Hydrocarbons F2-F4 in Soil   | GC/FID          | 5071933 | 2017/07/13 | 2017/07/14    | Zhiyue (Frank) Zhu |
| Moisture                               | BAL             | 5071367 | N/A        | 2017/07/13    | Min Yang           |
| Volatile Organic Compounds and F1 PHCs | GC/MSFD         | 5072360 | N/A        | 2017/07/14    | Karen Hughes       |

**Maxxam ID:** ESJ282  
**Sample ID:** BH2017-8-SS5  
**Matrix:** Soil

**Collected:** 2017/07/10  
**Shipped:**  
**Received:** 2017/07/10

| Test Description                        | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst            |
|---|-----------------|---------|------------|---------------|--------------------|
| Petroleum Hydro. CCME F1 & BTEX in Soil | HSGC/MSFD       | 5071390 | N/A        | 2017/07/13    | Haibin Wu          |
| Petroleum Hydrocarbons F2-F4 in Soil    | GC/FID          | 5071933 | 2017/07/13 | 2017/07/14    | Zhiyue (Frank) Zhu |
| Strong Acid Leachable Metals by ICPMS   | ICP/MS          | 5071935 | 2017/07/13 | 2017/07/14    | Daniel Teclu       |
| Moisture                                | BAL             | 5071367 | N/A        | 2017/07/13    | Min Yang           |

### TEST SUMMARY

**Maxxam ID:** ESJ283  
**Sample ID:** BH2017-8-SS12  
**Matrix:** Soil

**Collected:** 2017/07/10  
**Shipped:**  
**Received:** 2017/07/10

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst            |
|--|-----------------|---------|------------|---------------|--------------------|
| 1,3-Dichloropropene Sum                | CALC            | 5067248 | N/A        | 2017/07/14    | Automated Statchk  |
| Petroleum Hydrocarbons F2-F4 in Soil   | GC/FID          | 5071933 | 2017/07/13 | 2017/07/14    | Zhiyue (Frank) Zhu |
| Moisture                               | BAL             | 5071367 | N/A        | 2017/07/13    | Min Yang           |
| Volatile Organic Compounds and F1 PHCs | GC/MSFD         | 5072360 | N/A        | 2017/07/14    | Karen Hughes       |

### GENERAL COMMENTS

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

|           |        |
|-----------|--------|
| Package 1 | 14.0°C |
|-----------|--------|

Sample ESJ279 [BH2017-05-SS12] : F1/BTEX Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample ESJ280 [BH2017-06-SS12] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

Sample ESJ283 [BH2017-8-SS12] : VOCF1 Analysis: Greater than 10g of soil was submitted in the field preserved vial. This significantly exceeds the protocol specification of approximately 5g. Additional methanol was added to the vial to ensure extraction efficiency.

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

**QUALITY ASSURANCE REPORT**

| QC Batch | Parameter                        | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|----------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                  |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5071390  | 1,4-Difluorobenzene              | 2017/07/13 | 97           | 60 - 140  | 97           | 60 - 140  | 96           | %     |           |           |
| 5071390  | 4-Bromofluorobenzene             | 2017/07/13 | 94           | 60 - 140  | 96           | 60 - 140  | 94           | %     |           |           |
| 5071390  | D10-Ethylbenzene                 | 2017/07/13 | 90           | 60 - 140  | 102          | 60 - 140  | 86           | %     |           |           |
| 5071390  | D4-1,2-Dichloroethane            | 2017/07/13 | 98           | 60 - 140  | 99           | 60 - 140  | 96           | %     |           |           |
| 5071933  | o-Terphenyl                      | 2017/07/13 | 98           | 60 - 130  | 96           | 60 - 130  | 91           | %     |           |           |
| 5072360  | 4-Bromofluorobenzene             | 2017/07/13 | 104          | 60 - 140  | 106          | 60 - 140  | 99           | %     |           |           |
| 5072360  | D10-o-Xylene                     | 2017/07/13 | 97           | 60 - 130  | 101          | 60 - 130  | 83           | %     |           |           |
| 5072360  | D4-1,2-Dichloroethane            | 2017/07/13 | 88           | 60 - 140  | 92           | 60 - 140  | 89           | %     |           |           |
| 5072360  | D8-Toluene                       | 2017/07/13 | 98           | 60 - 140  | 98           | 60 - 140  | 94           | %     |           |           |
| 5071367  | Moisture                         | 2017/07/13 |              |           |              |           |              |       | 2.6       | 20        |
| 5071390  | Benzene                          | 2017/07/13 | 96           | 60 - 140  | 115          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5071390  | Ethylbenzene                     | 2017/07/13 | 88           | 60 - 140  | 105          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5071390  | F1 (C6-C10) - BTEX               | 2017/07/13 |              |           |              |           | <10          | ug/g  | NC        | 30        |
| 5071390  | F1 (C6-C10)                      | 2017/07/13 | 89           | 60 - 140  | 91           | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5071390  | o-Xylene                         | 2017/07/13 | 89           | 60 - 140  | 106          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5071390  | p+m-Xylene                       | 2017/07/13 | 87           | 60 - 140  | 103          | 60 - 140  | <0.040       | ug/g  | NC        | 50        |
| 5071390  | Toluene                          | 2017/07/13 | 86           | 60 - 140  | 103          | 60 - 140  | <0.020       | ug/g  | NC        | 50        |
| 5071390  | Total Xylenes                    | 2017/07/13 |              |           |              |           | <0.040       | ug/g  | NC        | 50        |
| 5071933  | F2 (C10-C16 Hydrocarbons)        | 2017/07/13 | 98           | 50 - 130  | 96           | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5071933  | F3 (C16-C34 Hydrocarbons)        | 2017/07/13 | 101          | 50 - 130  | 98           | 80 - 120  | <50          | ug/g  | NC        | 30        |
| 5071933  | F4 (C34-C50 Hydrocarbons)        | 2017/07/13 | 100          | 50 - 130  | 98           | 80 - 120  | <50          | ug/g  | NC        | 30        |
| 5071935  | Acid Extractable Antimony (Sb)   | 2017/07/14 | 109          | 75 - 125  | 100          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5071935  | Acid Extractable Arsenic (As)    | 2017/07/14 | 101          | 75 - 125  | 96           | 80 - 120  | <1.0         | ug/g  | 1.5       | 30        |
| 5071935  | Acid Extractable Barium (Ba)     | 2017/07/14 | 109          | 75 - 125  | 107          | 80 - 120  | <0.50        | ug/g  | 2.1       | 30        |
| 5071935  | Acid Extractable Beryllium (Be)  | 2017/07/14 | 98           | 75 - 125  | 94           | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5071935  | Acid Extractable Boron (B)       | 2017/07/14 | 97           | 75 - 125  | 93           | 80 - 120  | <5.0         | ug/g  | NC        | 30        |
| 5071935  | Acid Extractable Cadmium (Cd)    | 2017/07/14 | 103          | 75 - 125  | 97           | 80 - 120  | <0.10        | ug/g  | NC        | 30        |
| 5071935  | Acid Extractable Chromium (Cr)   | 2017/07/14 | 102          | 75 - 125  | 100          | 80 - 120  | <1.0         | ug/g  | 9.9       | 30        |
| 5071935  | Acid Extractable Cobalt (Co)     | 2017/07/14 | 99           | 75 - 125  | 98           | 80 - 120  | <0.10        | ug/g  | 1.1       | 30        |
| 5071935  | Acid Extractable Copper (Cu)     | 2017/07/14 | 106          | 75 - 125  | 101          | 80 - 120  | <0.50        | ug/g  | 2.4       | 30        |
| 5071935  | Acid Extractable Lead (Pb)       | 2017/07/14 | 103          | 75 - 125  | 98           | 80 - 120  | <1.0         | ug/g  | 8.9       | 30        |
| 5071935  | Acid Extractable Molybdenum (Mo) | 2017/07/14 | 107          | 75 - 125  | 100          | 80 - 120  | <0.50        | ug/g  | NC        | 30        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                          | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|------------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                    |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5071935  | Acid Extractable Nickel (Ni)       | 2017/07/14 | 100          | 75 - 125  | 98           | 80 - 120  | <0.50        | ug/g  | 3.8       | 30        |
| 5071935  | Acid Extractable Selenium (Se)     | 2017/07/14 | 100          | 75 - 125  | 97           | 80 - 120  | <0.50        | ug/g  | NC        | 30        |
| 5071935  | Acid Extractable Silver (Ag)       | 2017/07/14 | 106          | 75 - 125  | 101          | 80 - 120  | <0.20        | ug/g  | NC        | 30        |
| 5071935  | Acid Extractable Thallium (Tl)     | 2017/07/14 | 104          | 75 - 125  | 98           | 80 - 120  | <0.050       | ug/g  | NC        | 30        |
| 5071935  | Acid Extractable Uranium (U)       | 2017/07/14 | 104          | 75 - 125  | 97           | 80 - 120  | <0.050       | ug/g  | 7.9       | 30        |
| 5071935  | Acid Extractable Vanadium (V)      | 2017/07/14 | 108          | 75 - 125  | 99           | 80 - 120  | <5.0         | ug/g  | 17        | 30        |
| 5071935  | Acid Extractable Zinc (Zn)         | 2017/07/14 | 98           | 75 - 125  | 96           | 80 - 120  | <5.0         | ug/g  | 2.2       | 30        |
| 5072360  | 1,1,1,2-Tetrachloroethane          | 2017/07/14 | 103          | 60 - 140  | 106          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | 1,1,1-Trichloroethane              | 2017/07/14 | 95           | 60 - 140  | 94           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | 1,1,2,2-Tetrachloroethane          | 2017/07/14 | 91           | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | 1,1,2-Trichloroethane              | 2017/07/14 | 88           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | 1,1-Dichloroethane                 | 2017/07/14 | 99           | 60 - 140  | 100          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | 1,1-Dichloroethylene               | 2017/07/14 | 100          | 60 - 140  | 97           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | 1,2-Dichlorobenzene                | 2017/07/14 | 99           | 60 - 140  | 101          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | 1,2-Dichloroethane                 | 2017/07/14 | 88           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | 1,2-Dichloropropane                | 2017/07/14 | 91           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | 1,3-Dichlorobenzene                | 2017/07/14 | 105          | 60 - 140  | 104          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | 1,4-Dichlorobenzene                | 2017/07/14 | 105          | 60 - 140  | 105          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Acetone (2-Propanone)              | 2017/07/14 | 75           | 60 - 140  | 91           | 60 - 140  | <0.50        | ug/g  | NC        | 50        |
| 5072360  | Benzene                            | 2017/07/14 | 104          | 60 - 140  | 105          | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5072360  | Bromodichloromethane               | 2017/07/14 | 89           | 60 - 140  | 93           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Bromoform                          | 2017/07/14 | 100          | 60 - 140  | 109          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Bromomethane                       | 2017/07/14 | 97           | 60 - 140  | 96           | 60 - 140  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Carbon Tetrachloride               | 2017/07/14 | 96           | 60 - 140  | 95           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Chlorobenzene                      | 2017/07/14 | 99           | 60 - 140  | 100          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Chloroform                         | 2017/07/14 | 97           | 60 - 140  | 99           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | cis-1,2-Dichloroethylene           | 2017/07/14 | 100          | 60 - 140  | 102          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | cis-1,3-Dichloropropene            | 2017/07/14 | 80           | 60 - 140  | 84           | 60 - 130  | <0.030       | ug/g  | NC        | 50        |
| 5072360  | Dibromochloromethane               | 2017/07/14 | 98           | 60 - 140  | 104          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Dichlorodifluoromethane (FREON 12) | 2017/07/14 | 97           | 60 - 140  | 95           | 60 - 140  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Ethylbenzene                       | 2017/07/14 | 94           | 60 - 140  | 92           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5072360  | Ethylene Dibromide                 | 2017/07/14 | 100          | 60 - 140  | 109          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |

**QUALITY ASSURANCE REPORT(CONT'D)**

| QC Batch | Parameter                           | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|-------------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                     |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5072360  | F1 (C6-C10) - BTEX                  | 2017/07/14 |              |           |              |           | <10          | ug/g  | NC        | 30        |
| 5072360  | F1 (C6-C10)                         | 2017/07/14 | 98           | 60 - 140  | 103          | 80 - 120  | <10          | ug/g  | NC        | 30        |
| 5072360  | Hexane                              | 2017/07/14 | 99           | 60 - 140  | 96           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Methyl Ethyl Ketone (2-Butanone)    | 2017/07/14 | 74           | 60 - 140  | 89           | 60 - 140  | <0.50        | ug/g  | NC        | 50        |
| 5072360  | Methyl Isobutyl Ketone              | 2017/07/14 | 74           | 60 - 140  | 84           | 60 - 130  | <0.50        | ug/g  | NC        | 50        |
| 5072360  | Methyl t-butyl ether (MTBE)         | 2017/07/14 | 87           | 60 - 140  | 93           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Methylene Chloride(Dichloromethane) | 2017/07/14 | 104          | 60 - 140  | 108          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | o-Xylene                            | 2017/07/14 | 92           | 60 - 140  | 92           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5072360  | p+m-Xylene                          | 2017/07/14 | 96           | 60 - 140  | 94           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5072360  | Styrene                             | 2017/07/14 | 89           | 60 - 140  | 90           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Tetrachloroethylene                 | 2017/07/14 | 109          | 60 - 140  | 106          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Toluene                             | 2017/07/14 | 96           | 60 - 140  | 95           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |
| 5072360  | Total Xylenes                       | 2017/07/14 |              |           |              |           | <0.020       | ug/g  | NC        | 50        |
| 5072360  | trans-1,2-Dichloroethylene          | 2017/07/14 | 107          | 60 - 140  | 105          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | trans-1,3-Dichloropropene           | 2017/07/14 | 79           | 60 - 140  | 82           | 60 - 130  | <0.040       | ug/g  | NC        | 50        |
| 5072360  | Trichloroethylene                   | 2017/07/14 | 106          | 60 - 140  | 105          | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Trichlorofluoromethane (FREON 11)   | 2017/07/14 | 98           | 60 - 140  | 96           | 60 - 130  | <0.050       | ug/g  | NC        | 50        |
| 5072360  | Vinyl Chloride                      | 2017/07/14 | 97           | 60 - 140  | 94           | 60 - 130  | <0.020       | ug/g  | NC        | 50        |

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

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

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).

**VALIDATION SIGNATURE PAGE**

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

*Cristina Carriere*

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Cristina Carriere, Scientific Services

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

CHAIN OF CUSTODY RECORD

Page 1 of 1

|  |  |                               |  |                             |  |                             |  |
|--|--|-------------------------------|--|-----------------------------|--|-----------------------------|--|
| <b>INVOICE TO:</b>                               |  | <b>REPORT TO:</b>             |  | <b>PROJECT INFORMATION:</b> |  | <b>Laboratory Use Only:</b> |  |
| Company Name: #3824 DST Consulting Engineers Inc |  | Company Name: Eve Sabourin    |  | Quotation #: B61802         |  | Maxxam Job #:               |  |
| Attention: Accounts Payable                      |  | Attention: Eve Sabourin       |  | P.O. #:                     |  | Bottle Order #:             |  |
| Address: 2150 Thurston Dr Unit 203               |  | Address:                      |  | Project: TS-SO-29563        |  | COC #:                      |  |
| Ottawa ON K1G 5T9                                |  |                               |  | Project Name:               |  | Project Manager:            |  |
| Tel: (613) 748-1415 x Fax: (613) 748-1356 x      |  | Tel: Fax:                     |  | Site #:                     |  | Alison Cameron              |  |
| Email: ap@dstgroup.com                           |  | Email: esabourin@dstgroup.com |  | Sampled By:                 |  | C#617077-15-01              |  |

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

|                                  |                                     |                                      |                                  |   |  |
|----------------------------------|-------------------------------------|--------------------------------------|----------------------------------|---|--|
| <b>Regulation 153 (2011)</b>     |                                     | <b>Other Regulations</b>             |                                  | <b>Special Instructions</b>                   |  |
| <input type="checkbox"/> Table 1 | <input type="checkbox"/> Resu/Park  | <input type="checkbox"/> Medium/Fine | <input type="checkbox"/> CCME    | <input type="checkbox"/> Sanitary Sewer Bylaw |  |
| <input type="checkbox"/> Table 2 | <input type="checkbox"/> Ind/Comm   | <input type="checkbox"/> Coarse      | <input type="checkbox"/> Reg 558 | <input type="checkbox"/> Storm Sewer Bylaw    |  |
| <input type="checkbox"/> Table 3 | <input type="checkbox"/> Agri/Other | <input type="checkbox"/> Fer RSC     | <input type="checkbox"/> MISA    | Municipality                                  |  |
| <input type="checkbox"/> Table   |                                     |                                      | <input type="checkbox"/> PWQG    |   |  |
|                                  |                                     |                                      | <input type="checkbox"/> Other   |   |  |

| Sample Barcode Label | Sample (Location) Identification | Date Sampled | Time Sampled | Matrix | Field Filtered (please circle):<br>Metals / Hg / Cr VI | O.Reg 153 (HS & F1-F4) (Soil) | O.Reg 153 (PARTS) (Soil) | O.Reg 153 (ICPMS Metals) (Soil) |   |   |  |  |  |  |  |  |  |
|----------------------|----------------------------------|--------------|--------------|--------|--|-------------------------------|--------------------------|---------------------------------|---|---|--|--|--|--|--|--|--|
| 1                    | BH2017-05-SS7                    | 7/07/2017    | 14:00        | Soil   | NA   | X                             |                          | X                               | X | X |  |  |  |  |  |  |  |
| 2                    | BH2017-05-SS12                   | 7/07/2017    | 14:30        | Soil   |  | X                             |                          |                                 | X |   |  |  |  |  |  |  |  |
| 3                    | BH2017-06-SS12                   | 7/07/2017    | 12:00        | Soil   |  | X                             |                          | X                               | X | X |  |  |  |  |  |  |  |
| 4                    | BH2017-05-A-SS37                 | 07/07/2017   | 13:00        | Soil   |  | X                             |                          |                                 | X | X |  |  |  |  |  |  |  |
| 5                    | BH2017-8SS5                      | 10/09/2017   | 9:00         | Soil   |  | X                             |                          | X                               | X |   |  |  |  |  |  |  |  |
| 6                    | BH2017-8-SS12                    | 10/07/2017   | 9:45         | Soil   |  | X                             |                          |                                 | X | X |  |  |  |  |  |  |  |

|                                       |  |                         |  |             |  |                                      |  |                             |  |
|---------------------------------------|--|-------------------------|--|-------------|--|--------------------------------------|--|-----------------------------|--|
| <b>RECEIVED BY: (Signature/Print)</b> |  | <b>Date: (YY/MM/DD)</b> |  | <b>Time</b> |  | <b># jars used and not submitted</b> |  | <b>Laboratory Use Only</b>  |  |
| Eve Sabourin                          |  | 2017/07/10              |  | 14:40       |  | M: 40                                |  | Time Sensitive              |  |
| Mariana Anton Vascon                  |  | 2017/07/10              |  | 23:00       |  | 23:00                                |  | Temperature (°C) on Receipt |  |
|                                       |  |                         |  |             |  |                                      |  | 14.17.14                    |  |
|                                       |  |                         |  |             |  |                                      |  | Custody Seal Present        |  |
|                                       |  |                         |  |             |  |                                      |  | Intact                      |  |

\* 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/MP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

