

**INTERIM PHASE TWO ENVIRONMENTAL SITE ASSESSMENT (REVISED)  
541 AND 545 RIDEAU STREET  
OTTAWA, ONTARIO**



**Prepared for:**

**10311197 CANADA INC.**

**Prepared by:**

**SPL CONSULTANTS LIMITED**

**6221 Highway 7, Unit 16**

**Project: 1912-720/171-12335-00**

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## TABLE OF CONTENTS

|            |  |           |
|------------|--|-----------|
| <b>1.</b>  | <b>EXECUTIVE SUMMARY</b>                                   | <b>1</b>  |
| <b>2.</b>  | <b>INTRODUCTION</b>  | <b>4</b>  |
| 2.(i)      | SITE DESCRIPTION   | 4         |
| 2. (ii)    | PROPERTY OWNERSHIP   | 4         |
| 2. (iii)   | CURRENT AND PROPOSED FUTURE USES                           | 4         |
| 2.(iv)     | APPLICABLE SITE CONDITION STANDARD                         | 4         |
| <b>3.</b>  | <b>BACKGROUND INFORMATION</b>                              | <b>6</b>  |
| 3.(i)      | PHYSICAL SETTING   | 6         |
| 3.(ii)     | PAST INVESTIGATIONS  | 6         |
| <b>4.</b>  | <b>SCOPE OF THE INVESTIGATION</b>                          | <b>7</b>  |
| 4.(i)      | OVERVIEW OF SITE INVESTIGATION                             | 7         |
| 4.(ii)     | MEDIA INVESTIGATED   | 8         |
| 4.(iii)    | PHASE ONE CONCEPTUAL SITE MODEL                            | 8         |
| 4.(iv)     | DEVIATIONS FROM SAMPLING AND ANALYSIS PLAN                 | 10        |
| 4.(v)      | IMPEDIMENTS  | 10        |
| <b>5.</b>  | <b>INVESTIGATION METHOD</b>                                | <b>10</b> |
| 5.(i)      | GENERAL  | 10        |
| 5.(ii)     | DRILLING AND EXCAVATING                                    | 10        |
| 5.(iii)    | SOIL SAMPLING  | 11        |
| 5.(iv)     | FIELD SCREENING MEASUREMENTS                               | 11        |
| 5.(v)      | GROUNDWATER: MONITORING WELL INSTALLATION                  | 12        |
| 5.(vi)     | GROUNDWATER: FIELD MEASUREMENT OF WATER QUALITY PARAMETERS | 12        |
| 5.(vii)    | GROUNDWATER: SAMPLING                                      | 12        |
| 5.(viii)   | SEDIMENT: SAMPLING   | 13        |
| 5.(ix)     | ANALYTICAL TESTING   | 13        |
| 5.(x)      | RESIDUE MANAGEMENT PROCEDURES                              | 13        |
| 5.(xi)     | ELEVATION SURVEYING  | 13        |
| 5.(xii)    | QUALITY ASSURANCE AND QUALITY CONTROL MEASURES             | 13        |
| <b>6.</b>  | <b>REVIEW AND EVALUATION</b>                               | <b>14</b> |
| 6.(i)      | GEOLOGY  | 14        |
| 6.(ii)     | GROUND WATER: ELEVATIONS AND FLOW DIRECTION                | 15        |
| 6.(iii)    | GROUND WATER: HYDRAULIC GRADIENTS                          | 15        |
| 6. (iv)    | FINE – COARSE SOIL TEXTURE                                 | 15        |
| 6. (v)     | SOIL: FIELD SCREENING                                      | 15        |
| 6.(vi)     | SOIL QUALITY   | 16        |
| 6.(vii)    | GROUND WATER QUALITY                                       | 16        |
| 6.(viii)   | SEDIMENT QUALITY   | 17        |
| 6. (ix)    | QUALITY ASSURANCE AND QUALITY CONTROL RESULTS              | 17        |
| 6.(x)      | PHASE TWO CONCEPTUAL SITE MODEL                            | 18        |
| <b>7.</b>  | <b>CONCLUSIONS</b>   | <b>21</b> |
| <b>8.</b>  | <b>LIMITATIONS</b>   | <b>23</b> |
| <b>9.</b>  | <b>QUALIFICATIONS OF THE CONSULTANT</b>                    | <b>24</b> |
| <b>10.</b> | <b>REFERENCES</b>  | <b>25</b> |

## **TABLES**

|                  |   |
|------------------|---|
| <b>TABLE 1:</b>  | <b>SUMMARY OF MONITORING WELL INSTALLATION &amp; WATER LEVELS</b>       |
| <b>TABLE 2:</b>  | <b>SUMMARY OF SOIL SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS</b>          |
| <b>TABLE 3:</b>  | <b>SUMMARY OF GROUNDWATER SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS</b>   |
| <b>TABLE 4:</b>  | <b>PHASE TWO ESA - SUMMARY OF METALS &amp; INORGANICS IN SOIL</b>       |
| <b>TABLE 5:</b>  | <b>PHASE TWO ESA - SUMMARY OF PHCs IN SOIL</b>                          |
| <b>TABLE 6:</b>  | <b>PHASE TWO ESA - SUMMARY OF VOCs IN SOIL</b>                          |
| <b>TABLE 7:</b>  | <b>PHASE TWO ESA - SUMMARY OF PAHs IN SOIL</b>                          |
| <b>TABLE 8:</b>  | <b>PHASE TWO ESA -SUMMARY OF METALS &amp; INORGANICS IN GROUNDWATER</b> |
| <b>TABLE 9:</b>  | <b>PHASE TWO ESA -SUMMARY OF IN PHCs IN GROUNDWATER</b>                 |
| <b>TABLE 10:</b> | <b>PHASE TWO ESA -SUMMARY OF VOCs IN GROUNDWATER</b>                    |
| <b>TABLE 11:</b> | <b>PHASE TWO ESA -SUMMARY OF PCBs IN GROUNDWATER</b>                    |
| <b>TABLE 12:</b> | <b>PHASE TWO ESA -SUMMARY OF PAHs IN GROUNDWATER</b>                    |
| <b>TABLE 13:</b> | <b>PHASE TWO ESA -SUMMARY OF MAX CONCENTRATIONS IN SOIL</b>             |
| <b>TABLE 14:</b> | <b>PHASE TWO ESA -SUMMARY OF MAX CONCENTRATIONS IN GROUNDWATER</b>      |

## **DRAWINGS**

|  |
|--|
| <b>DRAWING 1 – PHASE ONE ESA SITE CONCEPTUAL MODEL</b>                                       |
| <b>DRAWING 2 – BOREHOLE AND MONITORING WELL LOCATION PLAN AND LOCATION OF CROSS-SECTIONS</b> |
| <b>DRAWING 3 – INTERPRETED GROUNDWATER FLOW DIRECTION</b>                                    |
| <b>DRAWING 4 – SUMMARY OF CONTAMINANTS IN SOIL</b>   |
| <b>DRAWING 5 – CROSS-SECTION A-A'</b>  |
| <b>DRAWING 6 – CROSS-SECTION B-B'</b>  |

## **APPENDICES**

|  |
|--|
| <b>APPENDIX A – SURVEY PLAN</b>                              |
| <b>APPENDIX B – SAMPLING AND ANALYSIS PLAN</b>               |
| <b>APPENDIX C – FINALIZED BOREHOLE LOGS</b>                  |
| <b>APPENDIX D – CERTIFICATES OF ANALYSIS – PHASE TWO ESA</b> |



**Project: 1912-710/171-12335-00**

**January 23, 2014  
(Revised September 7, 2017)**

**10311197 Canada Inc.  
c/o Chenier Group  
14 Third Street  
Cornwall, ON K6H 2C7**

**Attention: Mr. Akash Sinha**

**Interim Phase Two Environmental Site Assessment  
541 and 545 Rideau Street, Ottawa, Ontario**

**1. EXECUTIVE SUMMARY**

SPL Consultants Limited (now WSP Canada Inc.) was retained in 2013 by Mr. Akash Sinha of Dharma Developments on behalf of Codeau Building Ltd to conduct a Phase Two Environmental Site Assessment (ESA) at the above noted property. It is our understanding that this investigation is required for due diligence purposes prior to residential re-development of the property.

At the request of 10311197 Canada Inc., SPL/WSP has prepared this report based on new development plans provided. No additional investigations have been completed as part of this updated report. References to current conditions contained in the report are with respect to November 2013 when the original investigations were completed.

The area under assessment, the Phase Two Property, is an irregular shaped land parcel with an area of approximately 0.16 hectares (0.38 acres), located on the north side of Rideau Street, at the northeast corner of the intersection Rideau Street and Cobourg Street, in the City of Ottawa, Ontario. The Phase Two Property is currently occupied by a three storey mixed use (former commercial and residential) building; the remaining portions of the property are asphalt covered parking areas.

The Phase Two ESA investigation involved the advancement of five (5) boreholes across the Phase Two Property. Three (3) boreholes (BH13-1, BH13-2 and BH13-3) were advanced to approximately 8 to 10 metres below ground surface (mbgs) and two (2) boreholes (BH13-3 and BH13-4) were advanced to approximately 22 to 25 mbgs. For the purpose of collecting and monitoring groundwater, three (3) boreholes (BH13-1, BH13-2 and BH13-3) were converted to shallow monitoring wells installed at approximately 7.5 mbgs, and two (2) boreholes (BH13-4 and BH13-5) were converted to deep monitoring wells installed at depths ranging from 18 to 22 mbgs.

Selected soil samples were collected across the Phase Two Property and submitted for chemical analysis of volatile organic compounds (VOCs), petroleum hydrocarbons (PHCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), metals and inorganic parameters.

Due to the soil and groundwater condition encountered on the site, it was not possible to collect sufficient groundwater for sampling from all monitoring wells installed on the Phase Two Property. Groundwater samples were collected from one (1) shallow monitoring well and one (1) deep monitoring well and submitted for analysis of metals and inorganics, VOCs, PHCs, PAHs and PCBs.

The results of the soil and groundwater samples submitted for chemical analysis were compared to the Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for a residential/parkland/institutional (RPI) property use with coarse textured soil as contained in Table 3 of the Ministry of the Environment (MOE) publication "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", published on April 15, 2011. The Certificates of Analysis are attached.

The use of MOE Table 3 non-potable groundwater standards are assumed, as potable water for the City is supplied by the City of Ottawa from the Ottawa River. The use of the non-potable groundwater standards will require approval from the municipality. A notice has been sent to the City of Ottawa Clerk of the intent to apply non-potable groundwater standards to the subject site. A response has not yet been received.

A Geotechnical Investigation was also completed in conjunction with this Phase Two ESA and has been reported under a separate cover.

Based on field observations and the results of soil and groundwater analyses, SPL provides the following findings:

1. The findings of the Phase Two ESA indicate that the stratigraphy encountered on the property generally consisted of asphalt or topsoil overlying a layer of silty sand to silty clay. The silty sand layer was observed at depths ranging from 0.1 to 3.7 mbgs, above the silty clay layer encountered at depths ranging from 2.7 to 19.8 mbgs. Below the silty sand to silty clay layers, a thin layer of sand and gravel till was observed at depths ranging from 19.8 to 22.5 mbgs, overlying weathered limestone and shale bedrock. Bedrock was encountered in BH13-5, and proven by coring, starting at a depth of approximately 22.1 mbgs.
2. Groundwater levels measured in the upper groundwater zone, were measured at a depth of 6.6 mbgs on December 13, 2013. Based on the topography of the Phase Two Property, the groundwater flow direction is anticipated to be in an easterly direction towards the Rideau River. Groundwater levels may be influenced by subsurface utility trenching.
3. Soil analytical results indicated that four (4) soil samples, collected at depths ranging from 0.8 to 2.9 mbgs, did not meet the MOE Table 3 RPI Standards for electrical conductivity or sodium adsorption ratio.
4. The remaining soil samples submitted for VOCs, PHCs, PAHs and metals and inorganics met the MOE Table 3 RPI Standards for the parameters analyzed.
5. Due to the soil and groundwater conditions encountered on the site, it was not possible to collect sufficient groundwater from all monitoring wells installed on the Phase Two Property. Groundwater samples were collected from one (1) shallow monitoring well and one (1) deep monitoring well and submitted for analysis of metals and inorganics, VOCs, PHCs, PAHs and PCBs. The results of the groundwater analyses indicate that the samples met the applicable MOE 2011 Table 3 Standards for the parameters analyzed.

Based on the findings, SPL provides the following conclusions/recommendations:

- No soil or groundwater impacts from the neighbouring fuel storage or dry cleaning activities were identified during the investigative program on the subject site.
- Electrical Conductivity and Sodium Adsorption Ratio impacts in soil were identified within the upper fill and native material across the Phase Two Property at depths ranging from 0.8 to 2.9 mbgs. Depths of impacts are expected to vary, however are generally expected within the upper 3.0 meters. Excavation and off-site disposal of EC and SAR impacted material, followed by confirmatory sampling will be required to document remediation activities, and support a Record of Site Condition (RSC) filing.
- Additional disposal fees may be incurred given the de-icing salt impacts identified in the upper fill and native soils on the Phase Two Property. The results of the toxicity characteristic leachate procedure (TCLP) analysis for metals and inorganics, benzo(a)pyrene, pH and flashpoint, in accordance with O.Reg. 558, indicate that the material onsite can be considered non-hazardous waste for the purpose of off-site disposal, if required.
- Additional groundwater sampling is recommended when sufficient groundwater is available, to fully document the environmental condition of groundwater on the Phase Two Property. This additional data will then allow a revised Phase Two ESA report to be issued.
- All monitoring wells should be decommissioned in accordance with Ontario Regulation 903 when no longer required.

## 2. INTRODUCTION

### 2.(i) SITE DESCRIPTION

The area under assessment, the Phase Two Property, is an irregular shaped parcel of land with an area of approximately 0.16 hectares (0.38 acres), located on the north side of Rideau Street at the northeast corner of intersection Rideau Street and Cobourg Street, in the City of Ottawa, Ontario. The current municipal address assigned to the property is 541 and 545 Rideau Street, Ottawa, Ontario.

A copy of the Survey Plan provided to SPL by Mr. Akash Sinha of Dharma Developments is included in **Appendix A**. The legal description of the Phase Two Property is as follows:

*Legal Description:*        **PART OF LOT 36 AND 37 REGISTERED PLAN 43586 CITY OF OTTAWA**

The table below lists the current owner and the contact information of the persons interviewed as part of this investigation.

**TABLE 1: SUMMARY OF CURRENT OWNERS AND PROPERTY USE**

| Property                                   | Current Owner   | Property Use  |
|--|---|---|
| 541 and 545 Rideau Street, Ottawa, Ontario | <b>Dharma Developments</b><br>P.O. Box 185, 1488 Stittsville Main Street<br>Stittsville, ON K2S 1A3<br>Contacts: Mr. Akash Sinha and Mr. Gordon Douglas | Former commercial (currently vacant), and residential |

### 2. (ii) PROPERTY OWNERSHIP

SPL was retained by Mr. Akash Sinha of Dharma Developments, who can be contacted via telephone at 613-482-2800 extension 111. The Phase Two Property is currently owned by Dharma Developments.