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

**Regular (Standard) TAT:**  
 (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 #)

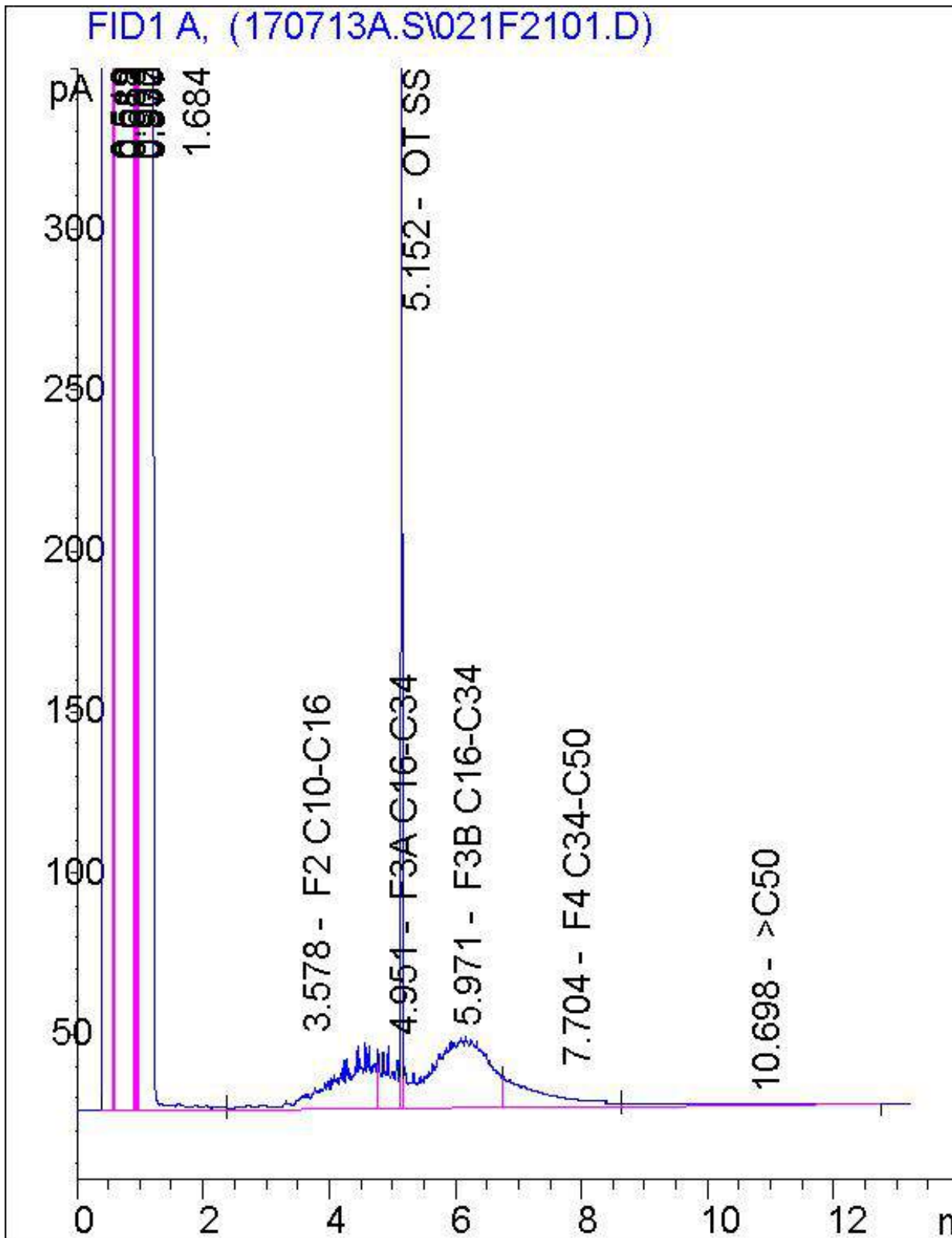
10-Jul-17 14:40  
 Alison Cameron  
  
 B7E5306  
 GK1 ENV-265

RECEIVED IN OTTAWA

On ice

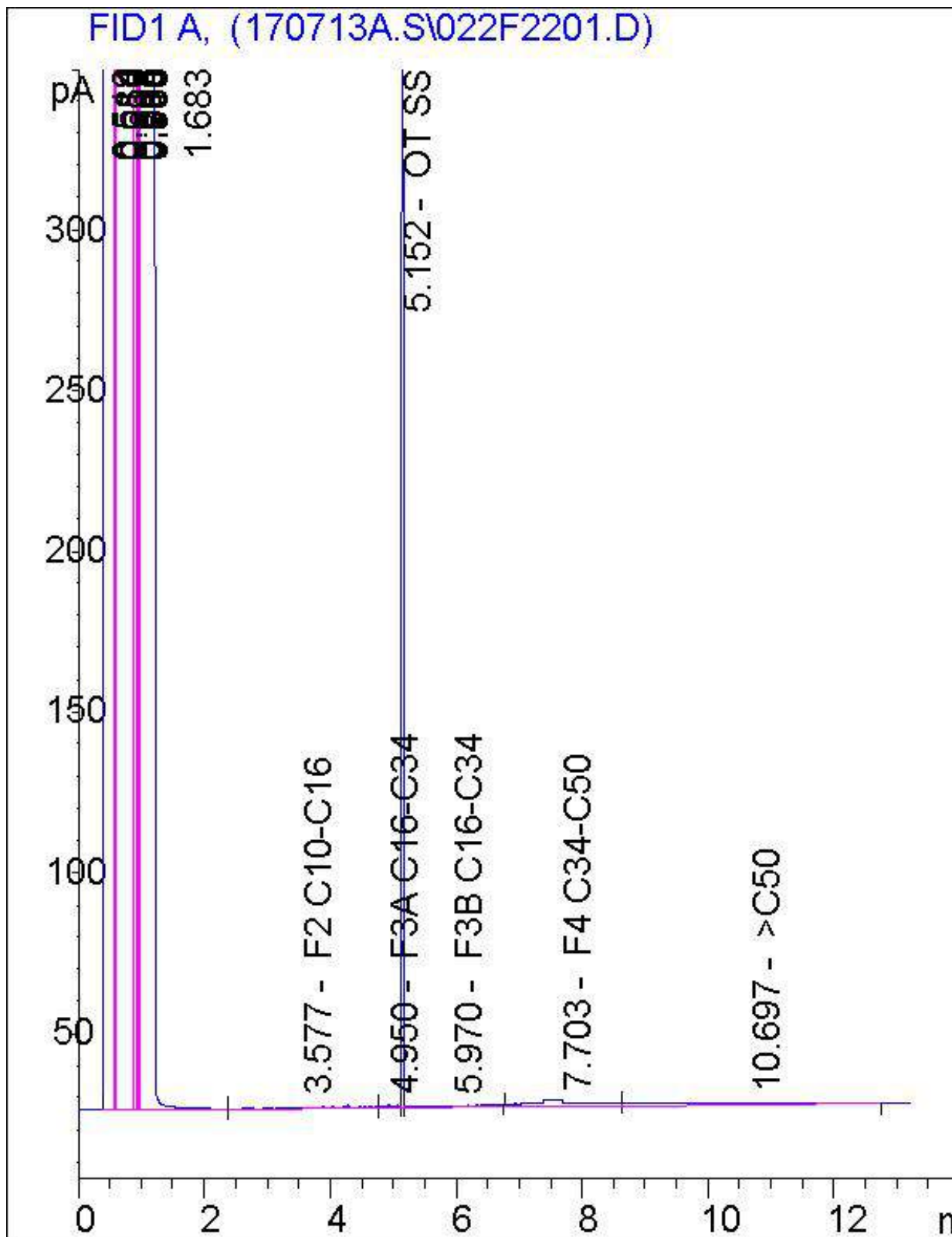
8/8/17

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



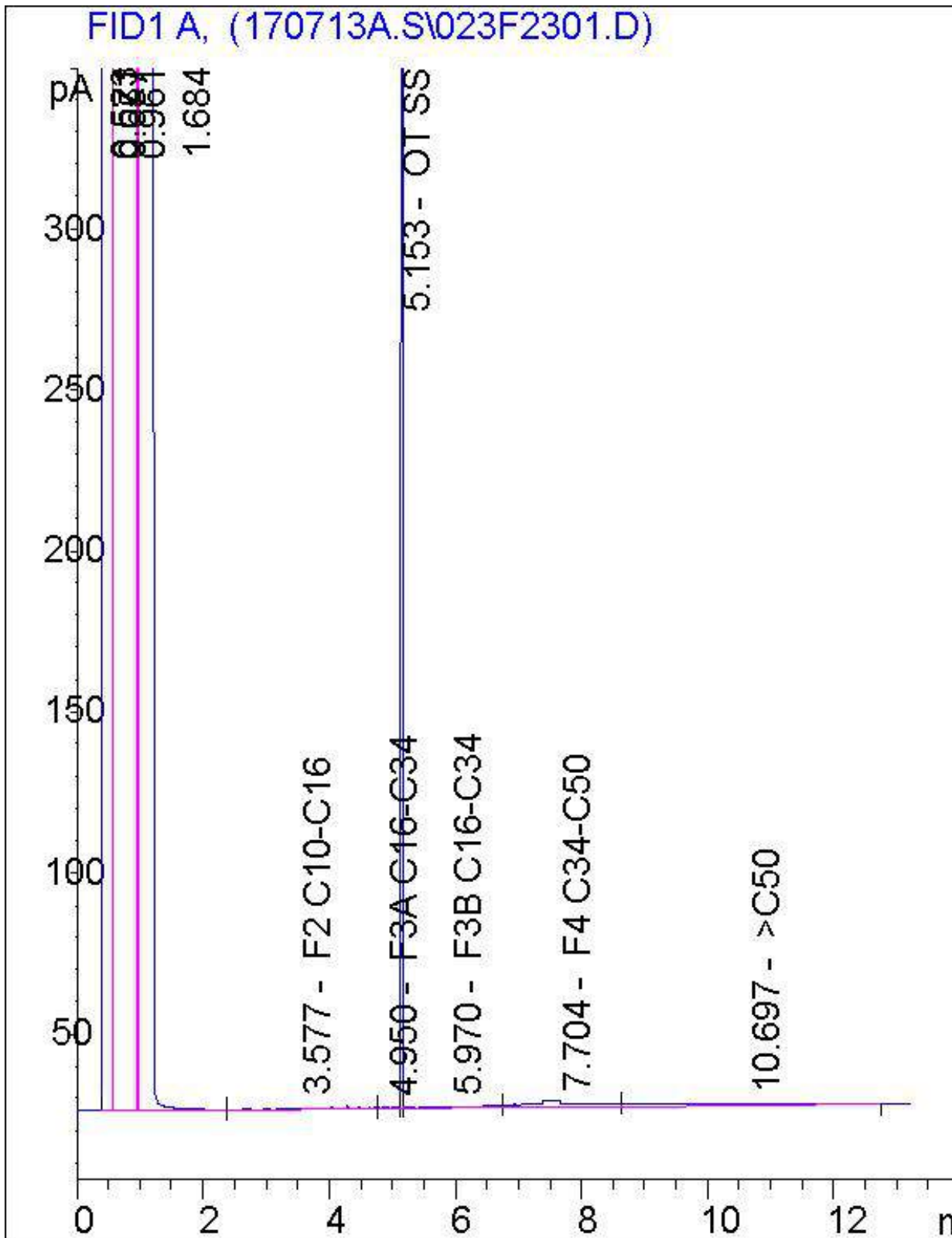
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



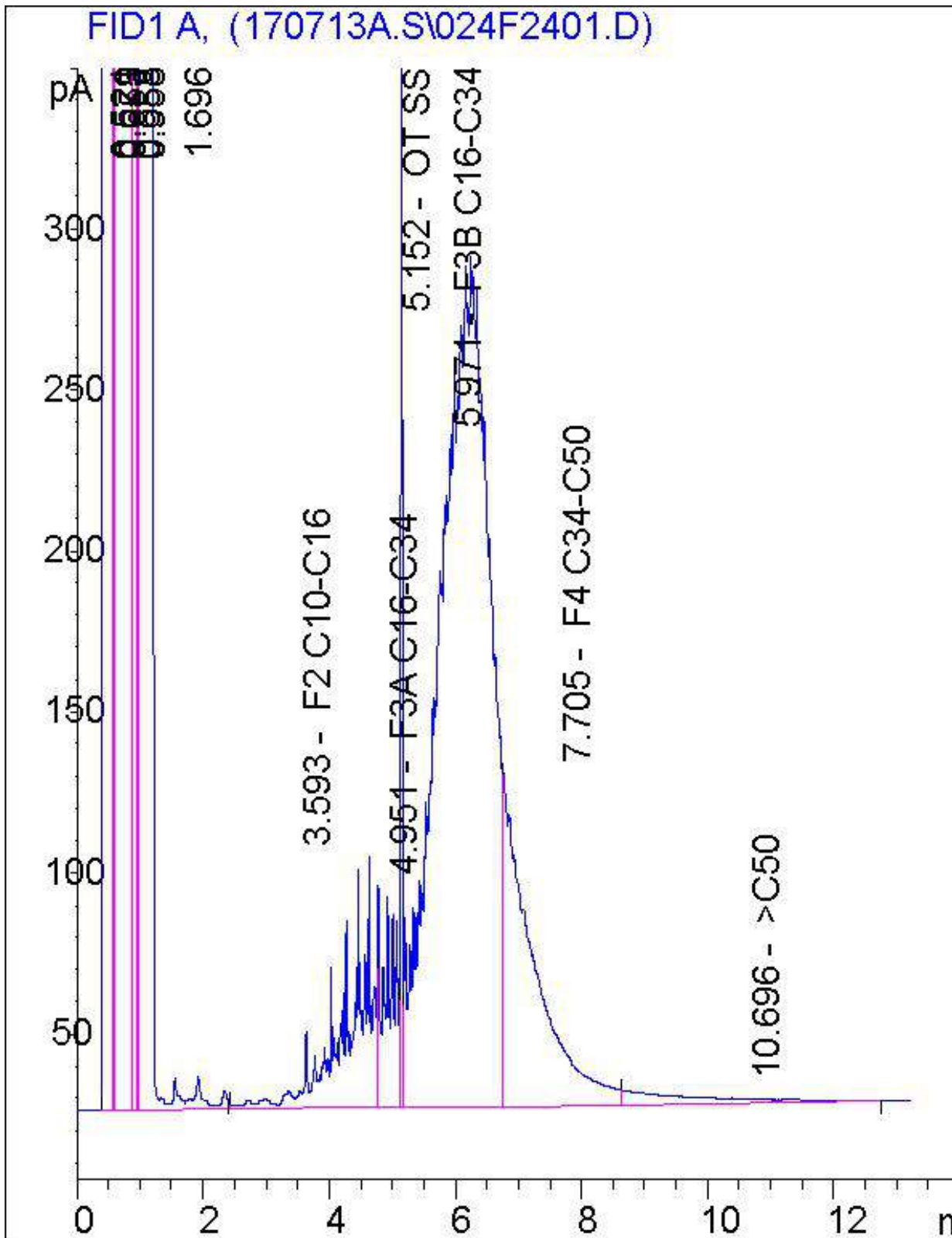
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



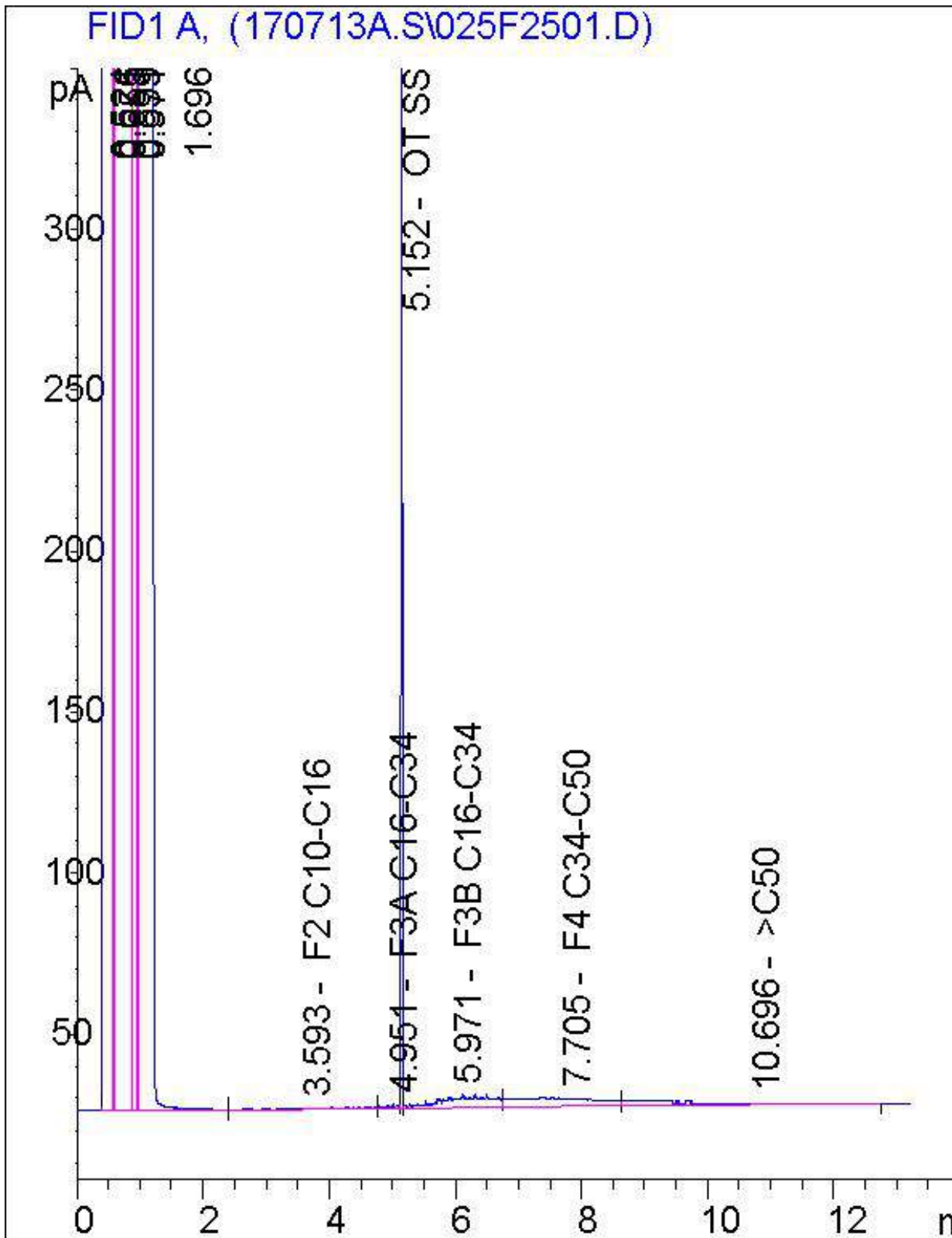
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



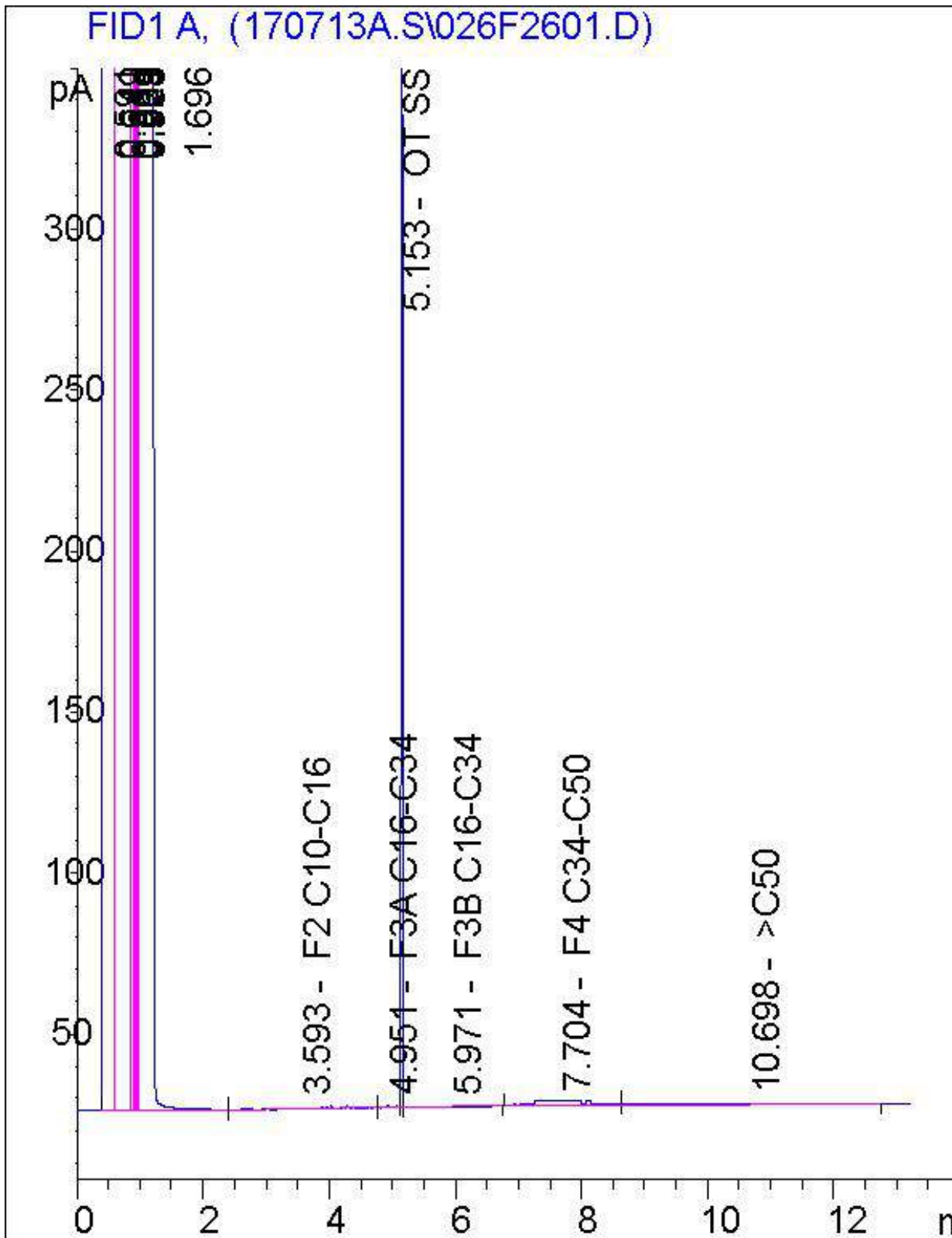
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

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.

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.

Your P.O. #: TSSO-29563  
Your Project #: TSSO-29563/ TRINITY  
Site Location: 951 GLADSTON  
Your C.O.C. #: 620405-01-01

**Attention: Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/26**  
Report #: R4615860  
Version: 2 - Partial

**CERTIFICATE OF ANALYSIS – PARTIAL RESULTS**

**MAXXAM JOB #: B7F4125**

**Received: 2017/07/19, 09:30**

Sample Matrix: Water  
# Samples Received: 9

| Analyses                                  | Date     |                | Laboratory Method        | Reference      |
|---|----------|----------------|--------------------------|----------------|
|   | Quantity | Date Extracted |                          |                |
| 1,3-Dichloropropene Sum                   | 9        | N/A            | 2017/07/26               | EPA 8260C m    |
| Petroleum Hydrocarbons F2-F4 in Water (1) | 9        | 2017/07/24     | 2017/07/25 CAM SOP-00316 | CCME PHC-CWS m |
| Dissolved Metals by ICPMS                 | 6        | N/A            | 2017/07/25 CAM SOP-00447 | EPA 6020B m    |
| Volatile Organic Compounds and F1 PHCs    | 9        | N/A            | 2017/07/25 CAM SOP-00230 | 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.

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.

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.

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

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

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

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

Your P.O. #: TSSO-29563  
Your Project #: TSSO-29563/ TRINITY  
Site Location: 951 GLADSTON  
Your C.O.C. #: 620405-01-01

**Attention: Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/26**  
Report #: R4615860  
Version: 2 - Partial

**CERTIFICATE OF ANALYSIS – PARTIAL RESULTS**

**MAXXAM JOB #: B7F4125**  
**Received: 2017/07/19, 09:30**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Alison Cameron, Project Manager  
Email: ACameron@maxxam.ca  
Phone# (905) 817-5700

=====

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 #: B7F4125  
Report Date: 2017/07/26

DST Consulting Engineers Inc  
Client Project #: TSSO-29563/ TRINITY  
Site Location: 951 GLADSTON  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

**ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)**

| Maxxam ID     |              | EUA316              | EUA317              | EUA318              |            | EUA319              |            | EUA321              |            |                 |
|---------------|--------------|---------------------|---------------------|---------------------|------------|---------------------|------------|---------------------|------------|-----------------|
| Sampling Date |              | 2017/07/18<br>13:00 | 2017/07/18<br>15:15 | 2017/07/18<br>17:00 |            | 2017/07/18<br>19:00 |            | 2017/07/18<br>11:20 |            |                 |
| COC Number    |              | 620405-01-01        | 620405-01-01        | 620405-01-01        |            | 620405-01-01        |            | 620405-01-01        |            |                 |
|               | <b>UNITS</b> | <b>BH2017-9</b>     | <b>BH2017-4</b>     | <b>BH2017-6</b>     | <b>RDL</b> | <b>BH2017-2</b>     | <b>RDL</b> | <b>BH2017-7</b>     | <b>RDL</b> | <b>QC Batch</b> |

| <b>Metals</b>             |      |        |        |        |       |        |       |        |       |         |
|---------------------------|------|--------|--------|--------|-------|--------|-------|--------|-------|---------|
| Dissolved Antimony (Sb)   | ug/L | <0.50  | <0.50  | 0.71   | 0.50  | <0.50  | 0.50  | <0.50  | 0.50  | 5084735 |
| Dissolved Arsenic (As)    | ug/L | <1.0   | <1.0   | <1.0   | 1.0   | <1.0   | 1.0   | <1.0   | 1.0   | 5084735 |
| Dissolved Barium (Ba)     | ug/L | 140    | 130    | 370    | 2.0   | 3800   | 2.0   | 110    | 2.0   | 5084735 |
| Dissolved Beryllium (Be)  | ug/L | <0.50  | <0.50  | <0.50  | 0.50  | <0.50  | 0.50  | <0.50  | 0.50  | 5084735 |
| Dissolved Boron (B)       | ug/L | 150    | 69     | 180    | 10    | 74     | 10    | 76     | 10    | 5084735 |
| Dissolved Cadmium (Cd)    | ug/L | <0.10  | <0.10  | <0.10  | 0.10  | <0.10  | 0.10  | <0.10  | 0.10  | 5084735 |
| Dissolved Chromium (Cr)   | ug/L | <5.0   | <5.0   | <5.0   | 5.0   | <5.0   | 5.0   | <5.0   | 5.0   | 5084735 |
| Dissolved Cobalt (Co)     | ug/L | 0.78   | 1.4    | <0.50  | 0.50  | 6.6    | 0.50  | 0.59   | 0.50  | 5084735 |
| Dissolved Copper (Cu)     | ug/L | 4.3    | <1.0   | <1.0   | 1.0   | <1.0   | 1.0   | <1.0   | 1.0   | 5084735 |
| Dissolved Lead (Pb)       | ug/L | 0.52   | <0.50  | <0.50  | 0.50  | 13     | 0.50  | <0.50  | 0.50  | 5084735 |
| Dissolved Molybdenum (Mo) | ug/L | 1.1    | 1.6    | 4.5    | 0.50  | 0.56   | 0.50  | 9.6    | 0.50  | 5084735 |
| Dissolved Nickel (Ni)     | ug/L | 11     | 4.9    | 4.4    | 1.0   | 11     | 1.0   | 3.1    | 1.0   | 5084735 |
| Dissolved Selenium (Se)   | ug/L | <2.0   | <2.0   | <2.0   | 2.0   | <2.0   | 2.0   | <2.0   | 2.0   | 5084735 |
| Dissolved Silver (Ag)     | ug/L | <0.10  | <0.10  | <0.10  | 0.10  | <0.10  | 0.10  | <0.10  | 0.10  | 5084735 |
| Dissolved Sodium (Na)     | ug/L | 500000 | 250000 | 98000  | 100   | 680000 | 500   | 460000 | 100   | 5084735 |
| Dissolved Thallium (Tl)   | ug/L | <0.050 | <0.050 | <0.050 | 0.050 | <0.050 | 0.050 | <0.050 | 0.050 | 5084735 |
| Dissolved Uranium (U)     | ug/L | 0.44   | 3.9    | 0.38   | 0.10  | 1.2    | 0.10  | 1.5    | 0.10  | 5084735 |
| Dissolved Vanadium (V)    | ug/L | <0.50  | <0.50  | <0.50  | 0.50  | <0.50  | 0.50  | <0.50  | 0.50  | 5084735 |
| Dissolved Zinc (Zn)       | ug/L | 6.0    | <5.0   | <5.0   | 5.0   | <5.0   | 5.0   | <5.0   | 5.0   | 5084735 |

RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Analytics - Environmental Testing

Maxxam Job #: B7F4125  
Report Date: 2017/07/26

DST Consulting Engineers Inc  
Client Project #: TSSO-29563/ TRINITY  
Site Location: 951 GLADSTON  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

**ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)**

|                                  |              |                     |            |                 |
|----------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                 |              | EUA322              |            |                 |
| <b>Sampling Date</b>             |              | 2017/07/18<br>17:00 |            |                 |
| <b>COC Number</b>                |              | 620405-01-01        |            |                 |
|                                  | <b>UNITS</b> | <b>BHMW-D</b>       | <b>RDL</b> | <b>QC Batch</b> |
| <b>Metals</b>                    |              |                     |            |                 |
| Dissolved Antimony (Sb)          | ug/L         | 0.67                | 0.50       | 5084735         |
| Dissolved Arsenic (As)           | ug/L         | <1.0                | 1.0        | 5084735         |
| Dissolved Barium (Ba)            | ug/L         | 370                 | 2.0        | 5084735         |
| Dissolved Beryllium (Be)         | ug/L         | <0.50               | 0.50       | 5084735         |
| Dissolved Boron (B)              | ug/L         | 180                 | 10         | 5084735         |
| Dissolved Cadmium (Cd)           | ug/L         | <0.10               | 0.10       | 5084735         |
| Dissolved Chromium (Cr)          | ug/L         | <5.0                | 5.0        | 5084735         |
| Dissolved Cobalt (Co)            | ug/L         | <0.50               | 0.50       | 5084735         |
| Dissolved Copper (Cu)            | ug/L         | <1.0                | 1.0        | 5084735         |
| Dissolved Lead (Pb)              | ug/L         | <0.50               | 0.50       | 5084735         |
| Dissolved Molybdenum (Mo)        | ug/L         | 4.4                 | 0.50       | 5084735         |
| Dissolved Nickel (Ni)            | ug/L         | 4.2                 | 1.0        | 5084735         |
| Dissolved Selenium (Se)          | ug/L         | <2.0                | 2.0        | 5084735         |
| Dissolved Silver (Ag)            | ug/L         | <0.10               | 0.10       | 5084735         |
| Dissolved Sodium (Na)            | ug/L         | 97000               | 100        | 5084735         |
| Dissolved Thallium (Tl)          | ug/L         | <0.050              | 0.050      | 5084735         |
| Dissolved Uranium (U)            | ug/L         | 0.37                | 0.10       | 5084735         |
| Dissolved Vanadium (V)           | ug/L         | <0.50               | 0.50       | 5084735         |
| Dissolved Zinc (Zn)              | ug/L         | <5.0                | 5.0        | 5084735         |
| RDL = Reportable Detection Limit |              |                     |            |                 |
| QC Batch = Quality Control Batch |              |                     |            |                 |

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 #: B7F4125  
Report Date: 2017/07/26

DST Consulting Engineers Inc  
Client Project #: TSSO-29563/ TRINITY  
Site Location: 951 GLADSTON  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

**VOLATILE ORGANICS BY GC/MS (WATER)**

| Maxxam ID     |       | EUA316              | EUA317              | EUA318              |     | EUA319              |     | EUA320              |     |          |
|---------------|-------|---------------------|---------------------|---------------------|-----|---------------------|-----|---------------------|-----|----------|
| Sampling Date |       | 2017/07/18<br>13:00 | 2017/07/18<br>15:15 | 2017/07/18<br>17:00 |     | 2017/07/18<br>19:00 |     | 2017/07/18<br>09:30 |     |          |
| COC Number    |       | 620405-01-01        | 620405-01-01        | 620405-01-01        |     | 620405-01-01        |     | 620405-01-01        |     |          |
|               | UNITS | BH2017-9            | BH2017-4            | BH2017-6            | RDL | BH2017-2            | RDL | BH2017-11           | RDL | QC Batch |

**Calculated Parameters**

|                                 |      |       |       |       |      |       |      |       |      |         |
|---------------------------------|------|-------|-------|-------|------|-------|------|-------|------|---------|
| 1,3-Dichloropropene (cis+trans) | ug/L | <0.50 | <0.50 | <0.50 | 0.50 | <0.50 | 0.50 | <0.50 | 0.50 | 5082801 |
|---------------------------------|------|-------|-------|-------|------|-------|------|-------|------|---------|

**Volatile Organics**

|                                     |      |       |       |       |      |          |      |       |      |         |
|-------------------------------------|------|-------|-------|-------|------|----------|------|-------|------|---------|
| Acetone (2-Propanone)               | ug/L | <10   | <10   | <10   | 10   | <500     | 500  | <10   | 10   | 5084462 |
| Benzene                             | ug/L | <0.20 | 0.23  | 0.34  | 0.20 | 11       | 10   | <0.20 | 0.20 | 5084462 |
| Bromodichloromethane                | ug/L | <0.50 | <0.50 | <0.50 | 0.50 | <0.50    | 0.50 | <0.50 | 0.50 | 5084462 |
| Bromoform                           | ug/L | <1.0  | <1.0  | <1.0  | 1.0  | <1.0     | 1.0  | <1.0  | 1.0  | 5084462 |
| Bromomethane                        | ug/L | <0.50 | <0.50 | <0.50 | 0.50 | <0.50    | 0.50 | <0.50 | 0.50 | 5084462 |
| Carbon Tetrachloride                | ug/L | <0.20 | <0.20 | <0.20 | 0.20 | <0.20    | 0.20 | <0.20 | 0.20 | 5084462 |
| Chlorobenzene                       | ug/L | <0.20 | <0.20 | <0.20 | 0.20 | <0.20    | 0.20 | <0.20 | 0.20 | 5084462 |
| Chloroform                          | ug/L | <0.20 | <0.20 | 0.70  | 0.20 | <0.20    | 0.20 | <0.20 | 0.20 | 5084462 |
| Dibromochloromethane                | ug/L | <0.50 | <0.50 | <0.50 | 0.50 | <0.50    | 0.50 | <0.50 | 0.50 | 5084462 |
| 1,2-Dichlorobenzene                 | ug/L | <0.50 | <0.50 | <0.50 | 0.50 | <0.50    | 0.50 | <0.50 | 0.50 | 5084462 |
| 1,3-Dichlorobenzene                 | ug/L | <0.50 | <0.50 | <0.50 | 0.50 | <0.50    | 0.50 | <0.50 | 0.50 | 5084462 |
| 1,4-Dichlorobenzene                 | ug/L | <0.50 | <0.50 | <0.50 | 0.50 | <0.50    | 0.50 | <0.50 | 0.50 | 5084462 |
| Dichlorodifluoromethane (FREON 12)  | ug/L | <1.0  | <1.0  | <1.0  | 1.0  | <50      | 50   | <1.0  | 1.0  | 5084462 |
| 1,1-Dichloroethane                  | ug/L | 0.49  | <0.20 | 0.24  | 0.20 | <0.20    | 0.20 | <0.20 | 0.20 | 5084462 |
| 1,2-Dichloroethane                  | ug/L | 20    | <0.50 | 6.6   | 0.50 | <0.50    | 0.50 | 1.3   | 0.50 | 5084462 |
| 1,1-Dichloroethylene                | ug/L | <0.20 | <0.20 | <0.20 | 0.20 | <0.20    | 0.20 | <0.20 | 0.20 | 5084462 |
| cis-1,2-Dichloroethylene            | ug/L | <0.50 | <0.50 | <0.50 | 0.50 | <0.50    | 0.50 | <0.50 | 0.50 | 5084462 |
| trans-1,2-Dichloroethylene          | ug/L | <0.50 | <0.50 | <0.50 | 0.50 | <0.50    | 0.50 | <0.50 | 0.50 | 5084462 |
| 1,2-Dichloropropane                 | ug/L | <0.20 | <0.20 | <0.20 | 0.20 | <0.20    | 0.20 | <0.20 | 0.20 | 5084462 |
| cis-1,3-Dichloropropene             | ug/L | <0.30 | <0.30 | <0.30 | 0.30 | <0.30    | 0.30 | <0.30 | 0.30 | 5084462 |
| trans-1,3-Dichloropropene           | ug/L | <0.40 | <0.40 | <0.40 | 0.40 | <0.40    | 0.40 | <0.40 | 0.40 | 5084462 |
| Ethylbenzene                        | ug/L | <0.20 | 0.25  | <0.20 | 0.20 | 1500     | 10   | <0.20 | 0.20 | 5084462 |
| Ethylene Dibromide                  | ug/L | <0.20 | <0.20 | <0.20 | 0.20 | <0.20    | 0.20 | <0.20 | 0.20 | 5084462 |
| Hexane                              | ug/L | <1.0  | <1.0  | <1.0  | 1.0  | 280      | 50   | <1.0  | 1.0  | 5084462 |
| Methylene Chloride(Dichloromethane) | ug/L | <2.0  | <2.0  | <2.0  | 2.0  | <2.0     | 2.0  | <2.0  | 2.0  | 5084462 |
| Methyl Ethyl Ketone (2-Butanone)    | ug/L | <10   | <10   | <10   | 10   | <10      | 10   | <10   | 10   | 5084462 |
| Methyl Isobutyl Ketone              | ug/L | <5.0  | <5.0  | <5.0  | 5.0  | <250     | 250  | <5.0  | 5.0  | 5084462 |
| Methyl t-butyl ether (MTBE)         | ug/L | 110   | 24    | 240   | 0.50 | <0.50    | 0.50 | 16    | 0.50 | 5084462 |
| Styrene                             | ug/L | <0.50 | <0.50 | <0.50 | 0.50 | <2.1 (1) | 2.1  | <0.50 | 0.50 | 5084462 |
| 1,1,1,2-Tetrachloroethane           | ug/L | <0.50 | <0.50 | <0.50 | 0.50 | <0.50    | 0.50 | <0.50 | 0.50 | 5084462 |

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

(1) VOCF1 Analysis: Detection limit was raised due to matrix interferences.