### 2. (iii) CURRENT AND PROPOSED FUTURE USES

At the time of this Phase Two ESA, the Phase Two Property was occupied by a three storey mixed use (former commercial and residential) building; the remaining portions of the property are asphalt covered parking areas. It is our understanding that this assessment has been requested for due diligence purposes, with future residential development planned.

### 2.(iv) APPLICABLE SITE CONDITION STANDARD

The results of the soil and groundwater chemical analyses were evaluated using the Standards contained in the Ministry of the Environment (MOE) document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (Standards). These Standards were issued on April 15, 2011 and O.Reg 153/04 (as amended) was issued in May 26, 2011 by the MOE. These standards (effective as of July 1, 2011) were used to evaluate the soil and groundwater quality based on the samples collected and tested, and to determine whether soil and groundwater quality comply with MOE Standards. The MOE Standards were also used to determine whether additional investigations are required or warranted.



The site was assessed using the Full Depth Generic Site Condition Standards in a Potable Ground Water Condition with Coarse Textured Soils as contained in Table 3 of above referenced Standards. The use of the Table 3 Standards is considered appropriate by SPL based on the following:

- The site is not located within 30 m of a water body;
- The site is not located adjacent to a provincial park or adjacent to an area of natural significance or a wetland area and based on this, it is not anticipated to provide a habitat of endangered or threatened species identified by the Ministry of Natural Resources;
- The site and neighbouring properties are serviced municipally for water and wastewater and do not derive their drinking water from groundwater;
- The site is not an area reserved or set apart as a provincial park or conservation reserve under the Provincial Parks and Conservation Reserves Act, 2006;
- The site is not 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 a wetland identified by the Ministry of Natural Resources as having provincial significance;
- The site is not 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 is not 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 is not an area identified by the Ministry of Natural Resources as significant habitat of a threatened or endangered species;
- The site is not 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 is not a 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 is not an area set apart as a wilderness area under the Wilderness Areas Act;
- Bedrock was not encountered within 2 m of the ground surface;
- The pH of the soils was within the acceptable range of 5 to 9.

In summary, the Phase Two Property is currently used for commercial and residential (mixed use) purposes and it is proposed that the site will be redeveloped for residential use in the future. The standards for a residential/parkland/institutional (RPI) property use in a non-potable groundwater condition with coarse grained soils, as contained in the 2011 Table 3 (RPI) Standards were used to evaluate the environmental quality of the soil and groundwater at the Phase Two Property.

The use of MOE Table 3 non-potable groundwater standards are assumed, as potable water for the City is supplied by the City of Ottawa from the Ottawa River. The use of the non-potable groundwater standards will require approval from the municipality. A notice has been sent to the City of Ottawa Clerk



of the intent to apply non-potable groundwater standards to the subject site. A response has not yet been received.

### **3. BACKGROUND INFORMATION**

#### **3.(i) PHYSICAL SETTING**

According to Ontario Base Map – Topographic Map website, published by First Base Solutions Geospatial Experts, the Phase One Property is relatively flat. Surface elevations range between 60 to 70 meters above sea level (masl). The Rideau River is located approximately 0.4 km east of the Phase Two Property and the Ottawa River is located approximately 2 km west of the Phase Two Property. A copy of this topographic map can be found in **Appendix E**.

According to bedrock maps provided by the OGS Earth website, published by the Ontario Ministry of Northern Development, Mines and Forestry, bedrock in the area of the Phase Two Property is of the Georgian Bay Formation, and generally consists of shale, limestone, dolostone or siltstone. According to the Ontario Base Map, the depth to bedrock at the Phase Two Property is approximately 15 to 20 m.

According to surficial geology maps provided by the OGS Earth website, published by the Ontario Ministry of Northern Development, Mines and Forestry, surficial soils on the Phase Two Property consist of silt and clay deposit with minor sand and gravel, Glaciomarine Deposits.

According to physiography maps provided by the OGS Earth website, published by the Ontario Ministry of Northern Development, Mines and Forestry, the Phase Two Property is situated within the Limestone Plains.

According to the Greenbelt Plan 2005 provided by Ontario Ministry of Municipal Affairs and Housing the Phase Two Property and Phase Two Study Area is not located within the Niagara Escarpment area or the Ontario Green Belt area.

#### **3.(ii) PAST INVESTIGATIONS**

The following report was completed by SPL prior to the Phase Two ESA investigation:

*Phase One Environmental Site Assessment, 541 and 545 Rideau Street, Ottawa, Ontario. Prepared for Codeau Building Ltd by SPL Consultants Limited, dated November 19, 2013.*

The Phase One ESA was completed in accordance with the requirements of O.Reg. 153/04, as amended. The purpose of the Phase One ESA was to identify the presence or absence of potentially contaminating activities within the Phase One Study Area.

Potentially contaminating activities within the Phase One Property and study area are as follows:

##### ***Phase One Property***

- Possible use of fill material on the Phase One Property (low to moderate environmental concern).
- Salt/ de-icing activities on adjoining municipal roadways and in the parking areas located on the Phase One Property (low to moderate environmental concern).

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### **Phase One Study Area**

- Former gasoline and associated products in fixed tanks on neighbouring properties to the north, east and west (low to moderate environmental concern)
- Historical automotive garages on neighbouring properties to the north, east and west of the Phase One Property (moderate environmental concern)
- Historical dry cleaners on two west neighboring properties (moderate environmental concern)
- East and west neighboring properties were registered for generation, use and/or storage of hazardous wastes including petroleum distillates, photoprocessing waste and pathological waste. (moderate environmental concern)

Based on the above-noted items, a Phase Two ESA was recommended to evaluate the environmental quality of the soil and groundwater on the Phase One Property. A discussion of the Phase One ESA Conceptual Site Model is presented in **Section 4(iii)**.

## **4. SCOPE OF THE INVESTIGATION**

### **4.(i) OVERVIEW OF SITE INVESTIGATION**

The objective of this Phase Two ESA was to evaluate the environmental condition of the soil and groundwater on the Phase Two Property. The site investigation completed as part of this Phase Two ESA included the following:

- i. requested public and private utility providers to locate and mark the locations of the underground services at the ESA property;
- ii. advanced three (3) boreholes to approximately 8 to 10 metres below ground surface and two (2) boreholes to approximately 22 to 25 metres below ground surface;
- iii. completed headspace combustible vapour readings on the soil samples retrieved during this investigation;
- iv. installed three (3) shallow monitoring wells at approximately 7.5 mbgs, and two (2) deep monitoring wells at 18 to 22 mbgs in the boreholes to evaluate groundwater quality;
- v. obtained soil samples at frequent depth intervals from each of the boreholes;
- vi. obtained groundwater samples and groundwater level measurements from monitoring wells installed on the Phase Two Property during this investigation;
- vii. conducted chemical analyses on representative soil and groundwater samples; and
- viii. prepared a report summarizing the results of the investigation.

The site investigation was conducted in accordance with the Sampling & Analysis Plan presented in **Appendix B**.

#### 4.(ii) MEDIA INVESTIGATED

The objective of the Phase Two ESA was to evaluate the environmental condition of the soil and groundwater at the Phase Two Property. Sediment was not present as defined in O.Reg. 153/04, as amended at the Phase Two Property and therefore was not sampled as part of this investigation.

Soil was investigated during the SPL investigation by completing five (5) boreholes. Representative soil samples were retrieved at regular intervals with a 50 mm O.D. split-barrel sampler driven with a hammer weighing 624 N and dropping 760 mm.

Shallow (7.5 mbgs) monitoring wells were installed in three (3) of the borehole locations, and deep (18 to 22 mbgs) monitoring wells were installed in two (2) borehole locations for the purpose of monitoring groundwater elevations and collecting representative groundwater samples. Groundwater elevations were recorded, and representative groundwater samples were collected at all monitoring well locations.

#### 4.(iii) PHASE ONE CONCEPTUAL SITE MODEL

A Phase One ESA in accordance with O.Reg. 153/04, as amended was conducted prior to the Phase Two ESA investigation.

Based on the potentially contaminating activities that were identified within the Phase One Study Area the following areas of potential environmental concern were established. The contaminants of potential concern were determined based on materials that are likely to be present as a result of these activities.

**TABLE OF AREAS OF POTENTIAL ENVIRONMENTAL CONCERN**  
(Refer to clause 16(2)(a), Schedule D, O.Reg. 153/04, as amended)

| Area of Potential Environmental Concern (APEC) | Location of APEC on the Phase One Property | Potentially Contaminating Activities <sup>1</sup>   | Location of PCA (on- or off-site) | Contaminant of Potential Concern  | Media Potentially Impacted |
|--|--|---|-----------------------------------|-----------------------------------|----------------------------|
| Phase One Property                             | Entire area of the Phase One Property      | Importation of fill of unknown quality  | On-site                           | Metals and Inorganics<br>PAHs     | Soil<br>Groundwater        |
|  |  | Possible Former Fuel Storage on the property  | On-site                           | PHCs                              | Soil<br>Groundwater        |
|  |  | De-icing salts  | On-site                           | EC & SAR                          | Soil<br>Groundwater        |
| East and West Neighbouring Properties          | Entire area of the Phase One Property      | Hazardous waste generation, use, and/or storage   | Off-site                          | PHCs, VOCs, Metals and Inorganics | Soil<br>Groundwater        |
| North, East, and West Neighbouring Properties  | Entire area of the Phase One Property      | Previous gasoline and associated products storage in fixed tanks on neighboring properties to the north, east and west. | Off-site                          | PHCs<br>VOCs                      | Soil<br>Groundwater        |

**TABLE OF AREAS OF POTENTIAL ENVIRONMENTAL CONCERN**  
(Refer to clause 16(2)(a), Schedule D, O.Reg. 153/04, as amended)

| Area of Potential Environmental Concern (APEC) | Location of APEC on the Phase One Property | Potentially Contaminating Activities <sup>1</sup>  | Location of PCA (on- or off-site) | Contaminant of Potential Concern | Media Potentially Impacted |
|--|--|--|-----------------------------------|----------------------------------|----------------------------|
| Northeast and west Neighbouring Properties     | Entire area of the Phase One Property      | Historical automotive garages located to the north east and west of the Phase One Property | Off-site                          | PHCs<br>VOCs                     | Soil<br>Groundwater        |
| West Neighbouring Properties                   | Entire area of the Phase One Property      | Historical dry cleaners located to the west of the Phase One Property                      | Off-Site                          | VOCs                             | Soil and Groundwater       |

**NOTES:**

1. APEC = Area of Potential Environmental Concern
2. PHC = Petroleum Hydrocarbons
3. VOC = Volatile Organic Compounds
4. PAH= Polycyclic aromatic hydrocarbons
5. M&I = Metals and Inorganics
6. EC = Electrical Conductivity
7. SAR = Sodium Absorption Ratio

The potentially contaminating activities were determined through the site reconnaissance as well as a review of the Fire Insurance Plans and City Directories. Contaminants of potential concern as a result of these activities include; petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAH), and metals and inorganics.

Based on topographical maps the groundwater flow direction is expected to be in a southeast direction towards Rideau River. Groundwater levels may be influenced by subsurface utility trenching. Groundwater flow direction can only be confirmed with longer term monitoring. According to the Ontario Base Map the Phase One Property surface elevations range between 60 to 70 masl. The depth to bedrock on the Phase One Property is approximately 15 to 20 mbgs on the Phase One Property based on the Ontario Base Map – Topographic Map website, published by First Base Solutions Geospatial Experts.

Information used in the report was evaluated based on proximity to the Phase One Property, anticipated direction of local groundwater flow, and the potential environmental impact on the Phase One Property as a result of or the use or activity

The Phase One Conceptual Site Model is shown in **Drawing 1**. Water wells which are located within the Phase One Study area, as identified by the Ministry of the Environment are depicted along with properties within the Phase One Study Area which have been identified as Hazardous Waste Generators, former dry cleaners, former automotive garages, former waste disposal sites or properties which contained former underground storage tanks (USTs).

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#### **4.(iv) DEVIATIONS FROM SAMPLING AND ANALYSIS PLAN**

The program completed in the ESA was conducted in general accordance with the sampling and analysis plan completed for the investigation with no deviations. A copy of the sampling and analysis plan has been provided in **Appendix B**.

#### **4.(v) IMPEDIMENTS**

Physical impediments encountered during the investigation included underground utilities present on the Phase Two Property. Boreholes could not be advanced in areas where underground utilities are present or beneath the existing building.

Soil data was collected across the Phase Two Property, however due to the soil and groundwater conditions encountered on the site it was not possible to collect sufficient groundwater from all monitoring wells installed on the Phase Two Property. Groundwater samples were collected from one (1) shallow monitoring well and one (1) deep monitoring well only. Additional groundwater sampling is recommended, when sufficient groundwater is available, to fully document the environmental condition of groundwater on the Phase Two Property. This additional data will then allow for a revised Phase Two ESA report to be issued.

### **5. INVESTIGATION METHOD**

#### **5.(i) GENERAL**

All methods used to complete this ESA were in general accordance with O.Reg. 153/04, as amended, SPL standard operating procedures and generally accepted industry practices. The ESA was completed in accordance with the Sampling and Analysis Plan presented in **Appendix B**.

#### **5.(ii) DRILLING AND EXCAVATING**

Following the clearance of public and private utility locates, boreholes were advanced under the supervision of SPL on November 5, 13, and 14, 2013. Below is a summary of the dates of drilling, equipment used, drilling subcontractor and sample frequency.

| <b>Borehole Numbers</b>           | <b>Date</b>              | <b>Equipment</b>   | <b>Subcontractor</b>                   | <b>Sample Frequency</b>   |
|-----------------------------------|--------------------------|--|--|---|
| BH13-5                            | November 5, 2013         | 50 mm O.D. split barrel sampler driven with a hammer weighing 624 N and dropping 760 mm. | George Downing Estate Drilling Limited | Every 0.6 m per 0.8 m for the first 3.6 m followed by 0.6 m per 1.5 m to the termination of the borehole. |
| BH13-1, BH13-2, BH13-3 and BH13-4 | November 13 and 14, 2013 | 50 mm O.D. split barrel sampler driven with a hammer weighing 624 N and dropping 760 mm. | George Downing Estate Drilling Limited | Every 0.6 m per 0.8 m for the first 3.6 m followed by 0.6 m per 1.5 m to the termination of the borehole. |

The boreholes were advanced with a CME 75 truck mounted drilling unit equipped with hollow stem augers, supplied and operated by George Downing Estate Drilling Limited of Hawkesbury, Ontario.

The fieldwork was observed and documented throughout by an SPL engineering staff who directed the drilling and sampling procedure, documented the soil stratigraphy, measured headspace readings, and cared for the recovered soil samples. Description of the measures taken to minimize the potential for cross contamination is discussed in **Section 5.(iii)**.

Borehole locations were chosen based on the areas of potential environmental concern identified in the Phase One ESA and to provide representative site coverage. The locations of the boreholes advanced during this investigation are shown on **Drawing 2**. The borehole logs are included in **Appendix C**.