Maxxam Job #: B7F4125  
Report Date: 2017/07/26

DST Consulting Engineers Inc  
Client Project #: TSSO-29563/ TRINITY  
Site Location: 951 GLADSTON  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

**VOLATILE ORGANICS BY GC/MS (WATER)**

| Maxxam ID                         |       | EUA316              | EUA317              | EUA318              |      | EUA319              |      | EUA320              |      |          |
|-----------------------------------|-------|---------------------|---------------------|---------------------|------|---------------------|------|---------------------|------|----------|
| Sampling Date                     |       | 2017/07/18<br>13:00 | 2017/07/18<br>15:15 | 2017/07/18<br>17:00 |      | 2017/07/18<br>19:00 |      | 2017/07/18<br>09:30 |      |          |
| COC Number                        |       | 620405-01-01        | 620405-01-01        | 620405-01-01        |      | 620405-01-01        |      | 620405-01-01        |      |          |
|                                   | UNITS | BH2017-9            | BH2017-4            | BH2017-6            | RDL  | BH2017-2            | RDL  | BH2017-11           | RDL  | QC Batch |
| 1,1,2,2-Tetrachloroethane         | ug/L  | <0.50               | <0.50               | <0.50               | 0.50 | <0.50               | 0.50 | <0.50               | 0.50 | 5084462  |
| Tetrachloroethylene               | ug/L  | <0.20               | <0.20               | <0.20               | 0.20 | <0.20               | 0.20 | <0.20               | 0.20 | 5084462  |
| Toluene                           | ug/L  | <0.20               | <0.20               | <0.20               | 0.20 | 41                  | 10   | <0.20               | 0.20 | 5084462  |
| 1,1,1-Trichloroethane             | ug/L  | <0.20               | <0.20               | <0.20               | 0.20 | <0.20               | 0.20 | <0.20               | 0.20 | 5084462  |
| 1,1,2-Trichloroethane             | ug/L  | <0.50               | <0.50               | <0.50               | 0.50 | <0.50               | 0.50 | <0.50               | 0.50 | 5084462  |
| Trichloroethylene                 | ug/L  | <0.20               | <0.20               | <0.20               | 0.20 | <0.20               | 0.20 | <0.20               | 0.20 | 5084462  |
| Trichlorofluoromethane (FREON 11) | ug/L  | <0.50               | <0.50               | <0.50               | 0.50 | <25                 | 25   | <0.50               | 0.50 | 5084462  |
| Vinyl Chloride                    | ug/L  | <0.20               | <0.20               | <0.20               | 0.20 | <0.20               | 0.20 | <0.20               | 0.20 | 5084462  |
| p+m-Xylene                        | ug/L  | 0.22                | 0.22                | <0.20               | 0.20 | 5900                | 10   | <0.20               | 0.20 | 5084462  |
| o-Xylene                          | ug/L  | <0.20               | <0.20               | <0.20               | 0.20 | 680                 | 10   | <0.20               | 0.20 | 5084462  |
| Total Xylenes                     | ug/L  | 0.22                | 0.22                | <0.20               | 0.20 | 6600                | 10   | <0.20               | 0.20 | 5084462  |
| F1 (C6-C10)                       | ug/L  | 28                  | <25                 | <25                 | 25   | 21000               | 1300 | <25                 | 25   | 5084462  |
| F1 (C6-C10) - BTEX                | ug/L  | 28                  | <25                 | <25                 | 25   | 12000               | 1300 | <25                 | 25   | 5084462  |
| <b>Surrogate Recovery (%)</b>     |       |                     |                     |                     |      |                     |      |                     |      |          |
| 4-Bromofluorobenzene              | %     | 94                  | 94                  | 93                  |      | 98                  |      | 94                  |      | 5084462  |
| D4-1,2-Dichloroethane             | %     | 110                 | 108                 | 107                 |      | 100                 |      | 105                 |      | 5084462  |
| D8-Toluene                        | %     | 92                  | 93                  | 94                  |      | 96                  |      | 93                  |      | 5084462  |
| RDL = Reportable Detection Limit  |       |                     |                     |                     |      |                     |      |                     |      |          |
| QC Batch = Quality Control Batch  |       |                     |                     |                     |      |                     |      |                     |      |          |

Maxxam Job #: B7F4125  
Report Date: 2017/07/26

DST Consulting Engineers Inc  
Client Project #: TSSO-29563/ TRINITY  
Site Location: 951 GLADSTON  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

**VOLATILE ORGANICS BY GC/MS (WATER)**

| Maxxam ID   |       | EUA321              |      | EUA322              | EUA323              | EUA324              |      |          |
|---|-------|---------------------|------|---------------------|---------------------|---------------------|------|----------|
| Sampling Date   |       | 2017/07/18<br>11:20 |      | 2017/07/18<br>17:00 | 2017/07/18<br>17:00 | 2017/07/18<br>17:00 |      |          |
| COC Number  |       | 620405-01-01        |      | 620405-01-01        | 620405-01-01        | 620405-01-01        |      |          |
|   | UNITS | BH2017-7            | RDL  | BHMW-D              | FIELD BLANK         | TRIP BLANK          | RDL  | QC Batch |
| <b>Calculated Parameters</b>  |       |                     |      |                     |                     |                     |      |          |
| 1,3-Dichloropropene (cis+trans)   | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5082801  |
| <b>Volatile Organics</b>  |       |                     |      |                     |                     |                     |      |          |
| Acetone (2-Propanone)   | ug/L  | <10                 | 10   | <10                 | <10                 | <10                 | 10   | 5084462  |
| Benzene   | ug/L  | <0.20               | 0.20 | 0.25                | <0.20               | <0.20               | 0.20 | 5084462  |
| Bromodichloromethane  | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| Bromoform   | ug/L  | <1.0                | 1.0  | <1.0                | <1.0                | <1.0                | 1.0  | 5084462  |
| Bromomethane  | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| Carbon Tetrachloride  | ug/L  | <0.20               | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| Chlorobenzene   | ug/L  | <0.20               | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| Chloroform  | ug/L  | <0.20               | 0.20 | 0.60                | <0.20               | <0.20               | 0.20 | 5084462  |
| Dibromochloromethane  | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| 1,2-Dichlorobenzene   | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| 1,3-Dichlorobenzene   | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| 1,4-Dichlorobenzene   | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| Dichlorodifluoromethane (FREON 12)  | ug/L  | <1.0                | 1.0  | <1.0                | <1.0                | <1.0                | 1.0  | 5084462  |
| 1,1-Dichloroethane  | ug/L  | <0.20               | 0.20 | 0.23                | <0.20               | <0.20               | 0.20 | 5084462  |
| 1,2-Dichloroethane  | ug/L  | <0.50               | 0.50 | 7.0                 | <0.50               | <0.50               | 0.50 | 5084462  |
| 1,1-Dichloroethylene  | ug/L  | <0.20               | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| cis-1,2-Dichloroethylene  | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| trans-1,2-Dichloroethylene  | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| 1,2-Dichloropropane   | ug/L  | <0.20               | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| cis-1,3-Dichloropropene   | ug/L  | <0.30               | 0.30 | <0.30               | <0.30               | <0.30               | 0.30 | 5084462  |
| trans-1,3-Dichloropropene   | ug/L  | <0.40               | 0.40 | <0.40               | <0.40               | <0.40               | 0.40 | 5084462  |
| Ethylbenzene  | ug/L  | <0.20               | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| Ethylene Dibromide  | ug/L  | <0.20               | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| Hexane  | ug/L  | <1.0                | 1.0  | <1.0                | <1.0                | <1.0                | 1.0  | 5084462  |
| Methylene Chloride(Dichloromethane)   | ug/L  | <2.0                | 2.0  | <2.0                | <2.0                | <2.0                | 2.0  | 5084462  |
| Methyl Ethyl Ketone (2-Butanone)  | ug/L  | <10                 | 10   | <10                 | <10                 | <10                 | 10   | 5084462  |
| Methyl Isobutyl Ketone  | ug/L  | <5.0                | 5.0  | <5.0                | <5.0                | <5.0                | 5.0  | 5084462  |
| Methyl t-butyl ether (MTBE)   | ug/L  | <2.5 (1)            | 2.5  | 240                 | <0.50               | <0.50               | 0.50 | 5084462  |
| Styrene   | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| 1,1,1,2-Tetrachloroethane   | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>(1) VOCF1 Analysis: Detection limit was raised due to matrix interferences. |       |                     |      |                     |                     |                     |      |          |

Maxxam Job #: B7F4125  
Report Date: 2017/07/26

DST Consulting Engineers Inc  
Client Project #: TSSO-29563/ TRINITY  
Site Location: 951 GLADSTON  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

**VOLATILE ORGANICS BY GC/MS (WATER)**

| Maxxam ID  |       | EUA321              |      | EUA322              | EUA323              | EUA324              |      |          |
|--|-------|---------------------|------|---------------------|---------------------|---------------------|------|----------|
| Sampling Date  |       | 2017/07/18<br>11:20 |      | 2017/07/18<br>17:00 | 2017/07/18<br>17:00 | 2017/07/18<br>17:00 |      |          |
| COC Number   |       | 620405-01-01        |      | 620405-01-01        | 620405-01-01        | 620405-01-01        |      |          |
|  | UNITS | BH2017-7            | RDL  | BHMW-D              | FIELD BLANK         | TRIP BLANK          | RDL  | QC Batch |
| 1,1,2,2-Tetrachloroethane  | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| Tetrachloroethylene  | ug/L  | <0.20               | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| Toluene  | ug/L  | 0.53                | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| 1,1,1-Trichloroethane  | ug/L  | <0.20               | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| 1,1,2-Trichloroethane  | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| Trichloroethylene  | ug/L  | <0.20               | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| Trichlorofluoromethane (FREON 11)                                    | ug/L  | <0.50               | 0.50 | <0.50               | <0.50               | <0.50               | 0.50 | 5084462  |
| Vinyl Chloride   | ug/L  | <0.20               | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| p+m-Xylene   | ug/L  | 0.49                | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| o-Xylene   | ug/L  | <0.20               | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| Total Xylenes  | ug/L  | 0.49                | 0.20 | <0.20               | <0.20               | <0.20               | 0.20 | 5084462  |
| F1 (C6-C10)  | ug/L  | <25                 | 25   | <25                 | <25                 | <25                 | 25   | 5084462  |
| F1 (C6-C10) - BTEX   | ug/L  | <25                 | 25   | <25                 | <25                 | <25                 | 25   | 5084462  |
| <b>Surrogate Recovery (%)</b>  |       |                     |      |                     |                     |                     |      |          |
| 4-Bromofluorobenzene   | %     | 93                  |      | 93                  | 93                  | 94                  |      | 5084462  |
| D4-1,2-Dichloroethane  | %     | 104                 |      | 105                 | 107                 | 108                 |      | 5084462  |
| D8-Toluene   | %     | 94                  |      | 94                  | 95                  | 92                  |      | 5084462  |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch |       |                     |      |                     |                     |                     |      |          |

Maxxam Job #: B7F4125  
Report Date: 2017/07/26

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Your P.O. #: TSSO-29563  
Sampler Initials: ES

**PETROLEUM HYDROCARBONS (CCME)**

|                      |              |                     |                     |            |                     |                     |                     |                     |            |                 |
|----------------------|--------------|---------------------|---------------------|------------|---------------------|---------------------|---------------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>     |              | EUA316              | EUA317              |            | EUA318              | EUA319              | EUA320              | EUA321              |            |                 |
| <b>Sampling Date</b> |              | 2017/07/18<br>13:00 | 2017/07/18<br>15:15 |            | 2017/07/18<br>17:00 | 2017/07/18<br>19:00 | 2017/07/18<br>09:30 | 2017/07/18<br>11:20 |            |                 |
| <b>COC Number</b>    |              | 620405-01-01        | 620405-01-01        |            | 620405-01-01        | 620405-01-01        | 620405-01-01        | 620405-01-01        |            |                 |
|                      | <b>UNITS</b> | <b>BH2017-9</b>     | <b>BH2017-4</b>     | <b>RDL</b> | <b>BH2017-6</b>     | <b>BH2017-2</b>     | <b>BH2017-11</b>    | <b>BH2017-7</b>     | <b>RDL</b> | <b>QC Batch</b> |

|                           |      |      |      |     |  |      |      |      |     |         |
|---------------------------|------|------|------|-----|--|------|------|------|-----|---------|
| <b>F2-F4 Hydrocarbons</b> |      |      |      |     |  |      |      |      |     |         |
| F2 (C10-C16 Hydrocarbons) | ug/L | <100 | <100 | 100 |  | 6100 | <100 | <100 | 100 | 5087699 |
| F3 (C16-C34 Hydrocarbons) | ug/L | <200 | <200 | 200 |  | <200 | <200 | <200 | 200 | 5087699 |
| F4 (C34-C50 Hydrocarbons) | ug/L | <200 | <200 | 200 |  | <200 | <200 | <200 | 200 | 5087699 |
| Reached Baseline at C50   | ug/L | Yes  | Yes  |     |  | Yes  | Yes  | Yes  |     | 5087699 |

|                               |   |    |    |  |    |    |    |    |  |         |
|-------------------------------|---|----|----|--|----|----|----|----|--|---------|
| <b>Surrogate Recovery (%)</b> |   |    |    |  |    |    |    |    |  |         |
| o-Terphenyl                   | % | 90 | 90 |  | 93 | 89 | 89 | 90 |  | 5087699 |

RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

|                      |              |                     |                     |                     |            |                 |
|----------------------|--------------|---------------------|---------------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>     |              | EUA322              | EUA323              | EUA324              |            |                 |
| <b>Sampling Date</b> |              | 2017/07/18<br>17:00 | 2017/07/18<br>17:00 | 2017/07/18<br>17:00 |            |                 |
| <b>COC Number</b>    |              | 620405-01-01        | 620405-01-01        | 620405-01-01        |            |                 |
|                      | <b>UNITS</b> | <b>BBMW-D</b>       | <b>FIELD BLANK</b>  | <b>TRIP BLANK</b>   | <b>RDL</b> | <b>QC Batch</b> |

|                           |      |  |      |      |     |         |
|---------------------------|------|--|------|------|-----|---------|
| <b>F2-F4 Hydrocarbons</b> |      |  |      |      |     |         |
| F2 (C10-C16 Hydrocarbons) | ug/L |  | <100 | <100 | 100 | 5087699 |
| F3 (C16-C34 Hydrocarbons) | ug/L |  | <200 | <200 | 200 | 5087699 |
| F4 (C34-C50 Hydrocarbons) | ug/L |  | <200 | <200 | 200 | 5087699 |
| Reached Baseline at C50   | ug/L |  | Yes  | Yes  |     | 5087699 |

|                               |   |    |    |    |  |         |
|-------------------------------|---|----|----|----|--|---------|
| <b>Surrogate Recovery (%)</b> |   |    |    |    |  |         |
| o-Terphenyl                   | % | 90 | 91 | 91 |  | 5087699 |

RDL = Reportable Detection Limit  
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation - 6740 Campobello Road - Mississauga, Ontario, L5N 2L8

Maxxam Job #: B7F4125  
Report Date: 2017/07/26

DST Consulting Engineers Inc  
Client Project #: TSSO-29563/ TRINITY  
Site Location: 951 GLADSTON  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

### GENERAL COMMENTS

Sample EUA319 [BH2017-2] : VOCF1 Analysis: Due to high concentrations of target analytes, sample required dilution. Detection limits were adjusted accordingly. In order to meet required regulatory criteria, results for selected compounds (obtained by a separate analysis using an appropriate low dilution) are included in the report.

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

Maxxam Analytics - Environmental - Environmental/Industrial Hygiene/Industrial Hygiene

Maxxam Job #: B7F4125  
Report Date: 2017/07/26

DST Consulting Engineers Inc  
Client Project #: TSSO-29563/ TRINITY  
Site Location: 951 GLADSTON  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

### QUALITY ASSURANCE REPORT

| QA/QC | Batch   | Init | QC Type      | Parameter                           | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|-------|---------|------|--------------|-------------------------------------|---------------|-------|----------|-------|-----------|
|       | 5084462 | DR1  | Matrix Spike | 4-Bromofluorobenzene                | 2017/07/25    |       | 103      | %     | 70 - 130  |
|       |         |      |              | D4-1,2-Dichloroethane               | 2017/07/25    |       | 102      | %     | 70 - 130  |
|       |         |      |              | D8-Toluene                          | 2017/07/25    |       | 100      | %     | 70 - 130  |
|       |         |      |              | Acetone (2-Propanone)               | 2017/07/25    |       | 99       | %     | 60 - 140  |
|       |         |      |              | Benzene                             | 2017/07/25    |       | 98       | %     | 70 - 130  |
|       |         |      |              | Bromodichloromethane                | 2017/07/25    |       | 94       | %     | 70 - 130  |
|       |         |      |              | Bromoform                           | 2017/07/25    |       | 103      | %     | 70 - 130  |
|       |         |      |              | Bromomethane                        | 2017/07/25    |       | 95       | %     | 60 - 140  |
|       |         |      |              | Carbon Tetrachloride                | 2017/07/25    |       | 92       | %     | 70 - 130  |
|       |         |      |              | Chlorobenzene                       | 2017/07/25    |       | 95       | %     | 70 - 130  |
|       |         |      |              | Chloroform                          | 2017/07/25    |       | 91       | %     | 70 - 130  |
|       |         |      |              | Dibromochloromethane                | 2017/07/25    |       | 99       | %     | 70 - 130  |
|       |         |      |              | 1,2-Dichlorobenzene                 | 2017/07/25    |       | 92       | %     | 70 - 130  |
|       |         |      |              | 1,3-Dichlorobenzene                 | 2017/07/25    |       | 95       | %     | 70 - 130  |
|       |         |      |              | 1,4-Dichlorobenzene                 | 2017/07/25    |       | 94       | %     | 70 - 130  |
|       |         |      |              | Dichlorodifluoromethane (FREON 12)  | 2017/07/25    |       | 86       | %     | 60 - 140  |
|       |         |      |              | 1,1-Dichloroethane                  | 2017/07/25    |       | 97       | %     | 70 - 130  |
|       |         |      |              | 1,2-Dichloroethane                  | 2017/07/25    |       | 98       | %     | 70 - 130  |
|       |         |      |              | 1,1-Dichloroethylene                | 2017/07/25    |       | 101      | %     | 70 - 130  |
|       |         |      |              | cis-1,2-Dichloroethylene            | 2017/07/25    |       | 95       | %     | 70 - 130  |
|       |         |      |              | trans-1,2-Dichloroethylene          | 2017/07/25    |       | 95       | %     | 70 - 130  |
|       |         |      |              | 1,2-Dichloropropane                 | 2017/07/25    |       | 89       | %     | 70 - 130  |
|       |         |      |              | cis-1,3-Dichloropropene             | 2017/07/25    |       | 93       | %     | 70 - 130  |
|       |         |      |              | trans-1,3-Dichloropropene           | 2017/07/25    |       | 99       | %     | 70 - 130  |
|       |         |      |              | Ethylbenzene                        | 2017/07/25    |       | 93       | %     | 70 - 130  |
|       |         |      |              | Ethylene Dibromide                  | 2017/07/25    |       | 101      | %     | 70 - 130  |
|       |         |      |              | Hexane                              | 2017/07/25    |       | 98       | %     | 70 - 130  |
|       |         |      |              | Methylene Chloride(Dichloromethane) | 2017/07/25    |       | 100      | %     | 70 - 130  |
|       |         |      |              | Methyl Ethyl Ketone (2-Butanone)    | 2017/07/25    |       | 101      | %     | 60 - 140  |
|       |         |      |              | Methyl Isobutyl Ketone              | 2017/07/25    |       | 96       | %     | 70 - 130  |
|       |         |      |              | Methyl t-butyl ether (MTBE)         | 2017/07/25    |       | 93       | %     | 70 - 130  |
|       |         |      |              | Styrene                             | 2017/07/25    |       | 93       | %     | 70 - 130  |
|       |         |      |              | 1,1,1,2-Tetrachloroethane           | 2017/07/25    |       | 100      | %     | 70 - 130  |
|       |         |      |              | 1,1,2,2-Tetrachloroethane           | 2017/07/25    |       | 99       | %     | 70 - 130  |
|       |         |      |              | Tetrachloroethylene                 | 2017/07/25    |       | 91       | %     | 70 - 130  |
|       |         |      |              | Toluene                             | 2017/07/25    |       | 89       | %     | 70 - 130  |
|       |         |      |              | 1,1,1-Trichloroethane               | 2017/07/25    |       | 91       | %     | 70 - 130  |
|       |         |      |              | 1,1,2-Trichloroethane               | 2017/07/25    |       | 98       | %     | 70 - 130  |
|       |         |      |              | Trichloroethylene                   | 2017/07/25    |       | 93       | %     | 70 - 130  |
|       |         |      |              | Trichlorofluoromethane (FREON 11)   | 2017/07/25    |       | 93       | %     | 70 - 130  |
|       |         |      |              | Vinyl Chloride                      | 2017/07/25    |       | 91       | %     | 70 - 130  |
|       |         |      |              | p+m-Xylene                          | 2017/07/25    |       | 94       | %     | 70 - 130  |
|       |         |      |              | o-Xylene                            | 2017/07/25    |       | 94       | %     | 70 - 130  |
|       |         |      |              | F1 (C6-C10)                         | 2017/07/25    |       | 100      | %     | 60 - 140  |
|       | 5084462 | DR1  | Spiked Blank | 4-Bromofluorobenzene                | 2017/07/25    |       | 102      | %     | 70 - 130  |
|       |         |      |              | D4-1,2-Dichloroethane               | 2017/07/25    |       | 101      | %     | 70 - 130  |
|       |         |      |              | D8-Toluene                          | 2017/07/25    |       | 102      | %     | 70 - 130  |
|       |         |      |              | Acetone (2-Propanone)               | 2017/07/25    |       | 96       | %     | 60 - 140  |
|       |         |      |              | Benzene                             | 2017/07/25    |       | 99       | %     | 70 - 130  |
|       |         |      |              | Bromodichloromethane                | 2017/07/25    |       | 95       | %     | 70 - 130  |
|       |         |      |              | Bromoform                           | 2017/07/25    |       | 104      | %     | 70 - 130  |

Maxxam Job #: B7F4125  
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DST Consulting Engineers Inc  
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Sampler Initials: ES

**QUALITY ASSURANCE REPORT(CONT'D)**

| QA/QC<br>Batch | Init | QC Type      | Parameter                           | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|----------------|------|--------------|-------------------------------------|---------------|-------|----------|-------|-----------|
|                |      |              | Bromomethane                        | 2017/07/25    |       | 99       | %     | 60 - 140  |
|                |      |              | Carbon Tetrachloride                | 2017/07/25    |       | 93       | %     | 70 - 130  |
|                |      |              | Chlorobenzene                       | 2017/07/25    |       | 97       | %     | 70 - 130  |
|                |      |              | Chloroform                          | 2017/07/25    |       | 92       | %     | 70 - 130  |
|                |      |              | Dibromochloromethane                | 2017/07/25    |       | 101      | %     | 70 - 130  |
|                |      |              | 1,2-Dichlorobenzene                 | 2017/07/25    |       | 93       | %     | 70 - 130  |
|                |      |              | 1,3-Dichlorobenzene                 | 2017/07/25    |       | 97       | %     | 70 - 130  |
|                |      |              | 1,4-Dichlorobenzene                 | 2017/07/25    |       | 96       | %     | 70 - 130  |
|                |      |              | Dichlorodifluoromethane (FREON 12)  | 2017/07/25    |       | 89       | %     | 60 - 140  |
|                |      |              | 1,1-Dichloroethane                  | 2017/07/25    |       | 98       | %     | 70 - 130  |
|                |      |              | 1,2-Dichloroethane                  | 2017/07/25    |       | 99       | %     | 70 - 130  |
|                |      |              | 1,1-Dichloroethylene                | 2017/07/25    |       | 103      | %     | 70 - 130  |
|                |      |              | cis-1,2-Dichloroethylene            | 2017/07/25    |       | 96       | %     | 70 - 130  |
|                |      |              | trans-1,2-Dichloroethylene          | 2017/07/25    |       | 96       | %     | 70 - 130  |
|                |      |              | 1,2-Dichloropropane                 | 2017/07/25    |       | 90       | %     | 70 - 130  |
|                |      |              | cis-1,3-Dichloropropene             | 2017/07/25    |       | 96       | %     | 70 - 130  |
|                |      |              | trans-1,3-Dichloropropene           | 2017/07/25    |       | 104      | %     | 70 - 130  |
|                |      |              | Ethylbenzene                        | 2017/07/25    |       | 95       | %     | 70 - 130  |
|                |      |              | Ethylene Dibromide                  | 2017/07/25    |       | 103      | %     | 70 - 130  |
|                |      |              | Hexane                              | 2017/07/25    |       | 101      | %     | 70 - 130  |
|                |      |              | Methylene Chloride(Dichloromethane) | 2017/07/25    |       | 102      | %     | 70 - 130  |
|                |      |              | Methyl Ethyl Ketone (2-Butanone)    | 2017/07/25    |       | 100      | %     | 60 - 140  |
|                |      |              | Methyl Isobutyl Ketone              | 2017/07/25    |       | 98       | %     | 70 - 130  |
|                |      |              | Methyl t-butyl ether (MTBE)         | 2017/07/25    |       | 94       | %     | 70 - 130  |
|                |      |              | Styrene                             | 2017/07/25    |       | 97       | %     | 70 - 130  |
|                |      |              | 1,1,1,2-Tetrachloroethane           | 2017/07/25    |       | 101      | %     | 70 - 130  |
|                |      |              | 1,1,2,2-Tetrachloroethane           | 2017/07/25    |       | 99       | %     | 70 - 130  |
|                |      |              | Tetrachloroethylene                 | 2017/07/25    |       | 93       | %     | 70 - 130  |
|                |      |              | Toluene                             | 2017/07/25    |       | 93       | %     | 70 - 130  |
|                |      |              | 1,1,1-Trichloroethane               | 2017/07/25    |       | 93       | %     | 70 - 130  |
|                |      |              | 1,1,2-Trichloroethane               | 2017/07/25    |       | 99       | %     | 70 - 130  |
|                |      |              | Trichloroethylene                   | 2017/07/25    |       | 94       | %     | 70 - 130  |
|                |      |              | Trichlorofluoromethane (FREON 11)   | 2017/07/25    |       | 95       | %     | 70 - 130  |
|                |      |              | Vinyl Chloride                      | 2017/07/25    |       | 93       | %     | 70 - 130  |
|                |      |              | p+m-Xylene                          | 2017/07/25    |       | 97       | %     | 70 - 130  |
|                |      |              | o-Xylene                            | 2017/07/25    |       | 97       | %     | 70 - 130  |
|                |      |              | F1 (C6-C10)                         | 2017/07/25    |       | 93       | %     | 60 - 140  |
| 5084462        | DR1  | Method Blank | 4-Bromofluorobenzene                | 2017/07/25    |       | 96       | %     | 70 - 130  |
|                |      |              | D4-1,2-Dichloroethane               | 2017/07/25    |       | 103      | %     | 70 - 130  |
|                |      |              | D8-Toluene                          | 2017/07/25    |       | 95       | %     | 70 - 130  |
|                |      |              | Acetone (2-Propanone)               | 2017/07/25    | <10   |          | ug/L  |           |
|                |      |              | Benzene                             | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |              | Bromodichloromethane                | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |              | Bromoform                           | 2017/07/25    | <1.0  |          | ug/L  |           |
|                |      |              | Bromomethane                        | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |              | Carbon Tetrachloride                | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |              | Chlorobenzene                       | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |              | Chloroform                          | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |              | Dibromochloromethane                | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |              | 1,2-Dichlorobenzene                 | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |              | 1,3-Dichlorobenzene                 | 2017/07/25    | <0.50 |          | ug/L  |           |

Maxxam Job #: B7F4125  
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DST Consulting Engineers Inc  
Client Project #: TSSO-29563/ TRINITY  
Site Location: 951 GLADSTON  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

**QUALITY ASSURANCE REPORT(CONT'D)**

| QA/QC<br>Batch | Init | QC Type | Parameter                           | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|----------------|------|---------|-------------------------------------|---------------|-------|----------|-------|-----------|
|                |      |         | 1,4-Dichlorobenzene                 | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |         | Dichlorodifluoromethane (FREON 12)  | 2017/07/25    | <1.0  |          | ug/L  |           |
|                |      |         | 1,1-Dichloroethane                  | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | 1,2-Dichloroethane                  | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |         | 1,1-Dichloroethylene                | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | cis-1,2-Dichloroethylene            | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |         | trans-1,2-Dichloroethylene          | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |         | 1,2-Dichloropropane                 | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | cis-1,3-Dichloropropene             | 2017/07/25    | <0.30 |          | ug/L  |           |
|                |      |         | trans-1,3-Dichloropropene           | 2017/07/25    | <0.40 |          | ug/L  |           |
|                |      |         | Ethylbenzene                        | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | Ethylene Dibromide                  | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | Hexane                              | 2017/07/25    | <1.0  |          | ug/L  |           |
|                |      |         | Methylene Chloride(Dichloromethane) | 2017/07/25    | <2.0  |          | ug/L  |           |
|                |      |         | Methyl Ethyl Ketone (2-Butanone)    | 2017/07/25    | <10   |          | ug/L  |           |
|                |      |         | Methyl Isobutyl Ketone              | 2017/07/25    | <5.0  |          | ug/L  |           |
|                |      |         | Methyl t-butyl ether (MTBE)         | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |         | Styrene                             | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |         | 1,1,1,2-Tetrachloroethane           | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |         | 1,1,1,2,2-Tetrachloroethane         | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |         | Tetrachloroethylene                 | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | Toluene                             | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | 1,1,1-Trichloroethane               | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | 1,1,2-Trichloroethane               | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |         | Trichloroethylene                   | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | Trichlorofluoromethane (FREON 11)   | 2017/07/25    | <0.50 |          | ug/L  |           |
|                |      |         | Vinyl Chloride                      | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | p+m-Xylene                          | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | o-Xylene                            | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | Total Xylenes                       | 2017/07/25    | <0.20 |          | ug/L  |           |
|                |      |         | F1 (C6-C10)                         | 2017/07/25    | <25   |          | ug/L  |           |
|                |      |         | F1 (C6-C10) - BTEX                  | 2017/07/25    | <25   |          | ug/L  |           |
| 5084462        | DR1  | RPD     | Acetone (2-Propanone)               | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | Benzene                             | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | Bromodichloromethane                | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | Bromoform                           | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | Bromomethane                        | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | Carbon Tetrachloride                | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | Chlorobenzene                       | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | Chloroform                          | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | Dibromochloromethane                | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | 1,2-Dichlorobenzene                 | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | 1,3-Dichlorobenzene                 | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | 1,4-Dichlorobenzene                 | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | Dichlorodifluoromethane (FREON 12)  | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | 1,1-Dichloroethane                  | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | 1,2-Dichloroethane                  | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | 1,1-Dichloroethylene                | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | cis-1,2-Dichloroethylene            | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | trans-1,2-Dichloroethylene          | 2017/07/25    | NC    |          | %     | 30        |
|                |      |         | 1,2-Dichloropropane                 | 2017/07/25    | NC    |          | %     | 30        |

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Site Location: 951 GLADSTON  
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Sampler Initials: ES

**QUALITY ASSURANCE REPORT(CONT'D)**

| QA/QC<br>Batch | Init | QC Type      | Parameter                           | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|----------------|------|--------------|-------------------------------------|---------------|-------|----------|-------|-----------|
|                |      |              | cis-1,3-Dichloropropene             | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | trans-1,3-Dichloropropene           | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Ethylbenzene                        | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Ethylene Dibromide                  | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Hexane                              | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Methylene Chloride(Dichloromethane) | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Methyl Ethyl Ketone (2-Butanone)    | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Methyl Isobutyl Ketone              | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Methyl t-butyl ether (MTBE)         | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Styrene                             | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | 1,1,1,2-Tetrachloroethane           | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | 1,1,2,2-Tetrachloroethane           | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Tetrachloroethylene                 | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Toluene                             | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | 1,1,1-Trichloroethane               | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | 1,1,2-Trichloroethane               | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Trichloroethylene                   | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Trichlorofluoromethane (FREON 11)   | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Vinyl Chloride                      | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | p+m-Xylene                          | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | o-Xylene                            | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | Total Xylenes                       | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | F1 (C6-C10)                         | 2017/07/25    | NC    |          | %     | 30        |
|                |      |              | F1 (C6-C10) - BTEX                  | 2017/07/25    | NC    |          | %     | 30        |
| 5084735        | TNG  | Matrix Spike | Dissolved Antimony (Sb)             | 2017/07/25    |       | 108      | %     | 80 - 120  |
|                |      |              | Dissolved Arsenic (As)              | 2017/07/25    |       | 104      | %     | 80 - 120  |
|                |      |              | Dissolved Barium (Ba)               | 2017/07/25    |       | 99       | %     | 80 - 120  |
|                |      |              | Dissolved Beryllium (Be)            | 2017/07/25    |       | 104      | %     | 80 - 120  |
|                |      |              | Dissolved Boron (B)                 | 2017/07/25    |       | 99       | %     | 80 - 120  |
|                |      |              | Dissolved Cadmium (Cd)              | 2017/07/25    |       | 103      | %     | 80 - 120  |
|                |      |              | Dissolved Chromium (Cr)             | 2017/07/25    |       | 101      | %     | 80 - 120  |
|                |      |              | Dissolved Cobalt (Co)               | 2017/07/25    |       | 99       | %     | 80 - 120  |
|                |      |              | Dissolved Copper (Cu)               | 2017/07/25    |       | 101      | %     | 80 - 120  |
|                |      |              | Dissolved Lead (Pb)                 | 2017/07/25    |       | 95       | %     | 80 - 120  |
|                |      |              | Dissolved Molybdenum (Mo)           | 2017/07/25    |       | 105      | %     | 80 - 120  |
|                |      |              | Dissolved Nickel (Ni)               | 2017/07/25    |       | 99       | %     | 80 - 120  |
|                |      |              | Dissolved Selenium (Se)             | 2017/07/25    |       | 103      | %     | 80 - 120  |
|                |      |              | Dissolved Silver (Ag)               | 2017/07/25    |       | 96       | %     | 80 - 120  |
|                |      |              | Dissolved Sodium (Na)               | 2017/07/25    |       | NC       | %     | 80 - 120  |
|                |      |              | Dissolved Thallium (Tl)             | 2017/07/25    |       | 95       | %     | 80 - 120  |
|                |      |              | Dissolved Uranium (U)               | 2017/07/25    |       | 104      | %     | 80 - 120  |
|                |      |              | Dissolved Vanadium (V)              | 2017/07/25    |       | 102      | %     | 80 - 120  |
|                |      |              | Dissolved Zinc (Zn)                 | 2017/07/25    |       | 99       | %     | 80 - 120  |
| 5084735        | TNG  | Spiked Blank | Dissolved Antimony (Sb)             | 2017/07/25    |       | 101      | %     | 80 - 120  |
|                |      |              | Dissolved Arsenic (As)              | 2017/07/25    |       | 97       | %     | 80 - 120  |
|                |      |              | Dissolved Barium (Ba)               | 2017/07/25    |       | 99       | %     | 80 - 120  |
|                |      |              | Dissolved Beryllium (Be)            | 2017/07/25    |       | 98       | %     | 80 - 120  |
|                |      |              | Dissolved Boron (B)                 | 2017/07/25    |       | 94       | %     | 80 - 120  |
|                |      |              | Dissolved Cadmium (Cd)              | 2017/07/25    |       | 98       | %     | 80 - 120  |
|                |      |              | Dissolved Chromium (Cr)             | 2017/07/25    |       | 96       | %     | 80 - 120  |
|                |      |              | Dissolved Cobalt (Co)               | 2017/07/25    |       | 96       | %     | 80 - 120  |

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Site Location: 951 GLADSTON  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

**QUALITY ASSURANCE REPORT(CONT'D)**

| QA/QC Batch | Init | QC Type      | Parameter                 | Date Analyzed | Value  | Recovery | UNITS | QC Limits |
|-------------|------|--------------|---------------------------|---------------|--------|----------|-------|-----------|
|             |      |              | Dissolved Copper (Cu)     | 2017/07/25    |        | 99       | %     | 80 - 120  |
|             |      |              | Dissolved Lead (Pb)       | 2017/07/25    |        | 94       | %     | 80 - 120  |
|             |      |              | Dissolved Molybdenum (Mo) | 2017/07/25    |        | 98       | %     | 80 - 120  |
|             |      |              | Dissolved Nickel (Ni)     | 2017/07/25    |        | 96       | %     | 80 - 120  |
|             |      |              | Dissolved Selenium (Se)   | 2017/07/25    |        | 97       | %     | 80 - 120  |
|             |      |              | Dissolved Silver (Ag)     | 2017/07/25    |        | 97       | %     | 80 - 120  |
|             |      |              | Dissolved Sodium (Na)     | 2017/07/25    |        | 99       | %     | 80 - 120  |
|             |      |              | Dissolved Thallium (Tl)   | 2017/07/25    |        | 94       | %     | 80 - 120  |
|             |      |              | Dissolved Uranium (U)     | 2017/07/25    |        | 101      | %     | 80 - 120  |
|             |      |              | Dissolved Vanadium (V)    | 2017/07/25    |        | 96       | %     | 80 - 120  |
|             |      |              | Dissolved Zinc (Zn)       | 2017/07/25    |        | 97       | %     | 80 - 120  |
| 5084735     | TNG  | Method Blank | Dissolved Antimony (Sb)   | 2017/07/25    | <0.50  |          | ug/L  |           |
|             |      |              | Dissolved Arsenic (As)    | 2017/07/25    | <1.0   |          | ug/L  |           |
|             |      |              | Dissolved Barium (Ba)     | 2017/07/25    | <2.0   |          | ug/L  |           |
|             |      |              | Dissolved Beryllium (Be)  | 2017/07/25    | <0.50  |          | ug/L  |           |
|             |      |              | Dissolved Boron (B)       | 2017/07/25    | <10    |          | ug/L  |           |
|             |      |              | Dissolved Cadmium (Cd)    | 2017/07/25    | <0.10  |          | ug/L  |           |
|             |      |              | Dissolved Chromium (Cr)   | 2017/07/25    | <5.0   |          | ug/L  |           |
|             |      |              | Dissolved Cobalt (Co)     | 2017/07/25    | <0.50  |          | ug/L  |           |
|             |      |              | Dissolved Copper (Cu)     | 2017/07/25    | <1.0   |          | ug/L  |           |
|             |      |              | Dissolved Lead (Pb)       | 2017/07/25    | <0.50  |          | ug/L  |           |
|             |      |              | Dissolved Molybdenum (Mo) | 2017/07/25    | <0.50  |          | ug/L  |           |
|             |      |              | Dissolved Nickel (Ni)     | 2017/07/25    | <1.0   |          | ug/L  |           |
|             |      |              | Dissolved Selenium (Se)   | 2017/07/25    | <2.0   |          | ug/L  |           |
|             |      |              | Dissolved Silver (Ag)     | 2017/07/25    | <0.10  |          | ug/L  |           |
|             |      |              | Dissolved Sodium (Na)     | 2017/07/25    | <100   |          | ug/L  |           |
|             |      |              | Dissolved Thallium (Tl)   | 2017/07/25    | <0.050 |          | ug/L  |           |
|             |      |              | Dissolved Uranium (U)     | 2017/07/25    | <0.10  |          | ug/L  |           |
|             |      |              | Dissolved Vanadium (V)    | 2017/07/25    | <0.50  |          | ug/L  |           |
|             |      |              | Dissolved Zinc (Zn)       | 2017/07/25    | <5.0   |          | ug/L  |           |
| 5084735     | TNG  | RPD          | Dissolved Antimony (Sb)   | 2017/07/25    | 2.6    |          | %     | 20        |
|             |      |              | Dissolved Arsenic (As)    | 2017/07/25    | 1.7    |          | %     | 20        |
|             |      |              | Dissolved Barium (Ba)     | 2017/07/25    | 2.2    |          | %     | 20        |
|             |      |              | Dissolved Beryllium (Be)  | 2017/07/25    | NC     |          | %     | 20        |
|             |      |              | Dissolved Boron (B)       | 2017/07/25    | 1.1    |          | %     | 20        |
|             |      |              | Dissolved Cadmium (Cd)    | 2017/07/25    | NC     |          | %     | 20        |
|             |      |              | Dissolved Chromium (Cr)   | 2017/07/25    | NC     |          | %     | 20        |
|             |      |              | Dissolved Cobalt (Co)     | 2017/07/25    | 7.5    |          | %     | 20        |
|             |      |              | Dissolved Copper (Cu)     | 2017/07/25    | 4.2    |          | %     | 20        |
|             |      |              | Dissolved Lead (Pb)       | 2017/07/25    | NC     |          | %     | 20        |
|             |      |              | Dissolved Molybdenum (Mo) | 2017/07/25    | 0.72   |          | %     | 20        |
|             |      |              | Dissolved Nickel (Ni)     | 2017/07/25    | 3.7    |          | %     | 20        |
|             |      |              | Dissolved Selenium (Se)   | 2017/07/25    | NC     |          | %     | 20        |
|             |      |              | Dissolved Silver (Ag)     | 2017/07/25    | NC     |          | %     | 20        |
|             |      |              | Dissolved Thallium (Tl)   | 2017/07/25    | NC     |          | %     | 20        |
|             |      |              | Dissolved Uranium (U)     | 2017/07/25    | 0.29   |          | %     | 20        |
|             |      |              | Dissolved Vanadium (V)    | 2017/07/25    | 4.8    |          | %     | 20        |
|             |      |              | Dissolved Zinc (Zn)       | 2017/07/25    | NC     |          | %     | 20        |
| 5087699     | MKS  | Matrix Spike | o-Terphenyl               | 2017/07/25    |        | 100      | %     | 60 - 130  |
|             |      |              | F2 (C10-C16 Hydrocarbons) | 2017/07/25    |        | 106      | %     | 50 - 130  |
|             |      |              | F3 (C16-C34 Hydrocarbons) | 2017/07/25    |        | NC       | %     | 50 - 130  |