#### **5.(iii) SOIL SAMPLING**

Soil samples from the boreholes completed were collected and handled in accordance with generally accepted sampling and handling procedures used by the environmental consulting industry using a 50 mm split spoon sampler. During drilling the split spoon sampler was brushed clean of soil between each sampling event in order to reduce the potential for cross contamination.

In addition to this, new disposable gloves were used during each sampling event to remove the soil from the sampler and to transfer the samples into plastic bags, glass jars and/or vials filled with methanol (prepared by the accredited laboratory) to further minimize the potential for cross-contamination.

In accordance with SPL sampling protocols, soil samples from the boreholes selected for potential chemical analysis of organic parameters were preserved in methanol. Approximately 5 grams of soil was collected using a designated sampler system and placed into a pre-weighed laboratory supplied vial of methanol. As well, a portion of the soil sample was placed directly into a laboratory supplied glass jar. The methanol sample vial and glass sample jars were kept under refrigerated conditions during field storage and transportation to the environmental analytical laboratory.

Soil descriptions were logged in the field, and soil samples were returned to the SPL Consultants Limited laboratory for detailed examination by the project engineer and for laboratory testing. Detailed descriptions of the subsurface conditions at the borehole locations are presented in the respective borehole logs in **Appendix C** and are discussed in **Section 6(i)**.

#### **5.(iv) FIELD SCREENING MEASUREMENTS**

Soil samples were examined in the field for lithology as well as for aesthetic evidence of impacts (i.e. debris, staining and odours). Headspace monitoring was performed on the samples as a preliminary screening for hydrocarbons or volatile organic compounds in order to select soil samples for laboratory analysis. Headspace combustible vapour measurements were taken inside the plastic bags using a MiniRAE Lite, PID (Serial Number: 059-4022-000). The MiniRAE Lite can detect combustible vapours at concentrations ranging from 0.1 to 5000 ppm. The detector has a precision of 3 significant figures and an accuracy of 10 to 2000 ppm;  $\pm 5\%$  at calibration point. The detector is calibrated with two-point field calibration of zero and standard reference gases. Calibration is completed periodically to assure proper sensor response following the calibration procedure outlined in the MiniRAE Lite Instruction Manual.

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#### **5.(v) GROUNDWATER: MONITORING WELL INSTALLATION**

The monitoring wells installed during this investigation were constructed using 50 mm diameter Schedule 40 polyvinyl chloride (PVC) pipe including a screen section with a factory machined slot width of 0.25 mm and completed with a PVC riser pipe. All pipe and screen sections were wrapped in plastic that was removed just prior to installation to minimize the potential for contamination. The base of the monitoring well was covered with a PVC cap to prevent the influx of sediment. Clean silica sand supplied in bags from a supplier, was placed in the annular space between the pipe and the sides of the borehole to obtain relatively sediment free water. A bentonite seal was added to the annular space above the sand pack to reduce the infiltration of surface water into the borehole annulus. The monitoring wells were set with flush mount casings.

The monitoring wells were developed and purged prior to sampling using a low density polyethylene tubing and a foot valve sampling device (Waterra<sup>®</sup>) to remove standing water, filter pack water and to allow for the influx of fresh formation water. In accordance with standard operating procedures, all monitoring wells were purged dry and allowed to recover, or three well volumes were removed prior to stabilization. Stabilization was conducted by monitoring water quality parameters including field pH, conductivity and temperature. These parameters were monitored every half well volume until they had stabilized within 10% difference for three consecutive measurements. Following the purging and stabilization the water level was allowed to recover.

#### **5.(vi) GROUNDWATER: FIELD MEASUREMENT OF WATER QUALITY PARAMETERS**

Field measurements of water quality parameters were not collected during this investigation. A summary of the quality assurance and quality control measures taken during this investigation are discussed in **Section 5.(xii)**.

#### **5.(vii) GROUNDWATER: SAMPLING**

Ground water samples were collected from monitoring wells installed during this investigation on December 3, 2013 and December 13, 2013. As part of the groundwater sampling protocol, dedicated polyvinyl chloride (PVC) bailers were used to remove standing water, filter pack water and to allow for the influx of fresh formation water. The samples were transferred directly from the polyethylene tubing into laboratory supplied glass containers in accordance with groundwater sampling standard operating procedures.

Two (2) monitoring wells were purged and sampled over the course of SPL's investigation. The monitoring wells which were purged and the date the samples were collected are shown in the table below.

**SUMMARY OF MONITORING WELLS SAMPLED DURING THIS PHASE TWO ESA**

| <b>Monitoring Well ID</b>     | <b>Date</b>       |
|-------------------------------|-------------------|
| BH13-2 (MW2)                  | December 3, 2013  |
| BH13-2 (MW2) and BH13-4 (MW4) | December 13, 2013 |



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#### **5.(VIII) SEDIMENT: SAMPLING**

Sediment as defined in O.Reg. 153/04, as amended was not present on the Phase Two Property and as such, no sediment sampling was conducted as part of the Phase Two ESA.

#### **5.(IX) ANALYTICAL TESTING**

The chemical analyses were conducted by AGAT Laboratories located in Mississauga, Ontario. AGAT is a member of the Canadian Association for Laboratory Accreditation (CALA) and meets the requirements of Section 47 of O.Reg. 153/04 (as amended) certifying that the analytical laboratory be accredited in accordance with the International Standard ISO/IEC 17025 and with standards developed by the Standards Council of Canada. Laboratory certificates are presented in **Appendix C**.

#### **5.(x) RESIDUE MANAGEMENT PROCEDURES**

All soil cuttings were removed from the property and all purged groundwater was allowed to re-infiltrate on the property.

#### **5.(xi) ELEVATION SURVEYING**

The surface elevations of the boreholes and monitoring wells were not surveyed as part of this Phase Two ESA investigation.

#### **5.(xii) QUALITY ASSURANCE AND QUALITY CONTROL MEASURES**

Soil and groundwater samples were collected and handled in accordance with generally accepted sampling and handling procedures used by the environmental consulting industry and in accordance with O. Reg. 153/04 (as amended). All sample containers, preservative, and labels were supplied by the laboratory providing sample analysis.

During drilling the split spoon sampler was brushed clean of soil, washed in municipal water containing phosphate free detergent, rinsed in municipal water and then rinsed with distilled water for each sampling interval in order to reduce the potential for cross contamination. In addition to this, new disposable gloves were used during each sampling event to remove the soil from the sampler and to transfer the samples into plastic bags, glass jars and/or vials filled with methanol to further minimize the potential for cross-contamination.

During groundwater sampling, new disposable gloves were used to handle all sampling equipment and samples for each individual sampling location. All non-dedicated equipment was washed in municipal water containing phosphate free detergent, rinsed in municipal water and then rinsed with distilled water. Additionally, well purging and sample collection was conducted in an order from clean to anticipated contaminated monitoring wells to further eliminate the potential for cross-contamination between sample locations.

As part of the quality assurance/quality control program, a blind duplicate sample was analyzed for 10 % of the soil and groundwater samples completed as part of this investigation. The blind duplicate samples completed during this investigation are shown in the following table.

| Sample ID  | Duplicate Sample | Date              | Media       | Parameter Analysed |
|------------|------------------|-------------------|-------------|--------------------|
| BH13-1 SS7 | QA/QC 1          | Nov. 13, 2013     | Soil        | VOC                |
| BH13-2 SS5 | QA/QC 2          | Nov. 14, 2013     | Soil        | VOC                |
| BH13-4     | QA/QC            | December 13, 2013 | Groundwater | VOC                |

NOTES:

1. VOC= Volatile Organic Compounds

## 6. REVIEW AND EVALUATION

### 6.(i) GEOLOGY

The stratigraphy encountered on the property generally consisted of asphalt or topsoil overlying a layer of silty sand above silty clay. The silty sand layer was observed at depths ranging from 0.1 to 3.7 mbgs, above the silty clay layer encountered at depths ranging from 2.7 to 19.8 mbgs. Below the silty sand to silty clay layers, a thin layer of sand and gravel till was observed at depths ranging from 19.8 to 22.5 mbgs, overlying weathered limestone and shale bedrock. Bedrock was encountered in BH13-5, and proven by coring, starting at a depth of approximately 22.1 mbgs.

#### Asphalt Pavement:

Asphalt was encountered at Boreholes BH-3, BH-4 and BH-5, which were drilled in existing parking areas. The asphalt thickness was found to be 20 mm to 25 mm at the borehole locations. In two boreholes (BH-3 and BH-5) the asphalt was underlain by approximately 50 mm of sand and gravel base.

#### Topsoil:

A layer of topsoil approximately 330 mm thick was encountered at Borehole BH-1.

#### Silty Sand:

Underlying the asphalt pavement and topsoil a layer of silty sand was encountered in all of the boreholes drilled at the site. The silty sand layer ranged in thickness from 2.7 m to 3.7 m at the various borehole locations.

#### Silty Clay:

Underlying the silty sand material is layer of sensitive silty clay. This deposit generally consists of interlayered clay, silty clay and silt. For simplicity this deposit is referred to as silty clay (as this is the predominant soil type). The silty clay deposit was encountered in all of the boreholes advanced as part of this investigation.

The uppermost portion of the deposit is generally weathered to form a greyish brown crust which typically exhibits an apparent over-consolidation, generally resulting in improved settlement and strength characteristics as compared to the unweathered silty clay. The lower unweathered silty clay is typically grey in colour and is more lightly over-consolidated, sensitive and usually has a lower undrained shear strength. The weathered zone was found to be relatively thin (typically less than 1.5 m) at the borehole locations, but would be expected to be variable across the site.

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**Till:**

Underlying the silty clay is a thin layer of silt, sand and gravel till. The till was encountered at a depth of 19.8 m below the existing ground surface in Boreholes BH-1 and BH-5 and ranges in thickness from 2.3 m to 2.7 m. The consistency of the till (interpreted based on SPT “N” values) ranged from loose to compact.

**Auger Refusal & Bedrock:**

Boreholes BH-4 and BH-5 met with auger refusal at depths of 22.5 m and 22.1 m, respectively. The rock consists of fresh to moderately weathered limestone and shale.

Detailed descriptions of the subsurface conditions at the borehole locations are presented in the respective borehole logs in **Appendix C**.

**6.(II) GROUND WATER: ELEVATIONS AND FLOW DIRECTION**

During this investigation, a total of five (5) monitoring wells were installed on the Phase Two Property for the purpose of monitoring groundwater elevations and collecting representative groundwater samples, and as part of the Geotechnical investigation conducted in conjunction with this Phase Two ESA.

The length of screen used in all monitoring wells was 3 meters. The monitoring wells were screened in the upper and lower groundwater bearing zones in order to investigate impacts which may be present, as well as to evaluate the presence of free product. All monitoring wells were measured using an interface probe which did not indicate the presence of free phase product.

The groundwater depth below ground surface measured in the upper groundwater zone was measured at 6.6 mbgs on December 13, 2013. Based on the topography of the Phase Two Property and surrounding area, the anticipated direction of groundwater flow is in an easterly direction towards the Rideau River. The anticipated groundwater flow direction is provided in **Drawing 3**. Groundwater elevations were determined by subtracting the depth of the groundwater below ground surface from the estimated ground surface elevation of the Phase Two Property. The monitoring wells were not referenced to a geodetic benchmark. Groundwater levels may be influenced by subsurface utility trenching and can only be confirmed with longer term monitoring.

**6.(III) GROUND WATER: HYDRAULIC GRADIENTS**

The horizontal hydraulic gradient could not be calculated, based on the groundwater levels collected during this investigation from monitoring wells BH13-2 and BH13-4 installed on the Phase Two Property.

**6. (IV) FINE – COARSE SOIL TEXTURE**

Soils analyzed during this investigation were compared to the coarse textured soil conditions as the majority of soils on the Phase Two Property consist of coarse textured soils.

**6. (V) SOIL: FIELD SCREENING**

The results of field screening identified combustible vapour readings ranging from 0.2 to 50.4 ppm. Based on a review of the field screening results the combustible vapour readings are considered to be low to

moderate. A discussion of the method of combustible vapour readings is provided in **Section 5.(iv)**, and combustible vapour readings are included on the borehole logs included in **Appendix C**.

#### 6.(vi) SOIL QUALITY

A summary of the soil samples and the depths of the samples collected and analyzed during this Phase Two ESA are provided in **Table 2**. Summaries of the chemical analyses are provided in **Tables 4, 5, 6 and 7** and are discussed below. **Drawing 4** shows the locations of samples exceeding the applicable Standards. The Certificates of Analysis are included in **Appendix D**.

Soil samples exceeding the MOE Table 3 RPI Standards are summarized in the following table.

**SUMMARY OF CONTAMINANTS IN SOIL**

| Sample     | Parameter               | Depth   | Concentration | MOE Table 3 |
|------------|-------------------------|---------|---------------|-------------|
| BH13-1 SS2 | Sodium Adsorption Ratio | 0.8-1.4 | <b>5.72</b>   | 5           |
| BH13-1 SS4 | Sodium Adsorption Ratio | 2.3-2.9 | <b>11.2</b>   | 5           |
| BH13-3 SS2 | Sodium Adsorption Ratio | 0.8-1.4 | <b>6.91</b>   | 5           |
| BH13-5 SS4 | Electrical Conductivity | 2.3-2.9 | <b>0.713</b>  | 0.7         |

Note:

1. **Bold** = Concentration exceeds MOE Table 3 RPI Standards

The remainder of the results of the analytical testing performed on the soil samples obtained from the boreholes indicated that the concentrations of the parameters analyzed are below the MOE Table 3 RPI Standards or laboratory detection limits (DLs).

As part of the Phase Two ESA, one (1) soil sample was also submitted for a Toxicity Characteristic Leachate Procedure analysis for metals and inorganics and benzo(a)pyrene in accordance with O.Reg. 558, and was also analyzed for bulk testing for pH and flashpoint for the purpose of hazardous waste classification and potential off-site disposals purposes. The results of the analyses indicate that the material represented by the sample met the Schedule 4 Leachate Quality Criteria, and as such can be considered non-hazardous for the purpose of offsite disposal, if required. The Certificate of Analysis for the TCLP analysis is included in **Appendix D**.

#### 6.(vii) GROUND WATER QUALITY

A summary of the groundwater samples collected and analyzed during this Phase Two ESA is provided in **Table 3**. Summaries of the chemical analyses are provided in **Tables 8, 9, 10, 11 and 12** and are discussed below. The Certificates of Analysis are included in **Appendix D**.

Due to the soil and groundwater condition encountered on the site, it was not possible to collect sufficient groundwater for sampling from all monitoring wells installed on the Phase Two Property. Groundwater samples were collected from one (1) shallow monitoring well and one (1) deep monitoring well and submitted for analysis of metals and inorganics, VOCs, PHCs, PAHs and PCBs. Additional groundwater sampling is recommended, when sufficient groundwater is available, to fully understand the environmental condition of groundwater on the Phase Two Property.

The results of the analytical testing performed on the groundwater samples obtained from the monitoring wells indicated that the concentrations of the parameters analyzed are below the MOE Table 3 Standards or laboratory detection limits (DLs).

No free product, hydrocarbon odour or sheen was noted in the groundwater purged during well development of the monitoring wells on the Phase Two Property.