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Sampler Initials: ES

**QUALITY ASSURANCE REPORT(CONT'D)**

| QA/QC Batch               | Init       | QC Type      | Parameter                 | Date Analyzed | Value | Recovery                  | UNITS      | QC Limits |
|---------------------------|------------|--------------|---------------------------|---------------|-------|---------------------------|------------|-----------|
| 5087699                   | MKS        | Spiked Blank | F4 (C34-C50 Hydrocarbons) | 2017/07/25    |       | 100                       | %          | 50 - 130  |
|                           |            |              | o-Terphenyl               | 2017/07/25    |       | 98                        | %          | 60 - 130  |
|                           |            |              | F2 (C10-C16 Hydrocarbons) | 2017/07/25    |       | 104                       | %          | 60 - 130  |
|                           |            |              | F3 (C16-C34 Hydrocarbons) | 2017/07/25    |       | 101                       | %          | 60 - 130  |
|                           |            |              | F4 (C34-C50 Hydrocarbons) | 2017/07/25    |       | 98                        | %          | 60 - 130  |
| 5087699                   | MKS        | Method Blank | o-Terphenyl               | 2017/07/25    |       | 97                        | %          | 60 - 130  |
|                           |            |              | F2 (C10-C16 Hydrocarbons) | 2017/07/25    | <100  |                           | ug/L       |           |
|                           |            |              | F3 (C16-C34 Hydrocarbons) | 2017/07/25    | <200  |                           | ug/L       |           |
|                           |            |              | F4 (C34-C50 Hydrocarbons) | 2017/07/25    | <200  |                           | ug/L       |           |
|                           |            |              | 5087699                   | MKS           | RPD   | F2 (C10-C16 Hydrocarbons) | 2017/07/25 | NC        |
| F3 (C16-C34 Hydrocarbons) | 2017/07/25 | NC           |                           |               |       |                           | %          | 30        |
| F4 (C34-C50 Hydrocarbons) | 2017/07/25 | NC           |                           |               |       |                           | %          | 30        |

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

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DST Consulting Engineers Inc  
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Sampler Initials: ES

### VALIDATION SIGNATURE PAGE

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

*Cristina Carriere*

\_\_\_\_\_  
Cristina Carriere, Scientific Services

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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 Analytics International Corporation - 6740 Campobello Road, Mississauga, Ontario, L5N 2L8

|  |  |                               |  |                             |  |                             |  |
|--|--|-------------------------------|--|-----------------------------|--|-----------------------------|--|
| <b>INVOICE TO:</b>                               |  | <b>REPORT TO:</b>             |  | <b>PROJECT INFORMATION:</b> |  | <b>Laboratory Use Only:</b> |  |
| Company Name: #3824 DST Consulting Engineers Inc |  | Company Name: DST             |  | Quotation #: B61802         |  | Maxxam Job #:               |  |
| Attention: Accounts Payable                      |  | Attention: Eve Sabourin       |  | P.O. #: TSSO-29563          |  | Bottle Order #:             |  |
| Address: 2150 Thurston Dr Unit 203               |  | Address:                      |  | Project: TSSO-29563         |  | Barcode: 620406             |  |
| Ottawa ON K1G 5T9                                |  |                               |  | Project Name: Trinity       |  | COC #:                      |  |
| Tel: (613) 748-1415 x                            |  | Tel: (613) 748-1415           |  | Site #: 951 Gladston        |  | Project Manager:            |  |
| Email: ap@dstgroup.com                           |  | Email: esabourin@dstgroup.com |  | Sampled By: ES / DM         |  | Alison Cameron              |  |

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

|   |  |  |  |                             |  |
|---|--|--|--|-----------------------------|--|
| <b>Regulation 153 (2011)</b><br><input type="checkbox"/> Table 1 <input type="checkbox"/> Road/Perk <input type="checkbox"/> Medium/Line<br><input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse<br><input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other <input type="checkbox"/> For RSC<br><input type="checkbox"/> Table _____ |  | <b>Other Regulations</b><br><input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw<br><input type="checkbox"/> Reg 558 <input type="checkbox"/> Storm Sewer Bylaw<br><input type="checkbox"/> MISA <input type="checkbox"/> Municipality _____<br><input type="checkbox"/> PWQG<br><input type="checkbox"/> Other _____ |  | <b>Special Instructions</b> |  |
|---|--|--|--|-----------------------------|--|

| Sample Barcode Label | Sample (Location) Identification | Date Sampled | Time Sampled | Matrix | Field Filtered (please circle) | Metals Hg / Cr / VI | Reg 153 (FWS) (Water) | Reg 153 (Dissolved) (FWS) (Water) | Reg 153 (VOCs) by H5 & F1-F4 (Water) <i>DIET</i> | ANALYSIS REQUESTED (PLEASE BE SPECIFIC)                               | Turnaround Time (TAT) Required<br>Please provide advance notice for rush projects  |
|----------------------|----------------------------------|--------------|--------------|--------|--------------------------------|---------------------|-----------------------|-----------------------------------|--|---|--|
|                      | BH 2017-7<br>550-29563 N/A       | 18/07/2017   | 13:00pm      | Water  | X                              |                     | X                     | X                                 |  | 19-Jul-17 09:30<br>Alison Cameron<br>Barcode: B7F4125<br>GK1 ENV-1292 | Regular (Standard) TAT: <input checked="" type="checkbox"/><br>(will be applied if Rush TAT is not specified)<br>Standard TAT = 5-7 Working days for most tests.<br>Please note: Standard TAT for certain tests such as BOD and Dissolved Organics are > 9 days - contact your Project Manager for details.<br>Job Specific Rush TAT (if applies to entire submission)<br>Rush Confirmation Number: _____ (call lab for #) |
|                      | BH 2017-4                        | 18/07/2017   | 15:15pm      | Water  | X                              |                     | X                     | X                                 |  |   | 8 PAH are on hold  |
|                      | BH 2017-6                        | 18/07/2017   | 17:00pm      | Water  | X                              | X                   | X                     | X                                 |  |   | 8 PAH are on hold  |
|                      | BH 2017-2                        | 18/07/2017   | 19:00        | Water  | X                              |                     | X                     | X                                 |  |   | 8 PAH not on hold  |
|                      | BH 2017-11                       | 18/07/2017   | 9:30 Am      | Water  |                                |                     | X                     | X                                 |  |   | 8 PAH on Hold  |
|                      | BH 2017-7                        | 18/07/2017   | 11:20 Am     | Water  | X                              |                     | X                     | X                                 |  |   | 8 Metal+PAH on Hold  |
|                      | BH NW-4                          | 18/07/2017   | 17:00        | Water  | X                              | X                   | X                     | X                                 |  | RECEIVED IN OTTAWA  | 8 PAH on Hold  |
|                      | Field Blank                      | 18/07/2017   | 17:00        | Water  |                                |                     |                       | X                                 |  |   | 6  |
|                      | Trip Blank                       | 18/07/2017   | 17:00        | Water  |                                |                     |                       | X                                 |  |   | 3  |

|                                    |                  |       |                                |                  |      |                               |   |
|------------------------------------|------------------|-------|--------------------------------|------------------|------|-------------------------------|---|
| RELINQUISHED BY: (Signature/Print) | Date: (YY/MM/DD) | Time  | RECEIVED BY: (Signature/Print) | Date: (YY/MM/DD) | Time | # jars used and not submitted | Laboratory Use Only   |
| <i>[Signature]</i>                 | 17/07/18         | 10:00 | <i>[Signature]</i>             | 20/07/19         | 9:30 |                               | Time Sensitive<br>Temperature (°C) on Recc: 8.5<br>Custody Seal Present: <input checked="" type="checkbox"/> Intact<br>White: Maxxam Yellow: Client |

\* 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 AN 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/MP-CONTENT/UPLOADS/ON/ART/RO-COC.PDF.  
 SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Maxxam Analytics International Corporation d/b/a Maxxam Analytics  
 HARRIS GW 8/8/6  
 2017/07/19 23:25

Your P.O. #: TSSO-29563  
 Your Project #: TSSO-29563  
 Site Location: TRINITY ,851,GLODSTONE  
 Your C.O.C. #: 98145

**Attention:Eve Sabourin**

DST Consulting Engineers Inc  
 Ottawa - Standing Offer  
 2150 Thurston Dr  
 Unit 203  
 Ottawa, ON  
 K1G 5T9

**Report Date: 2017/07/27**  
 Report #: R4617667  
 Version: 2 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7F8005**

**Received: 2017/07/25, 15:45**

Sample Matrix: Water  
 # Samples Received: 1

| Analyses                                   | Quantity | Date       | Date       | Laboratory Method | Reference         |
|--|----------|------------|------------|-------------------|-------------------|
|  |          | Extracted  | Analyzed   |                   |                   |
| 1,3-Dichloropropene Sum (1)                | 1        | N/A        | 2017/07/27 |                   | EPA 8260C m       |
| Petroleum Hydrocarbons F2-F4 in Water (2)  | 1        | 2017/07/26 | 2017/07/26 | OTT SOP-00001     | CCME Hydrocarbons |
| Dissolved Metals by ICPMS (1)              | 1        | N/A        | 2017/07/26 | CAM SOP-00447     | EPA 6020B m       |
| Volatile Organic Compounds and F1 PHCs (1) | 1        | N/A        | 2017/07/26 | CAM SOP-00230     | 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.

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.

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.

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

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

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

(1) This test was performed by Maxxam Analytics Mississauga

(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.

Your P.O. #: TSSO-29563  
Your Project #: TSSO-29563  
Site Location: TRINITY ,851, GLODSTONE  
Your C.O.C. #: 98145

**Attention: Eve Sabourin**

DST Consulting Engineers Inc  
Ottawa - Standing Offer  
2150 Thurston Dr  
Unit 203  
Ottawa, ON  
K1G 5T9

**Report Date: 2017/07/27**  
Report #: R4617667  
Version: 2 - Final

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B7F8005**  
**Received: 2017/07/25, 15:45**

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.  
Alison Cameron, Project Manager  
Email: ACameron@maxxam.ca  
Phone# (613) 274-0573

=====

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.

**O.REG 153 DISSOLVED ICPMS METALS (WATER)**

| Maxxam ID  |       | EUU373              | EUU373               |       |          |
|--|-------|---------------------|----------------------|-------|----------|
| Sampling Date  |       | 2017/07/25<br>14:30 | 2017/07/25<br>14:30  |       |          |
| COC Number   |       | 98145               | 98145                |       |          |
|  | UNITS | UNKNOWN-1           | UNKNOWN-1<br>Lab-Dup | RDL   | QC Batch |
| <b>Metals</b>  |       |                     |                      |       |          |
| Dissolved Antimony (Sb)  | ug/L  | <0.50               | <0.50                | 0.50  | 5090588  |
| Dissolved Arsenic (As)   | ug/L  | <1.0                | <1.0                 | 1.0   | 5090588  |
| Dissolved Barium (Ba)  | ug/L  | 120                 | 120                  | 2.0   | 5090588  |
| Dissolved Beryllium (Be)   | ug/L  | <0.50               | <0.50                | 0.50  | 5090588  |
| Dissolved Boron (B)  | ug/L  | 56                  | 58                   | 10    | 5090588  |
| Dissolved Cadmium (Cd)   | ug/L  | <0.10               | <0.10                | 0.10  | 5090588  |
| Dissolved Chromium (Cr)  | ug/L  | <5.0                | <5.0                 | 5.0   | 5090588  |
| Dissolved Cobalt (Co)  | ug/L  | <0.50               | <0.50                | 0.50  | 5090588  |
| Dissolved Copper (Cu)  | ug/L  | 1.4                 | 1.3                  | 1.0   | 5090588  |
| Dissolved Lead (Pb)  | ug/L  | <0.50               | <0.50                | 0.50  | 5090588  |
| Dissolved Molybdenum (Mo)  | ug/L  | 11                  | 11                   | 0.50  | 5090588  |
| Dissolved Nickel (Ni)  | ug/L  | 1.5                 | 1.6                  | 1.0   | 5090588  |
| Dissolved Selenium (Se)  | ug/L  | <2.0                | <2.0                 | 2.0   | 5090588  |
| Dissolved Silver (Ag)  | ug/L  | <0.10               | <0.10                | 0.10  | 5090588  |
| Dissolved Sodium (Na)  | ug/L  | 540000              | 530000               | 100   | 5090588  |
| Dissolved Thallium (Tl)  | ug/L  | <0.050              | <0.050               | 0.050 | 5090588  |
| Dissolved Uranium (U)  | ug/L  | 1.2                 | 1.2                  | 0.10  | 5090588  |
| Dissolved Vanadium (V)   | ug/L  | <0.50               | <0.50                | 0.50  | 5090588  |
| Dissolved Zinc (Zn)  | ug/L  | 6.3                 | 5.6                  | 5.0   | 5090588  |
| RDL = Reportable Detection Limit<br>QC Batch = Quality Control Batch<br>Lab-Dup = Laboratory Initiated Duplicate |       |                     |                      |       |          |

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

|                                     |              |                     |            |                 |
|-------------------------------------|--------------|---------------------|------------|-----------------|
| <b>Maxxam ID</b>                    |              | EUU373              |            |                 |
| <b>Sampling Date</b>                |              | 2017/07/25<br>14:30 |            |                 |
| <b>COC Number</b>                   |              | 98145               |            |                 |
|                                     | <b>UNITS</b> | <b>UNKNOWN-1</b>    | <b>RDL</b> | <b>QC Batch</b> |
| <b>Calculated Parameters</b>        |              |                     |            |                 |
| 1,3-Dichloropropene (cis+trans)     | ug/L         | <0.50               | 0.50       | 5088890         |
| <b>Volatile Organics</b>            |              |                     |            |                 |
| Acetone (2-Propanone)               | ug/L         | <10                 | 10         | 5084914         |
| Benzene                             | ug/L         | <0.20               | 0.20       | 5084914         |
| Bromodichloromethane                | ug/L         | <0.50               | 0.50       | 5084914         |
| Bromoform                           | ug/L         | <1.0                | 1.0        | 5084914         |
| Bromomethane                        | ug/L         | <0.50               | 0.50       | 5084914         |
| Carbon Tetrachloride                | ug/L         | <0.20               | 0.20       | 5084914         |
| Chlorobenzene                       | ug/L         | <0.20               | 0.20       | 5084914         |
| Chloroform                          | ug/L         | <0.20               | 0.20       | 5084914         |
| Dibromochloromethane                | ug/L         | <0.50               | 0.50       | 5084914         |
| 1,2-Dichlorobenzene                 | ug/L         | <0.50               | 0.50       | 5084914         |
| 1,3-Dichlorobenzene                 | ug/L         | <0.50               | 0.50       | 5084914         |
| 1,4-Dichlorobenzene                 | ug/L         | <0.50               | 0.50       | 5084914         |
| Dichlorodifluoromethane (FREON 12)  | ug/L         | <1.0                | 1.0        | 5084914         |
| 1,1-Dichloroethane                  | ug/L         | <0.20               | 0.20       | 5084914         |
| 1,2-Dichloroethane                  | ug/L         | <0.50               | 0.50       | 5084914         |
| 1,1-Dichloroethylene                | ug/L         | <0.20               | 0.20       | 5084914         |
| cis-1,2-Dichloroethylene            | ug/L         | <0.50               | 0.50       | 5084914         |
| trans-1,2-Dichloroethylene          | ug/L         | <0.50               | 0.50       | 5084914         |
| 1,2-Dichloropropane                 | ug/L         | <0.20               | 0.20       | 5084914         |
| cis-1,3-Dichloropropene             | ug/L         | <0.30               | 0.30       | 5084914         |
| trans-1,3-Dichloropropene           | ug/L         | <0.40               | 0.40       | 5084914         |
| Ethylbenzene                        | ug/L         | <0.20               | 0.20       | 5084914         |
| Ethylene Dibromide                  | ug/L         | <0.20               | 0.20       | 5084914         |
| Hexane                              | ug/L         | <1.0                | 1.0        | 5084914         |
| Methylene Chloride(Dichloromethane) | ug/L         | <2.0                | 2.0        | 5084914         |
| Methyl Ethyl Ketone (2-Butanone)    | ug/L         | <10                 | 10         | 5084914         |
| Methyl Isobutyl Ketone              | ug/L         | <5.0                | 5.0        | 5084914         |
| Methyl t-butyl ether (MTBE)         | ug/L         | <0.50               | 0.50       | 5084914         |
| Styrene                             | ug/L         | <0.50               | 0.50       | 5084914         |
| 1,1,1,2-Tetrachloroethane           | ug/L         | <0.50               | 0.50       | 5084914         |
| 1,1,1,2-Tetrachloroethane           | ug/L         | <0.50               | 0.50       | 5084914         |
| RDL = Reportable Detection Limit    |              |                     |            |                 |
| QC Batch = Quality Control Batch    |              |                     |            |                 |

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

| Maxxam ID                         |       | EUU373              |      |          |
|-----------------------------------|-------|---------------------|------|----------|
| Sampling Date                     |       | 2017/07/25<br>14:30 |      |          |
| COC Number                        |       | 98145               |      |          |
|                                   | UNITS | UNKNOWN-1           | RDL  | QC Batch |
| Tetrachloroethylene               | ug/L  | <0.20               | 0.20 | 5084914  |
| Toluene                           | ug/L  | <0.20               | 0.20 | 5084914  |
| 1,1,1-Trichloroethane             | ug/L  | <0.20               | 0.20 | 5084914  |
| 1,1,2-Trichloroethane             | ug/L  | <0.50               | 0.50 | 5084914  |
| Trichloroethylene                 | ug/L  | <0.20               | 0.20 | 5084914  |
| Trichlorofluoromethane (FREON 11) | ug/L  | <0.50               | 0.50 | 5084914  |
| Vinyl Chloride                    | ug/L  | <0.20               | 0.20 | 5084914  |
| p+m-Xylene                        | ug/L  | <0.20               | 0.20 | 5084914  |
| o-Xylene                          | ug/L  | <0.20               | 0.20 | 5084914  |
| Total Xylenes                     | ug/L  | <0.20               | 0.20 | 5084914  |
| F1 (C6-C10)                       | ug/L  | <25                 | 25   | 5084914  |
| F1 (C6-C10) - BTEX                | ug/L  | <25                 | 25   | 5084914  |
| <b>F2-F4 Hydrocarbons</b>         |       |                     |      |          |
| F2 (C10-C16 Hydrocarbons)         | ug/L  | <100                | 100  | 5090847  |
| F3 (C16-C34 Hydrocarbons)         | ug/L  | <200                | 200  | 5090847  |
| F4 (C34-C50 Hydrocarbons)         | ug/L  | <200                | 200  | 5090847  |
| Reached Baseline at C50           | ug/L  | Yes                 |      | 5090847  |
| <b>Surrogate Recovery (%)</b>     |       |                     |      |          |
| o-Terphenyl                       | %     | 92                  |      | 5090847  |
| 4-Bromofluorobenzene              | %     | 91                  |      | 5084914  |
| D4-1,2-Dichloroethane             | %     | 104                 |      | 5084914  |
| D8-Toluene                        | %     | 94                  |      | 5084914  |
| RDL = Reportable Detection Limit  |       |                     |      |          |
| QC Batch = Quality Control Batch  |       |                     |      |          |

Maxxam Job #: B7F8005  
Report Date: 2017/07/27

DST Consulting Engineers Inc  
Client Project #: TSSO-29563  
Site Location: TRINITY ,851,GLODSTONE  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

### TEST SUMMARY

**Maxxam ID:** EUU373  
**Sample ID:** UNKNOWN-1  
**Matrix:** Water

**Collected:** 2017/07/25  
**Shipped:**  
**Received:** 2017/07/25

| Test Description                       | Instrumentation | Batch   | Extracted  | Date Analyzed | Analyst           |
|--|-----------------|---------|------------|---------------|-------------------|
| 1,3-Dichloropropene Sum                | CALC            | 5088890 | N/A        | 2017/07/27    | Automated Statchk |
| Petroleum Hydrocarbons F2-F4 in Water  | GC/FID          | 5090847 | 2017/07/26 | 2017/07/26    | Liliana Gaburici  |
| Dissolved Metals by ICPMS              | ICP/MS          | 5090588 | N/A        | 2017/07/26    | Thao Nguyen       |
| Volatile Organic Compounds and F1 PHCs | GC/MSFD         | 5084914 | N/A        | 2017/07/26    | Yang (Philip) Yu  |

**Maxxam ID:** EUU373 Dup  
**Sample ID:** UNKNOWN-1  
**Matrix:** Water

**Collected:** 2017/07/25  
**Shipped:**  
**Received:** 2017/07/25

| Test Description          | Instrumentation | Batch   | Extracted | Date Analyzed | Analyst     |
|---------------------------|-----------------|---------|-----------|---------------|-------------|
| Dissolved Metals by ICPMS | ICP/MS          | 5090588 | N/A       | 2017/07/26    | Thao Nguyen |

**GENERAL COMMENTS**

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

|           |        |
|-----------|--------|
| Package 1 | 16.7°C |
|-----------|--------|

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

### QUALITY ASSURANCE REPORT

DST Consulting Engineers Inc  
Client Project #: TSSO-29563  
Site Location: TRINITY ,851,GLODSTONE  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

| QC Batch | Parameter                          | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|------------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                    |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5084914  | 4-Bromofluorobenzene               | 2017/07/26 | 101          | 70 - 130  | 101          | 70 - 130  | 92           | %     |           |           |
| 5084914  | D4-1,2-Dichloroethane              | 2017/07/26 | 101          | 70 - 130  | 103          | 70 - 130  | 105          | %     |           |           |
| 5084914  | D8-Toluene                         | 2017/07/26 | 100          | 70 - 130  | 101          | 70 - 130  | 94           | %     |           |           |
| 5090847  | o-Terphenyl                        | 2017/07/26 | 88           | 30 - 130  | 92           | 30 - 130  | 90           | %     |           |           |
| 5084914  | 1,1,1,2-Tetrachloroethane          | 2017/07/26 | 113          | 70 - 130  | 109          | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | 1,1,1-Trichloroethane              | 2017/07/26 | 101          | 70 - 130  | 99           | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | 1,1,2,2-Tetrachloroethane          | 2017/07/26 | 110          | 70 - 130  | 106          | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | 1,1,2-Trichloroethane              | 2017/07/26 | 104          | 70 - 130  | 100          | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | 1,1-Dichloroethane                 | 2017/07/26 | 110          | 70 - 130  | 106          | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | 1,1-Dichloroethylene               | 2017/07/26 | 109          | 70 - 130  | 106          | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | 1,2-Dichlorobenzene                | 2017/07/26 | 102          | 70 - 130  | 98           | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | 1,2-Dichloroethane                 | 2017/07/26 | 101          | 70 - 130  | 98           | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | 1,2-Dichloropropane                | 2017/07/26 | 102          | 70 - 130  | 98           | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | 1,3-Dichlorobenzene                | 2017/07/26 | 104          | 70 - 130  | 100          | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | 1,4-Dichlorobenzene                | 2017/07/26 | 105          | 70 - 130  | 101          | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | Acetone (2-Propanone)              | 2017/07/26 | 97           | 60 - 140  | 96           | 60 - 140  | <10          | ug/L  | NC        | 30        |
| 5084914  | Benzene                            | 2017/07/26 | 107          | 70 - 130  | 103          | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | Bromodichloromethane               | 2017/07/26 | 104          | 70 - 130  | 101          | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | Bromoform                          | 2017/07/26 | 117          | 70 - 130  | 113          | 70 - 130  | <1.0         | ug/L  | NC        | 30        |
| 5084914  | Bromomethane                       | 2017/07/26 | 111          | 60 - 140  | 109          | 60 - 140  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | Carbon Tetrachloride               | 2017/07/26 | 104          | 70 - 130  | 100          | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | Chlorobenzene                      | 2017/07/26 | 103          | 70 - 130  | 100          | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | Chloroform                         | 2017/07/26 | 103          | 70 - 130  | 99           | 70 - 130  | <0.20        | ug/L  | 2.0       | 30        |
| 5084914  | cis-1,2-Dichloroethylene           | 2017/07/26 | 102          | 70 - 130  | 99           | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | cis-1,3-Dichloropropene            | 2017/07/26 | 103          | 70 - 130  | 98           | 70 - 130  | <0.30        | ug/L  | NC        | 30        |
| 5084914  | Dibromochloromethane               | 2017/07/26 | 113          | 70 - 130  | 109          | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | Dichlorodifluoromethane (FREON 12) | 2017/07/26 | 91           | 60 - 140  | 89           | 60 - 140  | <1.0         | ug/L  | NC        | 30        |
| 5084914  | Ethylbenzene                       | 2017/07/26 | 96           | 70 - 130  | 93           | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | Ethylene Dibromide                 | 2017/07/26 | 111          | 70 - 130  | 107          | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | F1 (C6-C10) - BTEX                 | 2017/07/26 |              |           |              |           | <25          | ug/L  | NC        | 30        |

**QUALITY ASSURANCE REPORT(CONT'D)**

DST Consulting Engineers Inc  
Client Project #: TSSO-29563  
Site Location: TRINITY ,851,GLODSTONE  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

| QC Batch | Parameter                           | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|-------------------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                                     |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5084914  | F1 (C6-C10)                         | 2017/07/26 | 105          | 60 - 140  | 94           | 60 - 140  | <25          | ug/L  | NC        | 30        |
| 5084914  | Hexane                              | 2017/07/26 | 110          | 70 - 130  | 105          | 70 - 130  | <1.0         | ug/L  | NC        | 30        |
| 5084914  | Methyl Ethyl Ketone (2-Butanone)    | 2017/07/26 | 105          | 60 - 140  | 103          | 60 - 140  | <10          | ug/L  | NC        | 30        |
| 5084914  | Methyl Isobutyl Ketone              | 2017/07/26 | 103          | 70 - 130  | 102          | 70 - 130  | <5.0         | ug/L  | NC        | 30        |
| 5084914  | Methyl t-butyl ether (MTBE)         | 2017/07/26 | 94           | 70 - 130  | 91           | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | Methylene Chloride(Dichloromethane) | 2017/07/26 | 106          | 70 - 130  | 103          | 70 - 130  | <2.0         | ug/L  | NC        | 30        |
| 5084914  | o-Xylene                            | 2017/07/26 | 96           | 70 - 130  | 93           | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | p+m-Xylene                          | 2017/07/26 | 99           | 70 - 130  | 95           | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | Styrene                             | 2017/07/26 | 99           | 70 - 130  | 97           | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | Tetrachloroethylene                 | 2017/07/26 | 103          | 70 - 130  | 100          | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | Toluene                             | 2017/07/26 | 98           | 70 - 130  | 95           | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | Total Xylenes                       | 2017/07/26 |              |           |              |           | <0.20        | ug/L  | NC        | 30        |
| 5084914  | trans-1,2-Dichloroethylene          | 2017/07/26 | 111          | 70 - 130  | 107          | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | trans-1,3-Dichloropropene           | 2017/07/26 | 114          | 70 - 130  | 106          | 70 - 130  | <0.40        | ug/L  | NC        | 30        |
| 5084914  | Trichloroethylene                   | 2017/07/26 | 104          | 70 - 130  | 101          | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5084914  | Trichlorofluoromethane (FREON 11)   | 2017/07/26 | 104          | 70 - 130  | 101          | 70 - 130  | <0.50        | ug/L  | NC        | 30        |
| 5084914  | Vinyl Chloride                      | 2017/07/26 | 102          | 70 - 130  | 98           | 70 - 130  | <0.20        | ug/L  | NC        | 30        |
| 5090588  | Dissolved Antimony (Sb)             | 2017/07/26 | 110          | 80 - 120  | 101          | 80 - 120  | <0.50        | ug/L  | NC        | 20        |
| 5090588  | Dissolved Arsenic (As)              | 2017/07/26 | 105          | 80 - 120  | 100          | 80 - 120  | <1.0         | ug/L  | NC        | 20        |
| 5090588  | Dissolved Barium (Ba)               | 2017/07/26 | 101          | 80 - 120  | 97           | 80 - 120  | <2.0         | ug/L  | 1.4       | 20        |
| 5090588  | Dissolved Beryllium (Be)            | 2017/07/26 | 107          | 80 - 120  | 99           | 80 - 120  | <0.50        | ug/L  | NC        | 20        |
| 5090588  | Dissolved Boron (B)                 | 2017/07/26 | 104          | 80 - 120  | 97           | 80 - 120  | <10          | ug/L  | 2.7       | 20        |
| 5090588  | Dissolved Cadmium (Cd)              | 2017/07/26 | 103          | 80 - 120  | 99           | 80 - 120  | <0.10        | ug/L  | NC        | 20        |
| 5090588  | Dissolved Chromium (Cr)             | 2017/07/26 | 105          | 80 - 120  | 99           | 80 - 120  | <5.0         | ug/L  | NC        | 20        |
| 5090588  | Dissolved Cobalt (Co)               | 2017/07/26 | 101          | 80 - 120  | 99           | 80 - 120  | <0.50        | ug/L  | NC        | 20        |
| 5090588  | Dissolved Copper (Cu)               | 2017/07/26 | 104          | 80 - 120  | 101          | 80 - 120  | <1.0         | ug/L  | 4.4       | 20        |
| 5090588  | Dissolved Lead (Pb)                 | 2017/07/26 | 95           | 80 - 120  | 95           | 80 - 120  | <0.50        | ug/L  | NC        | 20        |
| 5090588  | Dissolved Molybdenum (Mo)           | 2017/07/26 | 109          | 80 - 120  | 99           | 80 - 120  | <0.50        | ug/L  | 3.6       | 20        |
| 5090588  | Dissolved Nickel (Ni)               | 2017/07/26 | 99           | 80 - 120  | 100          | 80 - 120  | <1.0         | ug/L  | 5.3       | 20        |
| 5090588  | Dissolved Selenium (Se)             | 2017/07/26 | 100          | 80 - 120  | 99           | 80 - 120  | <2.0         | ug/L  | NC        | 20        |

**QUALITY ASSURANCE REPORT(CONT'D)**

DST Consulting Engineers Inc  
Client Project #: TSSO-29563  
Site Location: TRINITY ,851,GLODSTONE  
Your P.O. #: TSSO-29563  
Sampler Initials: ES

| QC Batch | Parameter                 | Date       | Matrix Spike |           | SPIKED BLANK |           | Method Blank |       | RPD       |           |
|----------|---------------------------|------------|--------------|-----------|--------------|-----------|--------------|-------|-----------|-----------|
|          |                           |            | % Recovery   | QC Limits | % Recovery   | QC Limits | Value        | UNITS | Value (%) | QC Limits |
| 5090588  | Dissolved Silver (Ag)     | 2017/07/26 | 99           | 80 - 120  | 96           | 80 - 120  | <0.10        | ug/L  | NC        | 20        |
| 5090588  | Dissolved Sodium (Na)     | 2017/07/26 | NC           | 80 - 120  | 101          | 80 - 120  | <100         | ug/L  | 1.2       | 20        |
| 5090588  | Dissolved Thallium (Tl)   | 2017/07/26 | 94           | 80 - 120  | 95           | 80 - 120  | <0.050       | ug/L  | NC        | 20        |
| 5090588  | Dissolved Uranium (U)     | 2017/07/26 | 103          | 80 - 120  | 100          | 80 - 120  | <0.10        | ug/L  | 1.4       | 20        |
| 5090588  | Dissolved Vanadium (V)    | 2017/07/26 | 106          | 80 - 120  | 99           | 80 - 120  | <0.50        | ug/L  | NC        | 20        |
| 5090588  | Dissolved Zinc (Zn)       | 2017/07/26 | 101          | 80 - 120  | 100          | 80 - 120  | <5.0         | ug/L  | 12        | 20        |
| 5090847  | F2 (C10-C16 Hydrocarbons) | 2017/07/26 | 95           | 50 - 130  | 97           | 80 - 120  | <100         | ug/L  | 3.1       | 50        |
| 5090847  | F3 (C16-C34 Hydrocarbons) | 2017/07/26 | 95           | 50 - 130  | 97           | 80 - 120  | <200         | ug/L  | 3.1       | 50        |
| 5090847  | F4 (C34-C50 Hydrocarbons) | 2017/07/26 | 95           | 50 - 130  | 96           | 80 - 120  | <200         | ug/L  | 2.3       | 50        |

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

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

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

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

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

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

**VALIDATION SIGNATURE PAGE**

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

*Cristina Carriere*

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Cristina Carriere, Scientific Services

*Paul*

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Paul Rubinato, Analyst, Maxxam Analytics

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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.


| Invoice Information                      | Report Information (if differs from invoice) | Project Information (where applicable)        | Turnaround Time (TAT) Required  |
|--|--|---|---|
| Company Name: <u>DST Consulting Eng.</u> | Company Name:                                | Quotation #:                                  | <input type="checkbox"/> Regular TAT (5-7 days) Most analyses   |
| Contact Name: <u>Eve Sabourin</u>        | Contact Name:                                | P.O. #/ AFE#: <u>T350-29563</u>               | <b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>  |
| Address: <u>2150 Thurston Dr</u>         | Address:                                     | Project #: <u>T350-29563</u>                  | Rush TAT (Surcharges will be applied)   |
| <u>Suite 203 K9A 5T9</u>                 |  | Site Location: <u>Trinity, 951 Blackstone</u> | <input checked="" type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days |
| Phone: <u>613-697-4225</u> fax:          | Phone: Fax:                                  | Site #:                                       | Date Required:  |
| Email: <u>esabourin@dstgroup.com</u>     | Email:                                       | Sampled By: <u>ES</u>                         |   |

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

| Regulation 153  | Other Regulations   | Analysis Requested  | LABORATORY USE ONLY   |
|---|---|---|---|
| <input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Med/ Fine<br><input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse<br><input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/ Other<br><input type="checkbox"/> Table _____<br>FOR RSC (PLEASE CIRCLE) Y / N | <input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw<br><input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw<br><input type="checkbox"/> PWQO Region<br><input type="checkbox"/> Other (Specify)<br><input type="checkbox"/> REG 558 (MIN. 3 DAY TAT REQUIRED) | # OF CONTAINERS SUBMITTED<br># OF FILTERED (CIRCLE) Metals /Hg /Cvii<br>BTEX/PHC F1<br>PHCS F2 - F4<br>VOCs<br>REG 153 METALS & INORGANICS<br>REG 153 ICPMS METALS<br>REG 153 METALS (Hg, Cr-VI, ICPMS Metals, HWS-B) | CUSTODY SEAL: Y / N<br>Present intact<br>COOLER TEMPERATURES<br>COOLING MEDIA PRESENT: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N |

Include Criteria on Certificate of Analysis: Y / N  
 SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

| SAMPLE IDENTIFICATION | DATE SAMPLED (YYYY/MM/DD) | TIME SAMPLED (HH:MM) | MATRIX       | # OF CONTAINERS SUBMITTED | # OF FILTERED (CIRCLE) Metals /Hg /Cvii | BTEX/PHC F1 | PHCS F2 - F4 | VOCs     | REG 153 METALS & INORGANICS | REG 153 ICPMS METALS | REG 153 METALS (Hg, Cr-VI, ICPMS Metals, HWS-B) | LABORATORY USE ONLY |
|-----------------------|---------------------------|----------------------|--------------|---------------------------|---|-------------|--------------|----------|-----------------------------|----------------------|---|---------------------|
| 1 <u>UNKNOWN - 1</u>  | <u>2017/07/25</u>         | <u>14:30</u>         | <u>Water</u> | <u>X</u>                  | <u>X</u>                                | <u>X</u>    | <u>X</u>     | <u>X</u> | <u>X</u>                    |                      |   | <u>Hold on PAH</u>  |
| 2                     |                           |                      |              |                           |   |             |              |          |                             |                      |   |                     |
| 3                     |                           |                      |              |                           |   |             |              |          |                             |                      |   |                     |
| 4                     |                           |                      |              |                           |   |             |              |          |                             |                      |   |                     |
| 5                     |                           |                      |              |                           |   |             |              |          |                             |                      |   |                     |
| 6                     |                           |                      |              |                           |   |             |              |          |                             |                      |   |                     |
| 7                     |                           |                      |              |                           |   |             |              |          |                             |                      |   |                     |
| 8                     |                           |                      |              |                           |   |             |              |          |                             |                      |   |                     |
| 9                     |                           |                      |              |                           |   |             |              |          |                             |                      |   |                     |
| 10                    |                           |                      |              |                           |   |             |              |          |                             |                      |   |                     |