#### **6.(VIII) SEDIMENT QUALITY**

No sediment as defined in O.Reg. 153/04, as amended is present on the Phase Two Property and as such no sediment samples were submitted as part of this Phase Two ESA investigation.

#### **6. (IX) QUALITY ASSURANCE AND QUALITY CONTROL RESULTS**

As part of the quality assurance/quality control program, a blind duplicate sample was analyzed for 10 % of the soil and groundwater samples completed as part of this investigation. The blind duplicate samples completed during this investigation are shown in the table below.

| <b>Sample ID</b> | <b>Duplicate Sample ID</b> | <b>Date</b>   | <b>Media</b> | <b>Parameter Analysed</b> |
|------------------|----------------------------|---------------|--------------|---------------------------|
| BH13-1 SS7       | QA/QC 1                    | Nov. 13, 2013 | Soil         | VOC                       |
| BH13-2 SS5       | QA/QC 2                    | Nov. 14, 2013 | Soil         | VOC                       |
| BH13-4           | QA/QC                      | Dec.13, 2013  | Groundwater  | VOC                       |

NOTES:

1. VOC= Volatile Organic Compounds

The data quality objectives for the soil and groundwater samples collected and analyzed as part of this Phase Two ESA were complete in accordance with the sampling and analysis plan and within the acceptable level of uncertainty. All soil and ground water samples were collected and handled in accordance with SPL Standard Operating Procedures and generally accepted industry standards. Laboratory analyses were completed by a third party laboratory in accordance with Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act dated March 9, 2004, amended as of July 1, 2011. Laboratory analysis and associated analytical methods met the minimum detection limits that are less than the applicable MOE Standards. No data qualifiers were provided in laboratory analysis to such a level as to affect the ability to meet the data quality objectives. Chemical results indicated an acceptable correlation between the original sample and the duplicate sample.

All laboratory analysis completed in this ESA were completed by a CALA accredited laboratory and SPL confirms that;

- All certificates of analysis or analytical reports received pursuant to clause 47(2) (b) of the regulation comply with subsection 47 (3);
- A certificate of analysis or analytical report has been received for each sample submitted for analysis and;
- All certificates of analysis or analytical reports received have been included in full in **Appendix D**.

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## **6.(x) PHASE TWO CONCEPTUAL SITE MODEL**

The area under assessment, the Phase Two Property, is an irregular shaped land parcel with an area of approximately 0.16 hectares (0.38 acres), located on the north side of Rideau Street, at the northeast corner of the intersection Rideau Street and Cobourg Street, in the City of Ottawa, Ontario. The Phase Two Property is currently occupied by a three storey mixed use (former commercial and residential) building; the remaining portions of the property are asphalt covered parking areas.

As a result of this investigation the following areas of potential concern were determined to exist on the Phase One Property:

- On the Phase One Property as a result of possible use of fill material on the Phase One Property.
- On the Phase One Property as a result of salt/ de-icing activities on adjoining municipal roadways and in the parking areas located on the Phase One Property.
- On the north, east and west portions of the Phase One Property as a result of former gasoline and associated products in fixed tanks on neighbouring properties to the north, east and west.
- On the north, east and west portions of the Phase One Property as a result of historical automotive garages on neighbouring properties to the north, east and west of the Phase One Property.
- On the west portion of the Phase One Property as a result of historical dry cleaners on two west neighboring properties.
- On the east and west portions of the Phase One Property as a result of east and west neighboring properties which were registered for generation, use and/or storage of hazardous wastes including petroleum distillates, photoprocessing waste and pathological waste.

The potentially contaminating activities were determined through the site reconnaissance as well as a review of the Fire Insurance Plans and City Directories. Contaminants of potential concern as a result of these activities include; petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAH), and metals and inorganics.

Based on geographical and topographical maps, the groundwater flow direction in the area of the Phase Two Property is expected to be in an easterly direction towards the Rideau River. Groundwater levels may be influenced by subsurface utility trenching. Groundwater flow direction can only be confirmed with longer term monitoring.

Information used in this report was evaluated based on proximity to the Phase Two Property, anticipated direction of local groundwater flow, and the potential environmental impact on the Phase Two Property as a result of or the use or activity.

The Phase Two Conceptual Model consists of this text and the following drawings:

### ***Drawing 1 – Phase One Conceptual Site Model***

Summary of the MOE Water Wells and potentially contaminating activities within the Phase One Study Area identified during the Phase One ESA.

### ***Drawing 2 – Borehole and Monitoring Well Location Plan and Location of Cross-Sections***

Depiction of boreholes and monitoring wells completed as part of the Phase Two ESA, and location of cross-sections provided in **Drawings 5 and 6**.

***Drawing 3 – Summary of Contaminants in Soil***

Summary of contaminants identified in soil on the Phase Two Property.

***Drawing 4 – Anticipated Groundwater Flow Direction***

Depiction of groundwater elevations measured on December 13, 2013 and the anticipated direction of groundwater flow on the Phase Two Property based on the topography of the Phase Two Property.

***Drawing 5 and 6 – Cross-Sections***

Interpretation of the stratigraphy encountered during the Phase Two ESA.

The findings of the Phase Two ESA indicate that the stratigraphy encountered on the property generally consisted of asphalt or topsoil overlying a layer of silty sand to silty clay. The silty sand layer was observed at depths ranging from 0.1 to 3.7 mbgs, above the silty clay layer encountered at depths ranging from 2.7 to 19.8 mbgs. Below the silty sand to silty clay layers, a thin layer of sand and gravel till was observed at depths ranging from 19.8 to 22.5 mbgs, overlying weathered limestone and shale bedrock. Bedrock was encountered in BH13-5, and proven by coring, starting at a depth of approximately 22.1 mbgs.

Groundwater levels measured on December 13, 2013, identified groundwater levels in the upper groundwater zone at a depth 6.6 mbgs. Based on the topography of the Phase Two Property the groundwater flow direction is anticipated to be in an easterly direction towards the Rideau River. Groundwater levels may be influenced by subsurface utility trenching, and groundwater flow direction can only be confirmed with longer term monitoring.

Analyses conducted on soil and groundwater samples collected on the Phase Two Property were compared to the Full Depth Generic Site Condition Standards in a non-potable groundwater condition with coarse textured soils and a residential/parkland/intuitional (RPI) property use, as contained in Table 3 of the “Soil, Sediment and Ground Water Standards for Use Under Part XV.1 of the *Environmental Protection Act*” published by the Ministry of the Environment on April 15, 2011 (the MOE Table 3 RPI Standards).

The use of MOE Table 3 non-potable groundwater standards are assumed, as potable water for the City is supplied by the City of Ottawa from the Ottawa River. The use of the non-potable groundwater standards will require approval from the municipality. A notice has been sent to the City of Ottawa Clerk of the intent to apply non-potable groundwater standards to the subject site. A response has not yet been received.

Chemical analyses were conducted by AGAT Laboratories located in Mississauga, Ontario. AGAT is a member of the Canadian Association for Laboratory Accreditation (CALA) and meets the requirements of Section 47 of O.Reg. 153/04, as amended, certifying that the analytical laboratory be accredited in accordance with the International Standard ISO/IEC 17025 and with standards developed by the Standards Council of Canada.



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During this Phase Two ESA, soil samples were collected and submitted for analysis of metals and inorganics, VOCs, PHCs, and PAHs. The results of the analyses indicate the following;

- Soil impacts greater than the MOE Table 3 RPI Standards for electrical conductivity or sodium adsorption ratio were identified in the upper native material across the Phase Two Property at depths ranging from 0.8 to 2.9 mbgs.

The locations and depths of contaminants identified in soil on the Phase Two Property are depicted in **Drawing 4**.

Due to the soil and groundwater conditions encountered on the site, it was not possible to collect sufficient groundwater from all monitoring wells installed on the Phase Two Property. Groundwater samples were collected from one (1) shallow monitoring well and one (1) deep monitoring well and submitted for analysis of metals and inorganics, VOCs, PHCs, PAHs and PCBs. Additional groundwater sampling is recommended, when sufficient groundwater is available, to fully document the environmental condition of groundwater on the Phase Two Property.

The results of the analytical testing performed on the groundwater samples obtained from the monitoring wells indicated that the concentrations of the parameters analyzed are below the MOE Table 3 Standards or laboratory detection limits (DLs). No free product, hydrocarbon odour or sheen was noted in the groundwater purged during well development of the monitoring wells on the Phase Two Property.

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## 7. CONCLUSIONS

Based on field observations and the results of soil and groundwater analyses, SPL provides the following findings:

1. The findings of the Phase Two ESA indicate that the stratigraphy encountered on the property generally consisted of asphalt or topsoil overlying a layer of silty sand to silty clay. The silty sand layer was observed at depths ranging from 0.1 to 3.7 mbgs, above the silty clay layer encountered at depths ranging from 2.7 to 19.8 mbgs. Below the silty sand to silty clay layers, a thin layer of sand and gravel till was observed at depths ranging from 19.8 to 22.5 mbgs, overlying weathered limestone and shale bedrock. Bedrock was encountered in BH13-5, and proven by coring, starting at a depth of approximately 22.1 mbgs.
2. Groundwater levels measured in the upper groundwater zone, were measured at a depth of 6.6 mbgs on December 13, 2013. Based on the topography of the Phase Two Property, the groundwater flow direction is anticipated to be in an easterly direction towards the Rideau River. Groundwater levels may be influenced by subsurface utility trenching.
3. Soil analytical results indicated that four (4) soil samples, collected at depths ranging from 0.8 to 2.9 mbgs, did not meet the MOE Table 3 RPI Standards for electrical conductivity or sodium adsorption ratio.
4. The remaining soil samples submitted for VOCs, PHCs, PAHs and metals and inorganics met the MOE Table 3 RPI Standards for the parameters analyzed.
5. Due to the soil and groundwater conditions encountered on the site, it was not possible to collect sufficient groundwater from all monitoring wells installed on the Phase Two Property. Groundwater samples were collected from one (1) shallow monitoring well and one (1) deep monitoring well and submitted for analysis of metals and inorganics, VOCs, PHCs, PAHs and PCBs. The results of the groundwater analyses indicate that the samples met the applicable MOE 2011 Table 3 Standards for the parameters analyzed.

Based on the findings, SPL provides the following conclusions/recommendations:

- No soil or groundwater impacts from the neighbouring fuel storage or dry cleaning activities were identified during the investigative program on the subject site.
- Electrical Conductivity and Sodium Adsorption Ratio impacts in soil were identified within the upper fill and native material across the Phase Two Property at depths ranging from 0.8 to 2.9 mbgs. Depths of impacts are expected to vary, however are generally expected within the upper 3.0 meters. Excavation and off-site disposal of EC and SAR impacted material, followed by confirmatory sampling will be required to document remediation activities, and support a Record of Site Condition (RSC) filing.
- Additional disposal fees may be incurred given the de-icing salt impacts identified in the upper fill and native soils on the Phase Two Property. The results of the toxicity characteristic leachate procedure (TCLP) analysis for metals and inorganics, benzo(a)pyrene, pH and flashpoint, in

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accordance with O.Reg. 558, indicate that the material onsite can be considered non-hazardous waste for the purpose of off-site disposal, if required.

- Additional groundwater sampling is recommended when sufficient groundwater is available, to fully document the environmental condition of groundwater on the Phase Two Property. This additional data will then allow a revised Phase Two ESA report to be issued.
- All monitoring wells should be decommissioned in accordance with Ontario Regulation 903 when no longer required.

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## **8. LIMITATIONS**

The findings of the boreholes are believed to be representative of the area of investigation and are based on facts and information determined by SPL during the execution of this project. Soil and/or groundwater conditions at locations other than the boreholes may vary from conditions encountered at the drilling locations. The findings in this report are limited to the environmental conditions on the site at the time of the investigation.

This report was prepared for the account of the Codeau Building Ltd. The material in this report reflects SPL's judgment in light of the information available to it at the time of preparation. Any use, which a Third Party not noted above makes of this report, or any reliance on decisions to be made based on it, are the responsibility of such Third Parties. SPL Consultants Limited accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

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## 9. QUALIFICATIONS OF THE CONSULTANT

This report was conducted under the supervision of Dave Lewis who is considered a Qualified Person with the Ministry of the Environment as defined under Ontario Regulation 153. Dave has reviewed and confirmed the findings and conclusions of this report.

The company SPL Consultants Limited (SPL) was incorporated in Ontario in April 2009. The firm consists of over 180 Engineers, Professional Geoscientists, Hydrogeologists, and Technicians in 4 offices located in Vaughan, Cambridge, Markham and Ottawa. The principals and the team members bring many years of experience in geotechnical, pavement and environmental fields.

Melissa Clement is a Project Manager with SPL. Melissa has a Bachelors of Science in Environmental Science from the University of Guelph and a post-graduate diploma in Environmental Engineering Applications from Conestoga College and has conducted Phase One and Two Environmental Site Assessments since 2010.

David Lewis, P.Eng. is a Principal Engineer with SPL and has a Bachelors Degree in Engineering and is a recognized Professional Engineer in Ontario. David has conducted and managed hundreds of environmental investigations including Phase One ESA's, Phase Two ESA's and Remediation work with the Federal Government at various sites across Ontario.