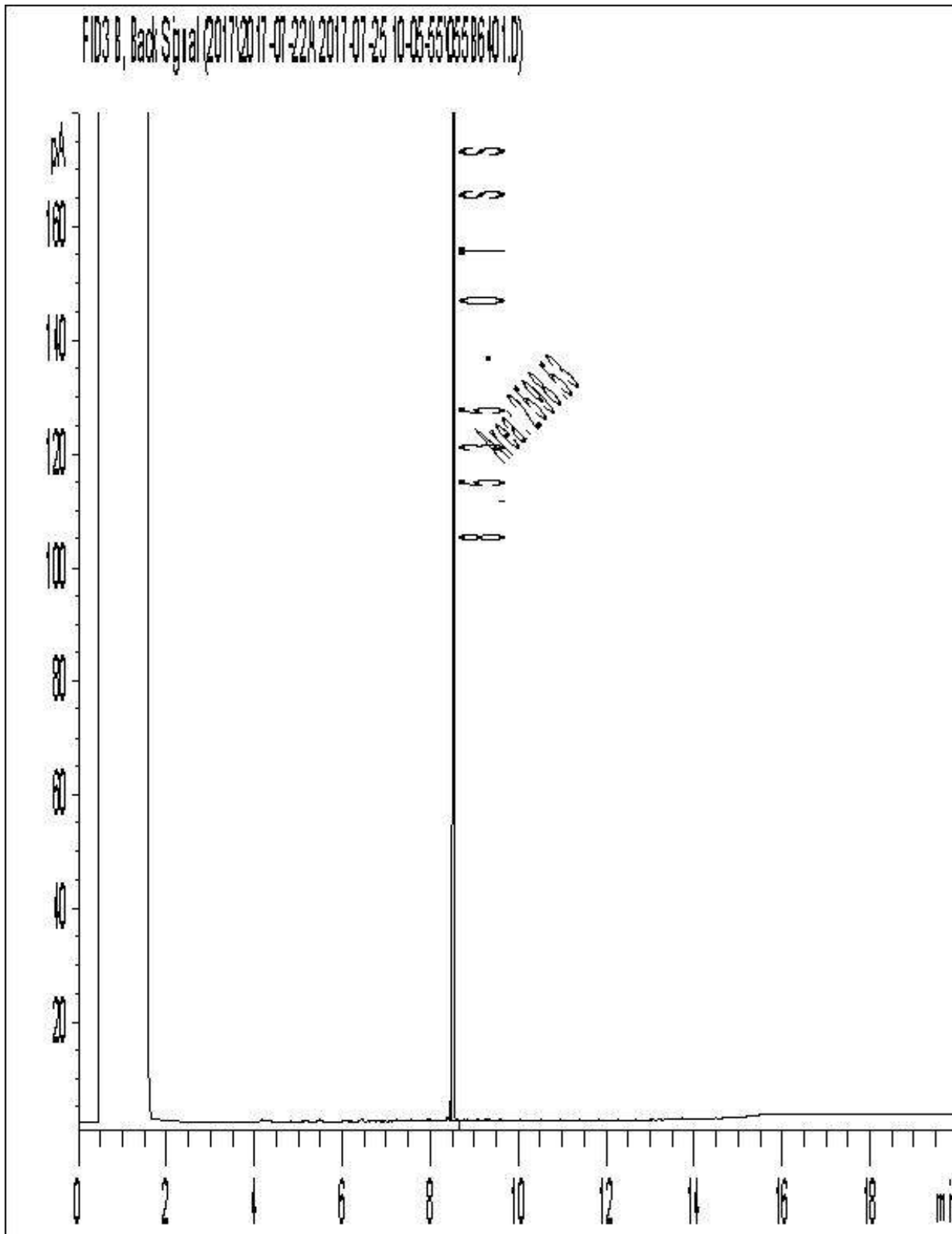
25-Jul-17 15:45  
 Alison Cameron  
  
 B7F8005  
 KIV OTT-001

RECEIVED IN OTTAWA

| RELINQUISHED BY: (Signature/Print) | DATE: (YYYY/MM/DD) | TIME: (HH:MM) | RECEIVED BY: (Signature/Print) | DATE: (YYYY/MM/DD) | TIME: (HH:MM) | MAXXAM JOB #           |
|------------------------------------|--------------------|---------------|--------------------------------|--------------------|---------------|------------------------|
| <u>Eve Sabourin</u>                | <u>2017/07/25</u>  | <u>15:42</u>  | <u>Kevin Jayson</u>            | <u>2017/07/25</u>  | <u>15:45</u>  | <u>ON the Ice Pack</u> |

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](http://www.maxxam.ca/terms). Sample container, preservation, hold time and packages information can be viewed at <http://www.maxxam.ca/wp-content/uploads/Ontario-COC.pdf>.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



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

## Certificate of Analysis

**DST Consulting Engineers Inc. (Ottawa)**

203-2150 Thurston Dr.  
Ottawa, ON K1G 5T9  
Attn: Sam Voore

Client PO: TS SO 29563  
Project: TS SO 29563  
Custody: 38417

Report Date: 3-Aug-2017  
Order Date: 2-Aug-2017

**Order #: 1731304**

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

| <b>Parcel ID</b> | <b>Client ID</b>            |
|------------------|-----------------------------|
| 1731304-01       | TCLP-01 BH11 SS4 - BH13-SS3 |

Approved By:



Dale Robertson, BSc  
Laboratory Director

Certificate of Analysis  
Client: DST Consulting Engineers Inc. (Ottawa)  
Client PO: TS SO 29563

Report Date: 03-Aug-2017  
Order Date: 2-Aug-2017  
Project Description: TS SO 29563

## Analysis Summary Table

| Analysis                  | Method Reference/Description  | Extraction Date | Analysis Date |
|---------------------------|-------------------------------|-----------------|---------------|
| Metals, ICP-MS            | EPA 6020 - Digestion - ICP-MS | 3-Aug-17        | 3-Aug-17      |
| REG 558 - Mercury by CVAA | EPA 7470A - Cold Vapour AA    | 3-Aug-17        | 3-Aug-17      |
| REG 558 - PAHs            | EPA 625 - GC-MS               | 3-Aug-17        | 3-Aug-17      |
| Solids, %                 | Gravimetric, calculation      | 3-Aug-17        | 3-Aug-17      |

Certificate of Analysis  
 Client: DST Consulting Engineers Inc. (Ottawa)  
 Client PO: TS SO 29563

Report Date: 03-Aug-2017  
 Order Date: 2-Aug-2017  
 Project Description: TS SO 29563

|                     |                    |   |   |   |
|---------------------|--------------------|---|---|---|
| <b>Client ID:</b>   | TCLP-01 BH11 SS4 - | - | - | - |
| <b>Sample Date:</b> | BH13-SS3           | - | - | - |
| <b>Sample ID:</b>   | 02-Aug-17          | - | - | - |
| <b>MDL/Units</b>    | 1731304-01         | - | - | - |
|                     | Soil               | - | - | - |

**Physical Characteristics**

|          |              |      |   |   |   |
|----------|--------------|------|---|---|---|
| % Solids | 0.1 % by Wt. | 88.7 | - | - | - |
|----------|--------------|------|---|---|---|

**EPA 1311 - TCLP Leachate Inorganics**

|          |            |        |   |   |   |
|----------|------------|--------|---|---|---|
| Arsenic  | 0.05 mg/L  | <0.05  | - | - | - |
| Barium   | 0.05 mg/L  | 0.88   | - | - | - |
| Boron    | 0.05 mg/L  | 0.09   | - | - | - |
| Cadmium  | 0.01 mg/L  | <0.01  | - | - | - |
| Chromium | 0.05 mg/L  | <0.05  | - | - | - |
| Lead     | 0.05 mg/L  | <0.05  | - | - | - |
| Mercury  | 0.005 mg/L | <0.005 | - | - | - |
| Selenium | 0.05 mg/L  | <0.05  | - | - | - |
| Silver   | 0.05 mg/L  | <0.05  | - | - | - |
| Uranium  | 0.05 mg/L  | <0.05  | - | - | - |

**EPA 1311 - TCLP Leachate Organics**

|                  |             |         |   |   |   |
|------------------|-------------|---------|---|---|---|
| Benzo [a] pyrene | 0.0001 mg/L | <0.0001 | - | - | - |
| Terphenyl-d14    | Surrogate   | 106%    | - | - | - |

Certificate of Analysis  
 Client: DST Consulting Engineers Inc. (Ottawa)  
 Client PO: TS SO 29563

Report Date: 03-Aug-2017  
 Order Date: 2-Aug-2017  
 Project Description: TS SO 29563

**Method Quality Control: Blank**

| Analyte                                    | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|--|--------|-----------------|-------|---------------|------|------------|-----|-----------|-------|
| <b>EPA 1311 - TCLP Leachate Inorganics</b> |        |                 |       |               |      |            |     |           |       |
| Arsenic                                    | ND     | 0.05            | mg/L  |               |      |            |     |           |       |
| Barium                                     | ND     | 0.05            | mg/L  |               |      |            |     |           |       |
| Boron                                      | ND     | 0.05            | mg/L  |               |      |            |     |           |       |
| Cadmium                                    | ND     | 0.01            | mg/L  |               |      |            |     |           |       |
| Chromium                                   | ND     | 0.05            | mg/L  |               |      |            |     |           |       |
| Lead                                       | ND     | 0.05            | mg/L  |               |      |            |     |           |       |
| Mercury                                    | ND     | 0.005           | mg/L  |               |      |            |     |           |       |
| Selenium                                   | ND     | 0.05            | mg/L  |               |      |            |     |           |       |
| Silver                                     | ND     | 0.05            | mg/L  |               |      |            |     |           |       |
| Uranium                                    | ND     | 0.05            | mg/L  |               |      |            |     |           |       |
| <b>EPA 1311 - TCLP Leachate Organics</b>   |        |                 |       |               |      |            |     |           |       |
| Benzo [a] pyrene                           | ND     | 0.0001          | mg/L  |               |      |            |     |           |       |
| Surrogate: Terphenyl-d14                   | 0.197  |                 | mg/L  |               | 98.7 | 37.1-155.6 |     |           |       |

Certificate of Analysis  
 Client: DST Consulting Engineers Inc. (Ottawa)  
 Client PO: TS SO 29563

Report Date: 03-Aug-2017  
 Order Date: 2-Aug-2017  
 Project Description: TS SO 29563

**Method Quality Control: Duplicate**

| Analyte                                    | Result | Reporting Limit | Units    | Source Result | %REC | %REC Limit | RPD  | RPD Limit | Notes |
|--|--------|-----------------|----------|---------------|------|------------|------|-----------|-------|
| <b>EPA 1311 - TCLP Leachate Inorganics</b> |        |                 |          |               |      |            |      |           |       |
| Arsenic                                    | ND     | 0.05            | mg/L     | ND            |      |            | 0.0  | 29        |       |
| Barium                                     | 0.916  | 0.05            | mg/L     | 0.880         |      |            | 4.1  | 34        |       |
| Boron                                      | 0.107  | 0.05            | mg/L     | 0.095         |      |            | 12.5 | 33        |       |
| Cadmium                                    | ND     | 0.01            | mg/L     | ND            |      |            | 0.0  | 33        |       |
| Chromium                                   | ND     | 0.05            | mg/L     | ND            |      |            | 0.0  | 32        |       |
| Lead                                       | ND     | 0.05            | mg/L     | ND            |      |            | 0.0  | 32        |       |
| Mercury                                    | ND     | 0.005           | mg/L     | ND            |      |            |      | 30        |       |
| Selenium                                   | ND     | 0.05            | mg/L     | ND            |      |            | 0.0  | 28        |       |
| Silver                                     | ND     | 0.05            | mg/L     | ND            |      |            | 0.0  | 28        |       |
| Uranium                                    | ND     | 0.05            | mg/L     | ND            |      |            | 0.0  | 27        |       |
| <b>EPA 1311 - TCLP Leachate Organics</b>   |        |                 |          |               |      |            |      |           |       |
| Benzo [a] pyrene                           | ND     | 0.0001          | mg/L     | ND            |      |            |      | 50        |       |
| Surrogate: Terphenyl-d14                   | 0.144  |                 | mg/L     |               | 71.8 | 37.1-155.6 |      |           |       |
| <b>Physical Characteristics</b>            |        |                 |          |               |      |            |      |           |       |
| % Solids                                   | 91.4   | 0.1             | % by Wt. | 91.1          |      |            | 0.4  | 25        |       |

Certificate of Analysis  
 Client: DST Consulting Engineers Inc. (Ottawa)  
 Client PO: TS SO 29563

Report Date: 03-Aug-2017  
 Order Date: 2-Aug-2017  
 Project Description: TS SO 29563

**Method Quality Control: Spike**

| Analyte                                    | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|--|--------|-----------------|-------|---------------|------|------------|-----|-----------|-------|
| <b>EPA 1311 - TCLP Leachate Inorganics</b> |        |                 |       |               |      |            |     |           |       |
| Arsenic                                    | 53.2   |                 | ug/L  | 0.290         | 106  | 83-119     |     |           |       |
| Barium                                     | 140    |                 | ug/L  | 88.0          | 105  | 83-116     |     |           |       |
| Boron                                      | 59.7   |                 | ug/L  | 9.45          | 101  | 71-128     |     |           |       |
| Cadmium                                    | 49.2   |                 | ug/L  | 0.190         | 98.1 | 78-119     |     |           |       |
| Chromium                                   | 53.6   |                 | ug/L  | 1.70          | 104  | 80-124     |     |           |       |
| Lead                                       | 54.7   |                 | ug/L  | 2.35          | 105  | 77-126     |     |           |       |
| Mercury                                    | 0.0293 | 0.005           | mg/L  | ND            | 97.5 | 70-130     |     |           |       |
| Selenium                                   | 48.1   |                 | ug/L  | 0.223         | 95.7 | 81-125     |     |           |       |
| Silver                                     | 46.1   |                 | ug/L  | ND            | 92.1 | 70-128     |     |           |       |
| Uranium                                    | 53.6   |                 | ug/L  | 0.232         | 107  | 70-131     |     |           |       |
| <b>EPA 1311 - TCLP Leachate Organics</b>   |        |                 |       |               |      |            |     |           |       |
| Benzo [a] pyrene                           | 0.0516 | 0.0001          | mg/L  |               | 103  | 39-123     |     |           |       |
| Surrogate: Terphenyl-d14                   | 0.240  |                 | mg/L  |               | 120  | 37.1-155.6 |     |           |       |

Certificate of Analysis  
**Client: DST Consulting Engineers Inc. (Ottawa)**  
**Client PO: TS SO 29563**

Report Date: 03-Aug-2017  
Order Date: 2-Aug-2017  
**Project Description: TS SO 29563**

**Qualifier Notes:**

None

**Sample Data Revisions**

None

**Work Order Revisions / Comments:**

None

**Other Report Notes:**

n/a: not applicable  
ND: Not Detected  
MDL: Method Detection Limit  
Source Result: Data used as source for matrix and duplicate samples  
%REC: Percent recovery.  
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.  
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

Parcel ID: 1731304



TRU:  
RESI  
RELIABLE



ent Blvd.  
(1G 4J8)

e: parcel@paracellabs.com

Chain of Custody  
(Lab Use Only)

No 38417

Page 1 of 1

Turnaround Time:

1 Day  3 Day

2 Day  Regular

Date Required: 3/08/2017

Client Name: Sam Voore DST  
Contact Name: Sam Voore / Eve Sabourin  
Address: 2150 Thurston Dr suite 203  
Ottawa ON K1G 3T9  
Telephone: 613-694-4225

Project Reference: TSSO-29563  
Quote #  
PO# TSSO-29563  
Email Address: svoore@dstgroup.com  
esabourin@dstgroup.com

Criteria:  O, Reg. 153/04 (As Amended) Table  RSC Filing  O, Reg. 558/00  PWQO  CCME  SUB (Storm)  SUB (Sanitary) Municipality:  Other:

Matrix Type: S (Soil Sed.) GW (Ground Water) SW (Surface Water) SS (Storm Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

| Parcel Order Number:    |                              | Matrix | Air Volume | # of Containers | Sample Taken |      | TCLP Model (Final) | TCLP PAH | Required Analyses |  |  |  |  |  |  |  |  |  |  |  |       |
|-------------------------|------------------------------|--------|------------|-----------------|--------------|------|--------------------|----------|-------------------|--|--|--|--|--|--|--|--|--|--|--|-------|
| 1731304                 |                              |        |            |                 | Date         | Time |                    |          |                   |  |  |  |  |  |  |  |  |  |  |  |       |
| Sample ID/Location Name |                              |        |            |                 |              |      |                    |          |                   |  |  |  |  |  |  |  |  |  |  |  |       |
| 1                       | TCLP-01 BH11 SS4 - BH13-SS3S | NA     | 1          | 1               | 2017/08/12   | 4:15 | X                  | X        |                   |  |  |  |  |  |  |  |  |  |  |  | 250mL |
| 2                       |                              |        |            |                 |              |      |                    |          |                   |  |  |  |  |  |  |  |  |  |  |  |       |
| 3                       |                              |        |            |                 |              |      |                    |          |                   |  |  |  |  |  |  |  |  |  |  |  |       |
| 4                       |                              |        |            |                 |              |      |                    |          |                   |  |  |  |  |  |  |  |  |  |  |  |       |
| 5                       |                              |        |            |                 |              |      |                    |          |                   |  |  |  |  |  |  |  |  |  |  |  |       |
| 6                       |                              |        |            |                 |              |      |                    |          |                   |  |  |  |  |  |  |  |  |  |  |  |       |
| 7                       |                              |        |            |                 |              |      |                    |          |                   |  |  |  |  |  |  |  |  |  |  |  |       |
| 8                       |                              |        |            |                 |              |      |                    |          |                   |  |  |  |  |  |  |  |  |  |  |  |       |
| 9                       |                              |        |            |                 |              |      |                    |          |                   |  |  |  |  |  |  |  |  |  |  |  |       |
| 10                      |                              |        |            |                 |              |      |                    |          |                   |  |  |  |  |  |  |  |  |  |  |  |       |

Comments:

Method of Delivery  
Walkin

|                                       |                           |                      |                             |
|---------------------------------------|---------------------------|----------------------|-----------------------------|
| Relinquished By (Sign):               | Received by Driver/Depot: | Received at Lab:     | Verified By: Rachel Subject |
| Relinquished By (Print): Eve Sabourin | Date/Time:                | Date/Time: Aug 2/17  | Date/Time: Aug 2/17         |
| Date/Time: 2017/08/02                 | Temperature: °C           | Temperature: 24.4 °C | pH Verified: A By: N/A 4:24 |

**APPENDIX G**  
**LIMITATIONS OF REPORT AND QUALIFICATIONS OF ASSESSORS**

## **LIMITATIONS**

The information, conclusions and recommendations given herein are specifically for this project and this Client only, and for the scope of work described herein. It may not be sufficient for other uses. DST does not accept responsibility for use by third parties.

The data, conclusions and recommendations which are presented in this report, and the quality thereof, are based on a scope of work authorized by the Client. Note, however, that no scope of work, no matter how exhaustive, can identify all contaminants or all conditions above and below ground. For example, conditions between test holes may differ from those encountered in the investigation and observed or measured conditions may change with time. This report therefore cannot warranty that all conditions on or off the Site are represented by those identified at specific locations.

Any recommendations and conclusions provided that are based on conditions or assumptions reported herein will inherently include any uncertainty associated with those conditions or assumptions. In fact many aspects involving professional judgement such as subsurface models and remediation criteria contain a degree of uncertainty which cannot be eliminated. This uncertainty should be managed by periodic review and refinement as additional information becomes available.

Note also that standards, guidelines and practices related to environmental investigations may change with time. Those which were applied at the time of this investigation may be obsolete or unacceptable at a later date.

Any topographic benchmarks and elevations documented in this report are primarily to establish relative elevation differences between test locations and should not be used for other purposes such as grading, excavation, planning, development, etc.

Any comments given in this report on potential remediation problems and possible methods are intended only for the guidance of the designer. The scope of work may not be sufficient to determine all of the factors that may affect construction or clean-up methods and costs. Contractors bidding on this project or undertaking clean-ups should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the conditions may affect their work.

Any results from an analytical laboratory, title searcher or other subcontractor reported herein have been carried out by others, and DST Consulting Engineers Inc. cannot warranty their accuracy. Similarly, DST cannot warranty the accuracy of information supplied by the client.

## **QUALIFICATIONS OF ASSESSORS**

**Kevin Bailey, M.A.Sc., EIT:** Mr. Bailey is a Project Manager with DST. Mr. Bailey has 2 years of experience in the environmental industry. He has been involved in many Phase I/II Environmental Site Assessments, site remediation, and water quality and monitoring programs.

**Sam Voore, M.Eng., P.Eng.:** Mr. Voore has worked in the environmental industry for over 20 years and has served both the public and private sectors. Mr. Voore has extensive experience in contaminated site investigations, human health risk assessments, quality assurance sampling, remediation, and post-remediation long-term monitoring activities. Mr. Voore also has significant project management, onsite contractor supervision and contract management experience. Mr. Voore has participated in managing and conducting numerous environmental site assessments for federal and provincial government departments. Site included abandoned mine sites, former military sites, exploration camps and hunting and fishing lodges. Mr. Voore has also managed large remediation projects for both private and public sector clients in Ontario including Mid-Canada Line Site 500 Remediation Project and the remediation of a large brownfield project in Toronto.