### **SPL Consultants Limited**



**Melissa Clement B.Sc. (Env)**  
**Project Manager**



**David Lewis, P.Eng.**  
**Principal Engineer**

MC;dl

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## 10. REFERENCES

*Ontario Regulation 153/04 made under the Environmental Protection Act, July 1, 2011*

*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, July 1, 2011*

*Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario, prepared by the Standards Development Branch, Ontario Ministry of the Environment, dated April 15, 2011*

## TABLES



**Table 1: Monitoring Well Installation & Water Levels**

| Monitoring Well | Ground Surface Elevation (masl) | Monitoring Well Depth (mbgs) | 18-Nov-13                   |                              | 03-Dec-13                   |                              | 13-Dec-13                   |                              |
|-----------------|---------------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|------------------------------|-----------------------------|------------------------------|
|                 |                                 |                              | Depth to Groundwater (mbgs) | Groundwater Elevation (masl) | Depth to Groundwater (mbgs) | Groundwater Elevation (masl) | Depth to Groundwater (mbgs) | Groundwater Elevation (masl) |
| BH13-1          | 70                              | 7.3                          | dry                         | -                            | dry                         | -                            | dry                         | -                            |
| BH13-2          | 70                              | 7.3                          | dry                         | -                            | 7.03                        | 62.97                        | 6.63                        | 63.4                         |
| BH13-3          | 70                              | 7.4                          | dry                         | -                            | dry                         | -                            | dry                         | -                            |
| BH13-4          | 70                              | 22.3                         | 20.57                       | 47.7                         | 21.00                       | 49.00                        | 20.57                       | 49.4                         |
| BH13-5          | 70                              | 18.2                         | 17.59                       | 51.8                         | 18.01                       | 51.99                        | dry                         | -                            |

\*For Table Notes see Notes included at the end of this Section

**Table 2: Summary of Soil Samples Submitted for Chemical Analysis**

| Location/<br>Borehole | Sample<br>No. | Depth   | Date      | Chemical Analysis |            |     |     |     | Rationale  |
|-----------------------|---------------|---------|-----------|-------------------|------------|-----|-----|-----|--|
|                       |               |         |           | M&I               | EC/<br>SAR | PAH | PHC | VOC |  |
| BH13-1                | SS1B          | 0.3-0.6 | 13-Nov-13 |                   |            | ✓   |     |     | Representative of upper native material                              |
|                       | SS2           | 0.8-1.4 | 13-Nov-13 | ✓                 |            |     |     |     | Representative of upper native material                              |
|                       | SS4           | 2.3-2.6 | 13-Nov-13 |                   | ✓          |     |     |     | Representative of lower native material; depth delineation           |
|                       | SS5           | 3.1-3.7 | 13-Nov-13 |                   |            |     | ✓   | ✓   | Representative of native material with high headspace (50 ppm)       |
|                       | SS7           | 6.1-6.7 | 13-Nov-13 |                   |            |     | ✓   | ✓   | Representative of native material within expected water bearing zone |
| BH13-2                | SS1B          | 0.3-0.6 | 14-Nov-13 | ✓                 |            |     |     |     | Representative of upper native material                              |
|                       | SS3           | 1.5-2.1 | 14-Nov-13 |                   |            | ✓   |     |     | Representative of upper native material                              |
|                       | SS5           | 3.1-3.7 | 14-Nov-13 |                   |            |     | ✓   | ✓   | Representative of native material within expected water bearing zone |
|                       | SS6           | 4.6-5.2 | 14-Nov-13 |                   |            |     |     | ✓   | Representative of native material within expected water bearing zone |
| BH13-3                | SS2           | 0.8-1.4 | 13-Nov-13 | ✓                 |            |     |     |     | Representative of upper native material                              |
|                       | SS3           | 1.5-2.1 | 13-Nov-13 |                   | ✓          |     |     |     | Representative of upper native material; depth delineation           |
|                       | SS4           | 2.3-2.9 | 13-Nov-13 |                   |            |     | ✓   | ✓   | Representative of native material within expected water bearing zone |
|                       | SS7           | 6.1-6.7 | 13-Nov-13 |                   |            |     |     | ✓   | Representative of native material within expected water bearing zone |
| BH13-4                | SS1           | 0-0.6   | 13-Nov-13 |                   | ✓          |     |     |     | Representative of upper native material                              |
|                       | SS2           | 0.8-1.4 | 13-Nov-13 |                   |            | ✓   |     |     | Representative of upper native material                              |
|                       | SS3           | 1.5-2.1 | 13-Nov-13 | ✓                 |            |     |     |     | Representative of upper native material; depth delineation           |
|                       | SS4           | 2.3-2.9 | 13-Nov-13 |                   |            |     | ✓   | ✓   | Representative of native material within expected water bearing zone |
|                       | SS7           | 4.6-5.2 | 13-Nov-13 |                   |            |     |     | ✓   | Representative of native material within expected water bearing zone |
| BH13-5                | SS2           | 0.8-1.4 | 05-Nov-13 | ✓                 |            |     |     |     | Representative of upper native material                              |
|                       | SS3           | 1.5-2.1 | 05-Nov-13 |                   |            | ✓   |     |     | Representative of native material within expected water bearing zone |
|                       | SS4           | 2.3-2.9 | 05-Nov-13 |                   | ✓          |     |     |     | Representative of upper native material; depth delineation           |
| QA//QC                | QA/QC1        | -       | 13-Nov-13 |                   |            |     |     | ✓   | Blind duplicate of soil sample BH13-1 SS7                            |
|                       | QA/QC2        | -       | 14-Nov-13 |                   |            |     |     | ✓   | Blind duplicate of soil sample BH13-2 SS5                            |

\*For Table Notes see Notes included at the end of this Section

**Table 3: Summary of Groundwater Samples Submitted for Chemical Analysis**

| Borehole | Date      | Screened Interval |   |      | Chemical Analyses |      |     |     |      | Rationale                        |
|----------|-----------|-------------------|---|------|-------------------|------|-----|-----|------|----------------------------------|
|          |           |                   |   |      | M&I               | PHCs | PCB | PAH | VOCs |                                  |
| BH13-2   | 03-Dec-13 | 4.2               | - | 7.3  | -                 | -    | -   | ✓   | ✓    | Representative of groundwater    |
| BH13-2   | 13-Dec-13 | 4.2               | - | 7.3  | ✓                 | ✓    | ✓   | ✓   | ✓    | Blind duplicate of BH13-6S       |
| BH13-4   | 13-Dec-13 | 18.6              | - | 19.2 | ✓                 | ✓    | ✓   | ✓   | ✓    | Blind duplicate of BH13-8        |
| QA/QC    | 13-Dec-13 | -                 | - | -    | -                 | -    | -   | -   | ✓    | Blind duplicate sample of BH13-4 |

\*For Table Notes see Notes included at the end of this Section

**Table 4: Summary of Metals and Inorganics in Soil**

| Parameter                            | 2011 MOE<br>Table 3 RPI<br>Coarse<br>Grained Soil | BH13-1 SS2  | BH13-2<br>SS1B | BH13-3 SS2  | BH13-4 SS3 | BH13-5 SS2 | BH13-1 SS4  |
|--------------------------------------|---|-------------|----------------|-------------|------------|------------|-------------|
| Date of Collection                   |   | 11/13/2013  | 11/13/2013     | 11/12/2013  | 11/14/2013 | 11/05/2013 | 11/13/2013  |
| Date of Analysis                     |   | 11/18/2013  | 11/18/2013     | 11/18/2013  | 11/18/2013 | 11/18/2013 | 11/18/2013  |
| Sampling Depth (m)                   |   | 0.8-1.4     | 0.3-0.6        | 0.8-1.4     | 1.5-2.1    | 0.8-1.4    | 2.3-2.6     |
| Analytical Report Reference No.      |   | 13Z784392   | 13Z784392      | 13Z784392   | 13Z784392  | 13Z784392  | 13Z784392   |
| Antimony                             | 7.5   | <0.8        | <0.8           | <0.8        | <0.8       | <0.8       | -           |
| Arsenic                              | 18  | 2           | 4              | 2           | <1         | <1         | -           |
| Barium                               | 390   | 64          | 102            | 33          | 49         | 19         | -           |
| Beryllium                            | 4   | <0.5        | <0.5           | <0.5        | <0.5       | <0.5       | -           |
| Boron                                | 120   | <5          | <5             | <5          | <5         | <5         | -           |
| Boron (Hot Water Soluble)            | 1.5   | 0.22        | 0.53           | 0.77        | 0.14       | <0.10      | -           |
| Cadmium                              | 1.2   | <0.5        | <0.5           | <0.5        | <0.5       | <0.5       | -           |
| Chromium                             | 160   | 19          | 15             | 10          | 18         | 8          | -           |
| Cobalt                               | 22  | 4.7         | 3.6            | 2.8         | 4.2        | 2.5        | -           |
| Copper                               | 140   | 13          | 16             | 6           | 10         | 3          | -           |
| Lead                                 | 120   | 36          | 94             | 53          | 2          | 1          | -           |
| Molybdenum                           | 6.9   | 0.6         | 1              | <0.5        | <0.5       | <0.5       | -           |
| Nickel                               | 100   | 12          | 10             | 7           | 11         | 7          | -           |
| Selenium                             | 2.4   | <0.4        | 0.5            | <0.4        | <0.4       | <0.4       | -           |
| Silver                               | 20  | <0.2        | <0.2           | <0.2        | <0.2       | <0.2       | -           |
| Thallium                             | 1   | <0.4        | <0.4           | <0.4        | <0.4       | <0.4       | -           |
| Uranium                              | 23  | <0.5        | <0.5           | <0.5        | <0.5       | <0.5       | -           |
| Vanadium                             | 86  | 22          | 17             | 14          | 21         | 11         | -           |
| Zinc                                 | 340   | 49          | 81             | 30          | 20         | 13         | -           |
| Chromium VI                          | 8   | <0.2        | <0.2           | <0.2        | <0.2       | <0.2       | -           |
| Cyanide                              | 0.051   | <0.040      | <0.040         | <0.040      | <0.040     | <0.040     | -           |
| Mercury                              | 0.27  | <0.10       | 0.18           | <0.10       | <0.10      | <0.10      | -           |
| Electrical Conductivity (2:1)        | 0.7   | 0.442       | 0.686          | 0.295       | 0.09       | 0.052      | 0.492       |
| Sodium Adsorption Ratio (2:1)        | 5   | <b>5.72</b> | 1.24           | <b>6.91</b> | 2.86       | 2.88       | <b>11.2</b> |
| pH, 2:1 CaCl <sub>2</sub> Extraction | 5 to 9  | 7.79        | 7.74           | 7.78        | 7.76       | 7.53       | -           |

\*For Table Notes see Notes included at the end of this Section

**Table 4: Summary of Metals and Inorganics in Soil**

| Parameter                       | 2011 MOE<br>Table 3 RPI<br>Coarse<br>Grained Soil | BH13-3 SS3 | BH13-4 SS1 | BH13-5 SS4   |
|---------------------------------|---|------------|------------|--------------|
| Date of Collection              |   | 11/12/2013 | 11/14/2013 | 11/05/2013   |
| Date of Analysis                |   | 11/18/2013 | 11/18/2013 | 11/18/2013   |
| Sampling Depth (m)              |   | 1.5-2.1    | 0-0.6      | 2.3-2.9      |
| Analytical Report Reference No. |   | 13Z784392  | 13Z784392  | 13Z784392    |
| Antimony                        | 7.5   | -          | -          | -            |
| Arsenic                         | 18  | -          | -          | -            |
| Barium                          | 390   | -          | -          | -            |
| Beryllium                       | 4   | -          | -          | -            |
| Boron                           | 120   | -          | -          | -            |
| Boron (Hot Water Soluble)       | 1.5   | -          | -          | -            |
| Cadmium                         | 1.2   | -          | -          | -            |
| Chromium                        | 160   | -          | -          | -            |
| Cobalt                          | 22  | -          | -          | -            |
| Copper                          | 140   | -          | -          | -            |
| Lead                            | 120   | -          | -          | -            |
| Molybdenum                      | 6.9   | -          | -          | -            |
| Nickel                          | 100   | -          | -          | -            |
| Selenium                        | 2.4   | -          | -          | -            |
| Silver                          | 20  | -          | -          | -            |
| Thallium                        | 1   | -          | -          | -            |
| Uranium                         | 23  | -          | -          | -            |
| Vanadium                        | 86  | -          | -          | -            |
| Zinc                            | 340   | -          | -          | -            |
| Chromium VI                     | 8   | -          | -          | -            |
| Cyanide                         | 0.051   | -          | -          | -            |
| Mercury                         | 0.27  | -          | -          | -            |
| Electrical Conductivity (2:1)   | 0.7   | 0.537      | 0.053      | <b>0.713</b> |
| Sodium Adsorption Ratio (2:1)   | 5   | 2.75       | 0.197      | 4.03         |
| pH, 2:1 CaCl2 Extraction        | 5 to 9  | -          | -          | -            |

\*For Table Notes see Notes included at the end of this Section

**Table 5: Summary of PHCs in Soil**

| Parameter                       | 2011 MOE<br>Table 3 RPI   | BH13-1 SS5 | BH13-1 SS7 | BH13-2 SS5 | BH13-3 SS4 | BH13-4 SS4 | QA/QC #1   | QA/QC #2   |
|---------------------------------|---------------------------|------------|------------|------------|------------|------------|------------|------------|
| Date of Collection              | Coarse<br>Grained<br>Soil | 11/13/2013 | 11/13/2013 | 11/13/2013 | 11/12/2013 | 11/14/2013 | 11/05/2013 | 11/05/2013 |
| Date of Analysis                |                           | 11/18/2013 | 11/18/2013 | 11/18/2013 | 11/18/2013 | 11/18/2013 | 11/18/2013 | 11/18/2013 |
| Sampling Depth (m)              |                           | 3.1-3.7    | 6.1-6.7    | 3.1-3.7    | 2.3-2.9    | 2.3-2.9    | -          | -          |
| Analytical Report Reference No. |                           | 13Z784392  | 13Z784392  | 13Z784392  | 13Z784392  | 13Z784392  | 13Z784392  | 13Z784392  |
| F1 (C6 to C10)                  | 55                        | <10        | <5         | <5         | <5         | <5         | <5         | <5         |
| F1 (C6 to C10) minus BTEX       | 55                        | <10        | <5         | <5         | <5         | <5         | <5         | <5         |
| F2 (C10 to C16)                 | 98                        | <20        | <10        | <10        | <10        | <10        | <10        | <10        |
| F3 (C16 to C34)                 | 300                       | <100       | <50        | <50        | <50        | <50        | <50        | <50        |
| F4 (C34 to C50)                 | 2800                      | <100       | <50        | <50        | <50        | <50        | <50        | <50        |

\*For Table Notes see Notes included at the end of this Section

**Table 6: Summary of VOCs in Soil**

| Parameter                              | 2011 MOE                                       | BH13-2 SS6 | BH13-3 SS7 | BH13-4 SS7 | BH13-1 SS5 | BH13-1 SS7 | BH13-2 SS5 |
|--|--|------------|------------|------------|------------|------------|------------|
| <b>Date of Collection</b>              | <b>Table 3 RPI<br/>Coarse<br/>Grained Soil</b> | 11/13/2013 | 11/12/2013 | 11/14/2013 | 11/13/2013 | 11/13/2013 | 11/13/2013 |
| <b>Date of Analysis</b>                |  | 11/18/2013 | 11/18/2013 | 11/18/2013 | 11/18/2013 | 11/18/2013 | 11/18/2013 |
| <b>Sampling Depth (m)</b>              |  | 4.6-5.2    | 6.1-6.7    | 4.6-5.2    | 3.1-3.7    | 6.1-6.7    | 3.1-3.7    |
| <b>Analytical Report Reference No.</b> |  | 13Z784392  | 13Z784392  | 13Z784392  | 13Z784392  | 13Z784392  | 13Z784392  |
| Dichlorodifluoromethane                | 16   | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Vinyl Chloride                         | 0.02   | <0.04      | <0.04      | <0.04      | <0.04      | <0.02      | <0.02      |
| Bromomethane                           | 0.05   | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Trichlorofluoromethane                 | 4  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Acetone                                | 16   | <1.00      | <1.00      | <1.00      | <1.00      | <0.50      | <0.50      |
| 1,1-Dichloroethylene                   | 0.05   | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Methylene Chloride                     | 0.1  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Trans- 1,2-Dichloroethylene            | 0.084  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Methyl tert-butyl Ether                | 0.75   | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| 1,1-Dichloroethane                     | 3.5  | <0.04      | <0.04      | <0.04      | <0.04      | <0.02      | <0.02      |
| Methyl Ethyl Ketone                    | 16   | <1.00      | <1.00      | <1.00      | <1.00      | <0.50      | <0.50      |
| Cis- 1,2-Dichloroethylene              | 3.4  | <0.04      | <0.04      | <0.04      | <0.04      | <0.02      | <0.02      |
| Chloroform                             | 0.05   | <0.08      | <0.08      | <0.08      | <0.08      | <0.04      | <0.04      |
| 1,2-Dichloroethane                     | 0.05   | <0.06      | <0.06      | <0.06      | <0.06      | <0.03      | <0.03      |
| 1,1,1-Trichloroethane                  | 0.38   | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Carbon Tetrachloride                   | 0.05   | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Benzene                                | 0.21   | <0.04      | <0.04      | <0.04      | <0.04      | <0.02      | <0.02      |
| 1,2-Dichloropropane                    | 0.05   | <0.06      | <0.06      | <0.06      | <0.06      | <0.03      | <0.03      |
| Trichloroethylene                      | 0.061  | <0.06      | <0.06      | <0.06      | <0.06      | <0.03      | <0.03      |
| Bromodichloromethane                   | 13   | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Methyl Isobutyl Ketone                 | 1.7  | <1.00      | <1.00      | <1.00      | <1.00      | <0.50      | <0.50      |
| 1,1,2-Trichloroethane                  | 0.05   | <0.08      | <0.08      | <0.08      | <0.08      | <0.04      | <0.04      |
| Toluene                                | 2.3  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Dibromochloromethane                   | 9.4  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Ethylene Dibromide                     | 0.05   | <0.08      | <0.08      | <0.08      | <0.08      | <0.04      | <0.04      |
| Tetrachloroethylene                    | 0.28   | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| 1,1,1,2-Tetrachloroethane              | 0.058  | <0.08      | <0.08      | <0.08      | <0.08      | <0.04      | <0.04      |
| Chlorobenzene                          | 2.4  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Ethylbenzene                           | 2  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| m & p-Xylene                           | 3.1  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Bromoform                              | 0.27   | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Styrene                                | 0.7  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| 1,1,2,2-Tetrachloroethane              | 0.05   | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| o-Xylene                               | 3.1  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| 1,3-Dichlorobenzene                    | 4.8  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| 1,4-Dichlorobenzene                    | 0.083  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| 1,2-Dichlorobenzene                    | 3.4  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| Xylene Mixture                         | 3.1  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |
| 1,3-Dichloropropene                    | 0.05   | <0.08      | <0.08      | <0.08      | <0.08      | <0.04      | <0.04      |
| n-Hexane                               | 2.8  | <0.10      | <0.10      | <0.10      | <0.10      | <0.05      | <0.05      |

\*For Table Notes see Notes included at the end of this Section



**Table 6: Summary of VOCs in Soil**

| Parameter                              | 2011 MOE                                       | BH13-3 SS4 | BH13-4 SS4 | QA/QC #1   | QA/QC #2   |
|--|--|------------|------------|------------|------------|
| <b>Date of Collection</b>              | <b>Table 3 RPI<br/>Coarse<br/>Grained Soil</b> | 11/12/2013 | 11/14/2013 | 11/05/2013 | 11/05/2013 |
| <b>Date of Analysis</b>                |  | 11/18/2013 | 11/18/2013 | 11/18/2013 | 11/18/2013 |
| <b>Sampling Depth (m)</b>              |  | 2.3-2.9    | 2.3-2.9    | -          | -          |
| <b>Analytical Report Reference No.</b> |  | 13Z784392  | 13Z784392  | 13Z784392  | 13Z784392  |
| Dichlorodifluoromethane                | 16   | <0.05      | <0.05      | <0.05      | <0.05      |
| Vinyl Chloride                         | 0.02   | <0.02      | <0.02      | <0.02      | <0.02      |
| Bromomethane                           | 0.05   | <0.05      | <0.05      | <0.05      | <0.05      |
| Trichlorofluoromethane                 | 4  | <0.05      | <0.05      | <0.05      | <0.05      |
| Acetone                                | 16   | <0.50      | <0.50      | <0.50      | <0.50      |
| 1,1-Dichloroethylene                   | 0.05   | <0.05      | <0.05      | <0.05      | <0.05      |
| Methylene Chloride                     | 0.1  | <0.05      | <0.05      | <0.05      | <0.05      |
| Trans- 1,2-Dichloroethylene            | 0.084  | <0.05      | <0.05      | <0.05      | <0.05      |
| Methyl tert-butyl Ether                | 0.75   | <0.05      | <0.05      | <0.05      | <0.05      |
| 1,1-Dichloroethane                     | 3.5  | <0.02      | <0.02      | <0.02      | <0.02      |
| Methyl Ethyl Ketone                    | 16   | <0.50      | <0.50      | <0.50      | <0.50      |
| Cis- 1,2-Dichloroethylene              | 3.4  | <0.02      | <0.02      | <0.02      | <0.02      |
| Chloroform                             | 0.05   | <0.04      | <0.04      | <0.04      | <0.04      |
| 1,2-Dichloroethane                     | 0.05   | <0.03      | <0.03      | <0.03      | <0.03      |
| 1,1,1-Trichloroethane                  | 0.38   | <0.05      | <0.05      | <0.05      | <0.05      |
| Carbon Tetrachloride                   | 0.05   | <0.05      | <0.05      | <0.05      | <0.05      |
| Benzene                                | 0.21   | <0.02      | <0.02      | <0.02      | <0.02      |
| 1,2-Dichloropropane                    | 0.05   | <0.03      | <0.03      | <0.03      | <0.03      |
| Trichloroethylene                      | 0.061  | <0.03      | <0.03      | <0.03      | <0.03      |
| Bromodichloromethane                   | 13   | <0.05      | <0.05      | <0.05      | <0.05      |
| Methyl Isobutyl Ketone                 | 1.7  | <0.50      | <0.50      | <0.50      | <0.50      |
| 1,1,2-Trichloroethane                  | 0.05   | <0.04      | <0.04      | <0.04      | <0.04      |
| Toluene                                | 2.3  | <0.05      | <0.05      | <0.05      | <0.05      |
| Dibromochloromethane                   | 9.4  | <0.05      | <0.05      | <0.05      | <0.05      |
| Ethylene Dibromide                     | 0.05   | <0.04      | <0.04      | <0.04      | <0.04      |
| Tetrachloroethylene                    | 0.28   | <0.05      | <0.05      | <0.05      | <0.05      |
| 1,1,1,2-Tetrachloroethane              | 0.058  | <0.04      | <0.04      | <0.04      | <0.04      |
| Chlorobenzene                          | 2.4  | <0.05      | <0.05      | <0.05      | <0.05      |
| Ethylbenzene                           | 2  | <0.05      | <0.05      | <0.05      | <0.05      |
| m & p-Xylene                           | 3.1  | <0.05      | <0.05      | <0.05      | <0.05      |
| Bromoform                              | 0.27   | <0.05      | <0.05      | <0.05      | <0.05      |
| Styrene                                | 0.7  | <0.05      | <0.05      | <0.05      | <0.05      |
| 1,1,2,2-Tetrachloroethane              | 0.05   | <0.05      | <0.05      | <0.05      | <0.05      |
| o-Xylene                               | 3.1  | <0.05      | <0.05      | <0.05      | <0.05      |
| 1,3-Dichlorobenzene                    | 4.8  | <0.05      | <0.05      | <0.05      | <0.05      |
| 1,4-Dichlorobenzene                    | 0.083  | <0.05      | <0.05      | <0.05      | <0.05      |
| 1,2-Dichlorobenzene                    | 3.4  | <0.05      | <0.05      | <0.05      | <0.05      |
| Xylene Mixture                         | 3.1  | <0.05      | <0.05      | <0.05      | <0.05      |
| 1,3-Dichloropropene                    | 0.05   | <0.04      | <0.04      | <0.04      | <0.04      |
| n-Hexane                               | 2.8  | <0.05      | <0.05      | <0.05      | <0.05      |

\*For Table Notes see Notes included at the end of the report

**Table 7: Summary of PAHs in Soil**

| Parameter                       | 2011 MOE                              | BH13-1 SS1B | BH13-2 SS3 | BH13-4 SS2 | BH13-5 SS3 |
|---------------------------------|---------------------------------------|-------------|------------|------------|------------|
| Date of Collection              | Table 3 RPI<br>Coarse<br>Grained Soil | 11/13/2013  | 11/13/2013 | 11/14/2013 | 11/05/2013 |
| Date of Analysis                |                                       | 11/18/2013  | 11/18/2013 | 11/18/2013 | 11/18/2013 |
| Sampling Depth (m)              |                                       | 0.3-0.6     | 1.5-2.1    | 0.8-1.4    | 1.5-2.1    |
| Analytical Report Reference No. |                                       | 13Z784392   | 13Z784392  | 13Z784392  | 13Z784392  |
| 2-and 1-methyl Naphthalene      | 0.99                                  | <0.05       | <0.05      | <0.05      | <0.05      |
| Acenaphthene                    | 7.9                                   | <0.05       | <0.05      | <0.05      | <0.05      |
| Acenaphthylene                  | 0.15                                  | <0.05       | <0.05      | 0.09       | <0.05      |
| Anthracene                      | 0.67                                  | <0.05       | <0.05      | 0.05       | <0.05      |
| Benz(a)anthracene               | 0.5                                   | <0.05       | <0.05      | 0.18       | <0.05      |
| Benzo(a)pyrene                  | 0.3                                   | <0.05       | <0.05      | 0.25       | <0.05      |
| Benzo(b)fluoranthene            | 0.78                                  | <0.05       | <0.05      | 0.37       | <0.05      |
| Benzo(g,h,i)perylene            | 6.6                                   | <0.05       | <0.05      | 0.14       | <0.05      |
| Benzo(k)fluoranthene            | 0.78                                  | <0.05       | <0.05      | 0.14       | <0.05      |
| Chrysene                        | 7                                     | <0.05       | <0.05      | 0.34       | <0.05      |
| Dibenz(a,h)anthracene           | 0.1                                   | <0.05       | <0.05      | <0.05      | <0.05      |
| Fluoranthene                    | 0.69                                  | <0.05       | <0.05      | 0.60       | <0.05      |
| Fluorene                        | 62                                    | <0.05       | <0.05      | <0.05      | <0.05      |
| Indeno(1,2,3-cd)pyrene          | 0.38                                  | <0.05       | <0.05      | 0.13       | <0.05      |
| Naphthalene                     | 0.6                                   | <0.05       | <0.05      | <0.05      | <0.05      |
| Phenanthrene                    | 6.2                                   | <0.05       | <0.05      | 0.19       | <0.05      |
| Pyrene                          | 78                                    | <0.05       | <0.05      | 0.54       | <0.05      |

\*For Table Notes see Notes included at the end of this Section

**Table 8: Summary of Metals and Inorganics in Groundwater**

| Parameter                       | 2011 MOE<br>Table 3 | MW-2        | MW-4       |
|---------------------------------|---------------------|-------------|------------|
| Date of Collection              |                     | 12/13/2013  | 12/13/2013 |
| Date of Analysis                |                     | 12/24/2013  | 12/24/2013 |
| Analytical Report Reference No. |                     | 13Z794635   | 13Z794635  |
| Antimony                        | 20000               | 0.8         | 1.8        |
| Arsenic                         | 1900                | 1.4         | 1.5        |
| Barium                          | 29000               | 40.4        | 144        |
| Beryllium                       | 67                  | <0.5        | <0.5       |
| Boron                           | 45000               | 48.2        | 146        |
| Cadmium                         | 2.7                 | <0.2        | <0.2       |
| Chromium                        | 810                 | <2.0        | <2.0       |
| Cobalt                          | 66                  | <b>11.9</b> | <0.5       |
| Copper                          | 87                  | 2.1         | <1.0       |
| Lead                            | 25                  | <0.5        | <0.5       |
| Molybdenum                      | 9200                | 21.8        | 17.2       |
| Nickel                          | 490                 | 17.9        | 1.9        |
| Selenium                        | 63                  | <1.0        | <1.0       |
| Silver                          | 1.5                 | <0.2        | <0.2       |
| Thallium                        | 510                 | <0.3        | <0.3       |
| Uranium                         | 420                 | 4.3         | 2.1        |
| Vanadium                        | 250                 | <0.4        | 1.1        |
| Zinc                            | 1100                | 10.9        | <5.0       |
| Mercury                         | 0.29                | <0.02       | <0.02      |
| Chromium VI                     | 140                 | <5          | <5         |
| Cyanide                         | 66                  | <2          | <2         |
| Sodium                          | 2300000             | 83600       | 64400      |
| Chloride                        | 2300000             | 156000      | 94000      |
| Nitrate as N                    | -                   | <500        | <100       |
| Nitrite as N                    | -                   | <500        | <100       |
| Electrical Conductivity         | -                   | 1380        | 604        |
| pH                              | -                   | 7.87        | 8.11       |

\*For Table Notes see Notes included at the end of this Section

**Table 9: Summary of PHCs in Groundwater**

| Parameter                         | 2011 MOE<br>Table 3 | MW-2       | MW-4       |
|-----------------------------------|---------------------|------------|------------|
| Date of Collection                |                     | 12/13/2013 | 12/13/2013 |
| Date of Analysis                  |                     | 12/24/2013 | 12/24/2013 |
| Analytical Report Reference No.   |                     | 13Z794635  | 13Z794635  |
| F1 (C6 to C10)                    | -                   | <25        | <25        |
| F1 (C6 to C10) minus BTEX         | 750                 | <25        | <25        |
| F2 (C10 to C16)                   | 150                 | <100       | <100       |
| F2 (C10 to C16) minus Naphthalene | 150                 | <100       | <100       |
| F3 (C16 to C34)                   | 500                 | <100       | <100       |
| F3 (C16 to C34) minus PAHs        | 500                 | <100       | <100       |
| F4 (C34 to C50)                   | 500                 | <100       | <100       |

\*For Table Notes see Notes included at the end of this Section

**Table 10: Summary of VOCs in Groundwater**

| Parameter                       | 2011 MOE<br>Table 3 | MW2        | MW-2       | MW-4       | QA/QC      |
|---------------------------------|---------------------|------------|------------|------------|------------|
| Date of Collection              |                     | 12/03/2013 | 12/13/2013 | 12/13/2013 | 12/13/2013 |
| Date of Analysis                |                     | 12/09/2013 | 12/24/2013 | 12/24/2013 | 12/24/2013 |
| Analytical Report Reference No. |                     | 13Z789890  | 13Z794635  | 13Z794635  | 13Z794635  |
| Dichlorodifluoromethane         | 4400                | <0.20      | <0.20      | <0.20      | <0.20      |
| Vinyl Chloride                  | 0.5                 | <0.17      | <0.17      | <0.17      | <0.17      |
| Bromomethane                    | 5.6                 | <0.20      | <0.20      | <0.20      | <0.20      |
| Trichlorofluoromethane          | 2500                | <0.40      | <0.40      | <0.40      | <0.40      |
| Acetone                         | 130000              | <1.0       | <1.0       | <1.0       | <1.0       |
| 1,1-Dichloroethylene            | 1.6                 | <0.30      | <0.30      | <0.30      | <0.30      |
| Methylene Chloride              | 610                 | <0.30      | <0.30      | <0.30      | <0.30      |
| trans- 1,2-Dichloroethylene     | 1.6                 | <0.20      | <0.20      | <0.20      | <0.20      |
| Methyl tert-butyl ether         | 190                 | <0.20      | <0.20      | <0.20      | <0.20      |
| 1,1-Dichloroethane              | 320                 | <0.30      | <0.30      | <0.30      | <0.30      |
| Methyl Ethyl Ketone             | 470000              | <1.0       | <1.0       | <1.0       | <1.0       |
| cis- 1,2-Dichloroethylene       | 1.6                 | <0.20      | <0.20      | <0.20      | <0.20      |
| Chloroform                      | 2.4                 | <0.20      | <0.20      | <0.20      | <0.20      |
| 1,2-Dichloroethane              | 1.6                 | <0.20      | <0.20      | <0.20      | <0.20      |
| 1,1,1-Trichloroethane           | 640                 | <0.30      | <0.30      | <0.30      | <0.30      |
| Carbon Tetrachloride            | 0.79                | <0.20      | <0.20      | <0.20      | <0.20      |
| Benzene                         | 44                  | <0.20      | <0.20      | <0.20      | <0.20      |
| 1,2-Dichloropropane             | 16                  | <0.20      | <0.20      | <0.20      | <0.20      |
| Trichloroethylene               | 1.6                 | <0.20      | <0.20      | <0.20      | <0.20      |
| Bromodichloromethane            | 85000               | <0.20      | <0.20      | <0.20      | <0.20      |
| Methyl Isobutyl Ketone          | 140000              | <1.0       | <1.0       | <1.0       | <1.0       |
| 1,1,2-Trichloroethane           | 4.7                 | <0.20      | <0.20      | <0.20      | <0.20      |
| Toluene                         | 18000               | <0.20      | <0.20      | <0.20      | <0.20      |
| Dibromochloromethane            | 82000               | <0.10      | <0.10      | <0.10      | <0.10      |
| Ethylene Dibromide              | 0.25                | <0.10      | <0.10      | <0.10      | <0.10      |
| Tetrachloroethylene             | 1.6                 | <0.20      | <0.20      | <0.20      | <0.20      |
| 1,1,1,2-Tetrachloroethane       | 3.3                 | <0.10      | <0.10      | <0.10      | <0.10      |
| Chlorobenzene                   | 630                 | <0.10      | <0.10      | <0.10      | <0.10      |
| Ethylbenzene                    | 2300                | <0.10      | <0.10      | <0.10      | <0.10      |
| m & p-Xylene                    | -                   | <0.20      | <0.20      | <0.20      | <0.20      |
| Bromoform                       | 380                 | <0.10      | <0.10      | <0.10      | <0.10      |
| Styrene                         | 1300                | <0.10      | <0.10      | <0.10      | <0.10      |
| 1,1,2,2-Tetrachloroethane       | 3.2                 | <0.10      | <0.10      | <0.10      | <0.10      |
| o-Xylene                        | -                   | <0.10      | <0.10      | <0.10      | <0.10      |
| 1,3-Dichlorobenzene             | 9600                | <0.10      | <0.10      | <0.10      | <0.10      |
| 1,4-Dichlorobenzene             | 8                   | <0.10      | <0.10      | <0.10      | <0.10      |
| 1,2-Dichlorobenzene             | 4600                | <0.10      | <0.10      | <0.10      | <0.10      |
| 1,3-Dichloropropene             | 5.2                 | <0.30      | <0.30      | <0.30      | <0.30      |
| Xylene Mixture                  | 4200                | <0.20      | <0.20      | <0.20      | <0.20      |
| n-Hexane                        | 51                  | <0.20      | <0.20      | <0.20      | <0.20      |

\*For Table Notes see Notes included at the end of this Section

**Table 11: Summary of PAHs in Groundwater**

| Parameter                       |          | MW2        | MW-2       | MW-4       |
|---------------------------------|----------|------------|------------|------------|
| Date of Collection              | 2011 MOE | 12/03/2013 | 12/13/2013 | 12/13/2013 |
| Date of Analysis                | Table 3  | 12/09/2013 | 12/24/2013 | 12/24/2013 |
| Analytical Report Reference No. |          | 13Z789890  | 13Z794635  | 13Z794635  |
| 2-and 1-methyl Naphthalene      | 1800     | <0.20      | <0.20      | <0.20      |
| Acenaphthene                    | 600      | <0.20      | <0.20      | <0.20      |
| Acenaphthylene                  | 1.8      | <0.20      | <0.20      | <0.20      |
| Anthracene                      | 2.4      | <0.10      | <0.10      | <0.10      |
| Benz(a)anthracene               | 4.7      | <0.20      | <0.20      | <0.20      |
| Benzo(a)pyrene                  | 0.81     | <0.01      | 0.03       | <0.01      |
| Benzo(b)fluoranthene            | 0.75     | <0.10      | <0.10      | <0.10      |
| Benzo(g,h,i)perylene            | 0.2      | <0.20      | <0.20      | <0.20      |
| Benzo(k)fluoranthene            | 0.4      | <0.10      | <0.10      | <0.10      |
| Chrysene                        | 1        | <0.10      | <0.10      | <0.10      |
| Dibenz(a,h)anthracene           | 0.52     | <0.20      | <0.20      | <0.20      |
| Fluoranthene                    | 130      | <0.20      | <0.20      | <0.20      |
| Fluorene                        | 400      | <0.20      | <0.20      | <0.20      |
| Indeno(1,2,3-cd)pyrene          | 0.2      | <0.20      | <0.20      | <0.20      |
| Naphthalene                     | 1400     | <0.20      | <0.20      | <0.20      |
| Phenanthrene                    | 580      | <0.10      | <0.10      | <0.10      |
| Pyrene                          | 68       | <0.20      | <0.20      | <0.20      |

\*For Table Notes see Notes included at the end of this Section

**Table 12: Summary of PAHs in Groundwater**

| Parameter                       | 2011 MOE<br>Table 3 | MW2        | MW-4       |
|---------------------------------|---------------------|------------|------------|
| Date of Collection              |                     | 12/13/2013 | 12/13/2013 |
| Date of Analysis                |                     | 12/24/2013 | 12/24/2013 |
| Analytical Report Reference No. |                     | 13Z794635  | 13Z794635  |
| Polychlorinated Biphenyls       | 3                   | <0.1       | <0.1       |

\*For Table Notes see Notes included at the end of this Section

**Table 13: Summary of Maximum Concentrations in Soil**

|                     | Parameter                     | Table 3 RPI | Maximum      | Location    |
|---------------------|-------------------------------|-------------|--------------|-------------|
| Metals & Inorganics | Antimony                      | 7.5         | <0.8         | all samples |
|                     | Arsenic                       | 18          | 4            | BH13-2 SS1B |
|                     | Barium                        | 390         | 102          | BH13-2 SS1B |
|                     | Beryllium                     | 4           | <0.5         | all samples |
|                     | Boron                         | 120         | <5           | all samples |
|                     | Boron (Hot Water Soluble)     | 1.5         | 0.77         | BH13-3 SS2  |
|                     | Cadmium                       | 1.2         | <0.5         | all samples |
|                     | Chromium                      | 160         | 19           | BH13-1 SS2  |
|                     | Cobalt                        | 22          | 4.7          | BH13-1 SS2  |
|                     | Copper                        | 140         | 16           | BH13-2 SS1B |
|                     | Lead                          | 120         | 94           | BH13-2 SS1B |
|                     | Molybdenum                    | 6.9         | 1            | BH13-2 SS1B |
|                     | Nickel                        | 100         | 12           | BH13-1 SS2  |
|                     | Selenium                      | 2.4         | 0.5          | BH13-2 SS1B |
|                     | Silver                        | 20          | <0.2         | all samples |
|                     | Thallium                      | 1           | <0.4         | all samples |
|                     | Uranium                       | 23          | <0.5         | all samples |
|                     | Vanadium                      | 86          | 22           | BH13-1 SS2  |
|                     | Zinc                          | 340         | 81           | BH13-2 SS1B |
|                     | Chromium VI                   | 8           | <0.2         | all samples |
|                     | Cyanide                       | 0.051       | <0.040       | all samples |
|                     | Mercury                       | 0.27        | 0.18         | BH13-2 SS1B |
|                     | Electrical Conductivity (2:1) | 0.7         | <b>0.713</b> | BH13-5 SS4  |
|                     | Sodium Adsorption Ratio       | 5           | <b>11.2</b>  | BH13-1 SS4  |
|                     | pH, 2:1 CaCl2 Extraction      | 5 to 9      | 7.79         | BH13-1 SS2  |
| PHCs                | F1 (C6 to C10)                | 55          | <10          | all samples |
|                     | F1 (C6 to C10) minus BTEX     | 55          | <10          | all samples |
|                     | F2 (C10 to C16)               | 98          | <20          | all samples |
|                     | F3 (C16 to C34)               | 300         | <100         | all samples |
| VOCs                | Dichlorodifluoromethane       | 16          | <0.10        | all samples |
|                     | Vinyl Chloride                | 0.02        | <0.04        | all samples |
|                     | Bromomethane                  | 0.05        | <0.10        | all samples |
|                     | Trichlorofluoromethane        | 4           | <0.10        | all samples |
|                     | Acetone                       | 16          | <1.00        | all samples |
|                     | 1,1-Dichloroethylene          | 0.05        | <0.10        | all samples |
|                     | Methylene Chloride            | 0.1         | <0.10        | all samples |
|                     | Trans- 1,2-Dichloroethylene   | 0.084       | <0.10        | all samples |
|                     | Methyl tert-butyl Ether       | 0.75        | <0.10        | all samples |
|                     | 1,1-Dichloroethane            | 3.5         | <0.04        | all samples |
|                     | Methyl Ethyl Ketone           | 16          | <1.00        | all samples |
|                     | Cis- 1,2-Dichloroethylene     | 3.4         | <0.04        | all samples |
|                     | Chloroform                    | 0.05        | <0.08        | all samples |
|                     | 1,2-Dichloroethane            | 0.05        | <0.06        | all samples |
|                     | 1,1,1-Trichloroethane         | 0.38        | <0.10        | all samples |
|                     | Carbon Tetrachloride          | 0.05        | <0.10        | all samples |
|                     | Benzene                       | 0.21        | <0.04        | all samples |
|                     | 1,2-Dichloropropane           | 0.05        | <0.06        | all samples |
|                     | Trichloroethylene             | 0.061       | <0.06        | all samples |
|                     | Bromodichloromethane          | 13          | <0.10        | all samples |
|                     | Methyl Isobutyl Ketone        | 1.7         | <1.00        | all samples |
|                     | 1,1,2-Trichloroethane         | 0.05        | <0.08        | all samples |
|                     | Toluene                       | 2.3         | <0.10        | all samples |
|                     | Dibromochloromethane          | 9.4         | <0.10        | all samples |
|                     | Ethylene Dibromide            | 0.05        | <0.08        | all samples |



**Table 13: Summary of Maximum Concentrations in Soil**

| Parameter |                            | Table 3 RPI | Maximum | Location    |
|-----------|----------------------------|-------------|---------|-------------|
|           | Tetrachloroethylene        | 0.28        | <0.10   | all samples |
|           | 1,1,1,2-Tetrachloroethane  | 0.058       | <0.08   | all samples |
|           | Chlorobenzene              | 2.4         | <0.10   | all samples |
|           | Ethylbenzene               | 2           | <0.10   | all samples |
|           | Bromoform                  | 0.27        | <0.10   | all samples |
|           | Styrene                    | 0.7         | <0.10   | all samples |
|           | 1,1,2,2-Tetrachloroethane  | 0.05        | <0.10   | all samples |
|           | 1,3-Dichlorobenzene        | 4.8         | <0.10   | all samples |
|           | 1,4-Dichlorobenzene        | 0.083       | <0.10   | all samples |
|           | 1,2-Dichlorobenzene        | 3.4         | <0.10   | all samples |
|           | Xylene Mixture             | 3.1         | <0.10   | all samples |
|           | 1,3-Dichloropropene        | 0.05        | <0.10   | all samples |
|           | n-Hexane                   | 2.8         | <0.10   | all samples |
| PAHS      | 2-and 1-methyl Naphthalene | 0.99        | <0.05   | all samples |
|           | Acenaphthene               | 7.9         | <0.05   | all samples |
|           | Acenaphthylene             | 0.15        | 0.09    | BH13-4 SS2  |
|           | Anthracene                 | 0.67        | 0.05    | BH13-4 SS2  |
|           | Benz(a)anthracene          | 0.5         | 0.18    | BH13-4 SS2  |
|           | Benzo(a)pyrene             | 0.3         | 0.25    | BH13-4 SS2  |
|           | Benzo(b)fluoranthene       | 0.78        | 0.37    | BH13-4 SS2  |
|           | Benzo(g,h,i)perylene       | 6.6         | 0.14    | BH13-4 SS2  |
|           | Benzo(k)fluoranthene       | 0.78        | 0.14    | BH13-4 SS2  |
|           | Chrysene                   | 7           | 0.34    | BH13-4 SS2  |
|           | Dibenz(a,h)anthracene      | 0.1         | <0.05   | all samples |
|           | Fluoranthene               | 0.69        | 0.6     | BH13-4 SS2  |
|           | Fluorene                   | 62          | <0.05   | all samples |
|           | Indeno(1,2,3-cd)pyrene     | 0.38        | 0.13    | BH13-4 SS2  |
|           | Naphthalene                | 0.6         | <0.05   | all samples |
|           | Phenanthrene               | 6.2         | 0.19    | BH13-4 SS2  |
|           | Pyrene                     | 78          | 0.54    | BH13-4 SS2  |

\*For Table Notes see Notes included at the end of this Section

**Table 14: Summary of Maximum Concentrations in Groundwater**

|                     | Parameter                       | Table 3 Standards | Maximum Concentration | Location    |
|---------------------|---------------------------------|-------------------|-----------------------|-------------|
| Metals & Inorganics | Antimony                        | 20000             | 1.8                   | MW-4        |
|                     | Arsenic                         | 1900              | 1.8                   | MW-4        |
|                     | Barium                          | 29000             | 144                   | MW-4        |
|                     | Beryllium                       | 67                | <0.5                  | all samples |
|                     | Boron                           | 45000             | 146                   | MW-4        |
|                     | Cadmium                         | 2.7               | <0.2                  | all samples |
|                     | Chromium                        | 810               | <2.0                  | all samples |
|                     | Cobalt                          | 66                | 11.9                  | MW-2        |
|                     | Copper                          | 87                | 11.9                  | MW-2        |
|                     | Lead                            | 25                | <0.5                  | all samples |
|                     | Molybdenum                      | 9200              | 21.8                  | MW-2        |
|                     | Nickel                          | 490               | 21.8                  | MW-2        |
|                     | Selenium                        | 63                | <1.0                  | all samples |
|                     | Silver                          | 1.5               | <0.2                  | all samples |
|                     | Thallium                        | 510               | <0.3                  | all samples |
|                     | Uranium                         | 420               | 4.3                   | MW-2        |
|                     | Vanadium                        | 250               | 4.3                   | MW-4        |
|                     | Zinc                            | 1100              | 10.9                  | MW-2        |
|                     | Mercury                         | 0.29              | <0.02                 | all samples |
|                     | Chromium VI                     | 140               | <5                    | all samples |
|                     | Cyanide                         | 66                | <2                    | all samples |
|                     | Sodium                          | 2300000           | 83600                 | MW-2        |
|                     | Chloride                        | 2300000           | 156000                | MW-2        |
|                     | Electrical Conductivity         | -                 | <500                  | all samples |
|                     | pH                              | -                 | <500                  | all samples |
| PHCs                | F1 (C6 to C10) minus BTEX       | 750               | <25                   | all samples |
|                     | F2 (C10 to C16)                 | 150               | <25                   | all samples |
|                     | F2 (C10 to C16) minus Naphthale | 150               | <100                  | all samples |
|                     | F3 (C16 to C34)                 | 500               | <100                  | all samples |
|                     | F3 (C16 to C34) minus PAHs      | 500               | <100                  | all samples |
|                     | F4 (C34 to C50)                 | 500               | <100                  | all samples |
| VOCs                | Dichlorodifluoromethane         | 4400              | <0.20                 | all samples |
|                     | Vinyl Chloride                  | 0.5               | <0.17                 | all samples |
|                     | Bromomethane                    | 5.6               | <0.20                 | all samples |
|                     | Trichlorofluoromethane          | 2500              | <0.40                 | all samples |
|                     | Acetone                         | 130000            | <1.0                  | all samples |
|                     | 1,1-Dichloroethylene            | 1.6               | <0.30                 | all samples |
|                     | Methylene Chloride              | 610               | <0.30                 | all samples |
|                     | trans- 1,2-Dichloroethylene     | 1.6               | <0.20                 | all samples |
|                     | Methyl tert-butyl ether         | 190               | <0.20                 | all samples |
|                     | 1,1-Dichloroethane              | 320               | <0.30                 | all samples |
|                     | Methyl Ethyl Ketone             | 470000            | <1.0                  | all samples |
|                     | cis- 1,2-Dichloroethylene       | 1.6               | <0.20                 | all samples |
|                     | Chloroform                      | 2.4               | <0.20                 | all samples |
|                     | 1,2-Dichloroethane              | 1.6               | <0.20                 | all samples |
|                     | 1,1,1-Trichloroethane           | 640               | <0.30                 | all samples |
|                     | Carbon Tetrachloride            | 0.79              | <0.20                 | all samples |
|                     | Benzene                         | 44                | <0.20                 | all samples |
|                     | 1,2-Dichloropropane             | 16                | <0.20                 | all samples |
|                     | Trichloroethylene               | 1.6               | <0.20                 | all samples |
|                     | Bromodichloromethane            | 85000             | <0.20                 | all samples |
|                     | Methyl Isobutyl Ketone          | 140000            | <1.0                  | all samples |
|                     | 1,1,2-Trichloroethane           | 4.7               | <0.20                 | all samples |
|                     | Toluene                         | 18000             | <0.20                 | all samples |

**Table 14: Summary of Maximum Concentrations in Groundwater**

| Parameter |                            | Table 3 Standards | Maximum Concentration | Location    |
|-----------|----------------------------|-------------------|-----------------------|-------------|
|           | Dibromochloromethane       | 82000             | <0.10                 | all samples |
|           | Ethylene Dibromide         | 0.25              | <0.10                 | all samples |
|           | Tetrachloroethylene        | 1.6               | <0.20                 | all samples |
|           | 1,1,1,2-Tetrachloroethane  | 3.3               | <0.10                 | all samples |
|           | Chlorobenzene              | 630               | <0.10                 | all samples |
|           | Ethylbenzene               | 2300              | <0.10                 | all samples |
|           | Bromoform                  | 380               | <0.20                 | all samples |
|           | Styrene                    | 1300              | <0.10                 | all samples |
|           | 1,1,2,2-Tetrachloroethane  | 3.2               | <0.10                 | all samples |
|           | 1,3-Dichlorobenzene        | 9600              | <0.10                 | all samples |
|           | 1,4-Dichlorobenzene        | 8                 | <0.10                 | all samples |
|           | 1,2-Dichlorobenzene        | 4600              | <0.10                 | all samples |
|           | 1,3-Dichloropropene        | 5.2               | <0.10                 | all samples |
|           | Xylene Mixture             | 4200              | <0.10                 | all samples |
|           | n-Hexane                   | 51                | <0.30                 | all samples |
| PCBs      | Polychlorinated Biphenyls  | 3                 | <0.1                  | all samples |
| PAHs      | 2-and 1-methyl Naphthalene | 1800              | <0.20                 | all samples |
|           | Acenaphthene               | 600               | <0.20                 | all samples |
|           | Acenaphthylene             | 1.8               | <0.20                 | all samples |
|           | Anthracene                 | 2.4               | <0.10                 | all samples |
|           | Benz(a)anthracene          | 4.7               | <0.20                 | all samples |
|           | Benzo(a)pyrene             | 0.81              | 0.03                  | all samples |
|           | Benzo(b)fluoranthene       | 0.75              | <0.10                 | all samples |
|           | Benzo(g,h,i)perylene       | 0.2               | <0.20                 | all samples |
|           | Benzo(k)fluoranthene       | 0.4               | <0.10                 | all samples |
|           | Chrysene                   | 1                 | <0.10                 | all samples |
|           | Dibenz(a,h)anthracene      | 0.52              | <0.20                 | all samples |
|           | Fluoranthene               | 130               | <0.20                 | all samples |
|           | Fluorene                   | 400               | <0.20                 | all samples |
|           | Indeno(1,2,3-cd)pyrene     | 0.2               | <0.20                 | all samples |
|           | Naphthalene                | 1400              | <0.20                 | all samples |
|           | Phenanthrene               | 580               | <0.10                 | all samples |
|           | Pyrene                     | 68                | <0.20                 | all samples |

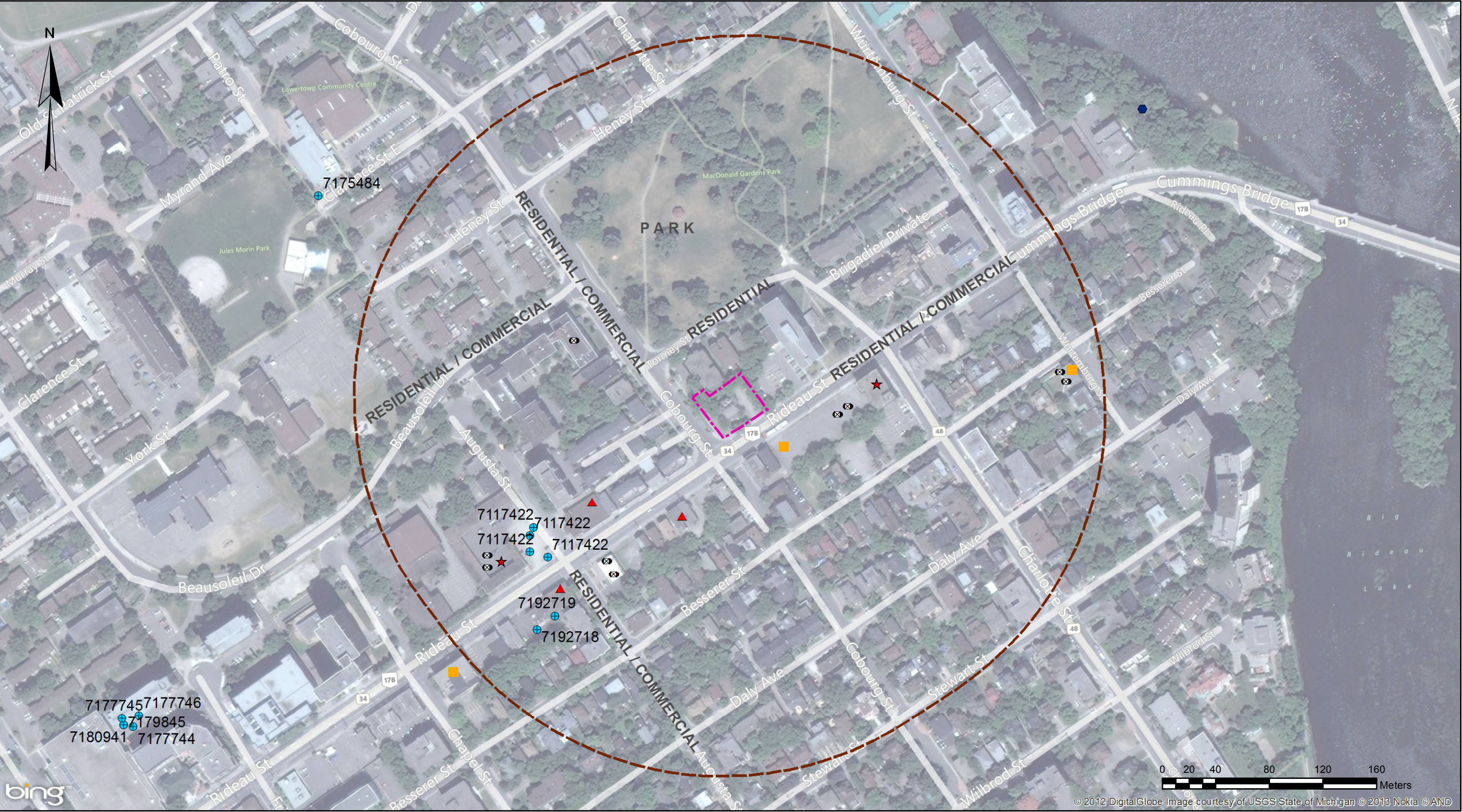
\*For Table Notes see Notes included at the end of this Section

**Notes for Soil & Groundwater Summary Tables**

1. mbgs = Meters below ground surface
2. masl = Meters above sea level (estimated)
3. Sampling Depth (m) for groundwater samples indicates the screen depth of the monitoring well
4. Units for all soil analyses are in µg/g (ppm) unless otherwise indicated
5. Units for all groundwater analyses are in µg/L (ppb) unless otherwise indicated
6. Table 3 RPI = Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for a Residential/Parkland/Institutional Property Use with Coarse Textured Soils as contained in Table 3 of the "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", published by the MOE on April 15, 2011
7. **Bold** = Concentration exceeds Table 3 RPI Standards
8. " - " = Parameter not analysed
9. <x.x = Concentration less than the reported detection limit for samples analyzed
10. Analytical Report Reference No. indicates laboratory report reference number
11. VOCs = Volatile Organic Compounds
12. PHCs = Petroleum Hydrocarbons
13. M&I = Metals and Inorganics
14. PAHs = Polycyclic Aromatic Hydrocarbons
15. PCBs = Polychlorinated Biphenyls

## **DRAWINGS**






**LEGEND:**

- 250m Study Area
- Phase One Site
- HWIS
- MOE Water Well
- Former UST
- Former Automotive Garage
- Former Dry Cleaners

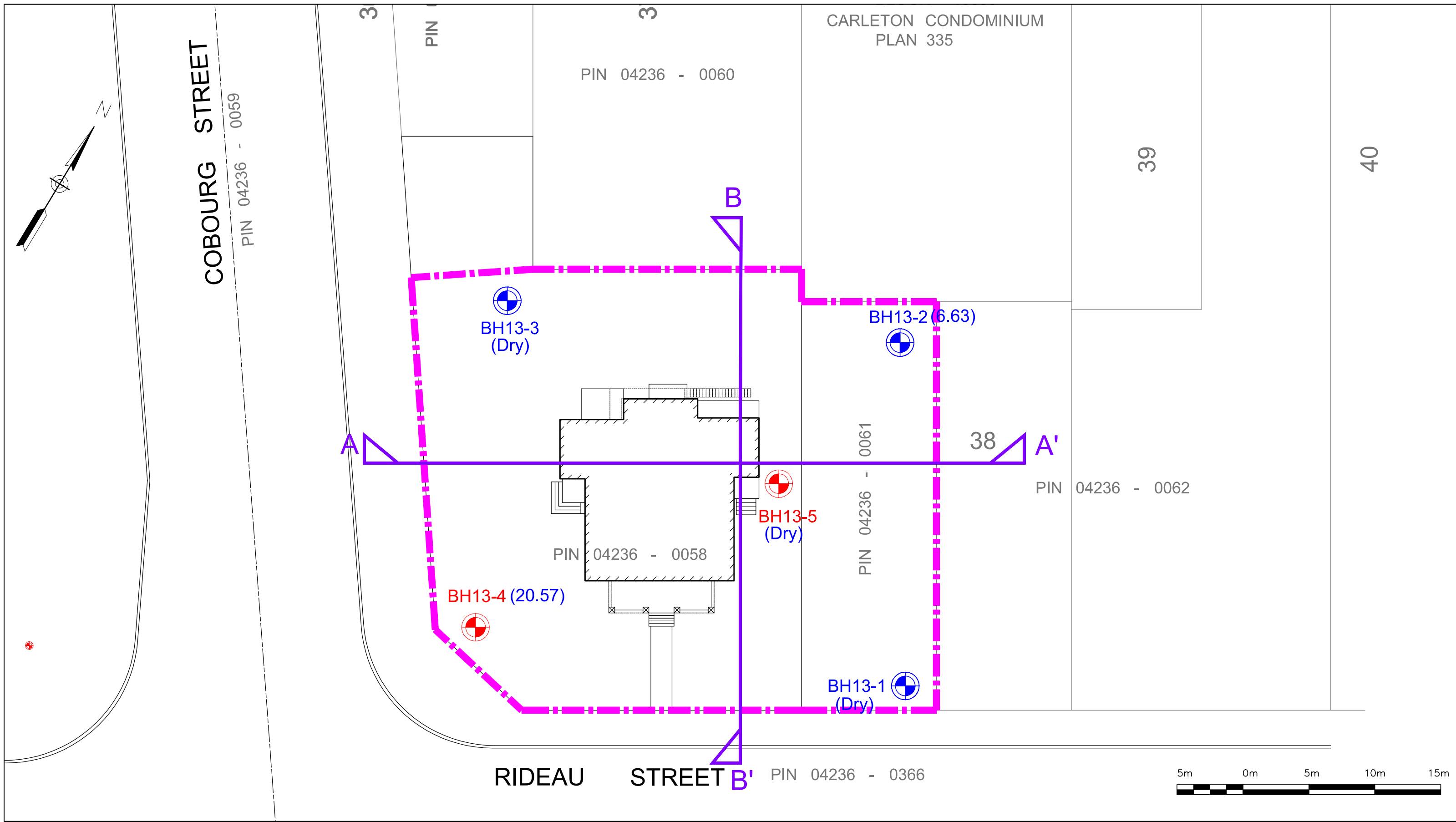
**Note:** This drawing should be read in conjunction with the accompanying report.

**Source:** Golden Horseshoe GIS Database 2002

|                              |                 |   |                |
|------------------------------|-----------------|---|----------------|
| Client: CODEAU BUILDING LTD. |                 | Project No.: 1912-720   | Drawing No.: 1 |
| Drawn: RA                    | Approved: DL    | Title: PHASE ONE ESA CONCEPTUAL SITE MODEL  |                |
| Date: January 2014           | Scale: As Shown | Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT<br>541 & 545 RIDEAU STREET, OTTAWA   |                |
| Original Size: Tabloid       | Rev: 0          |  <b>SPL Consultants Limited</b><br>Geotechnical • Environmental • Materials • Hydrogeology |                |




server\\Environmental\\00\_1900\\1912-720- Phase Two ESA - 541 and 545 Rideau Street, Ottawa\\Drawings\\541 Site Plan#.dwg

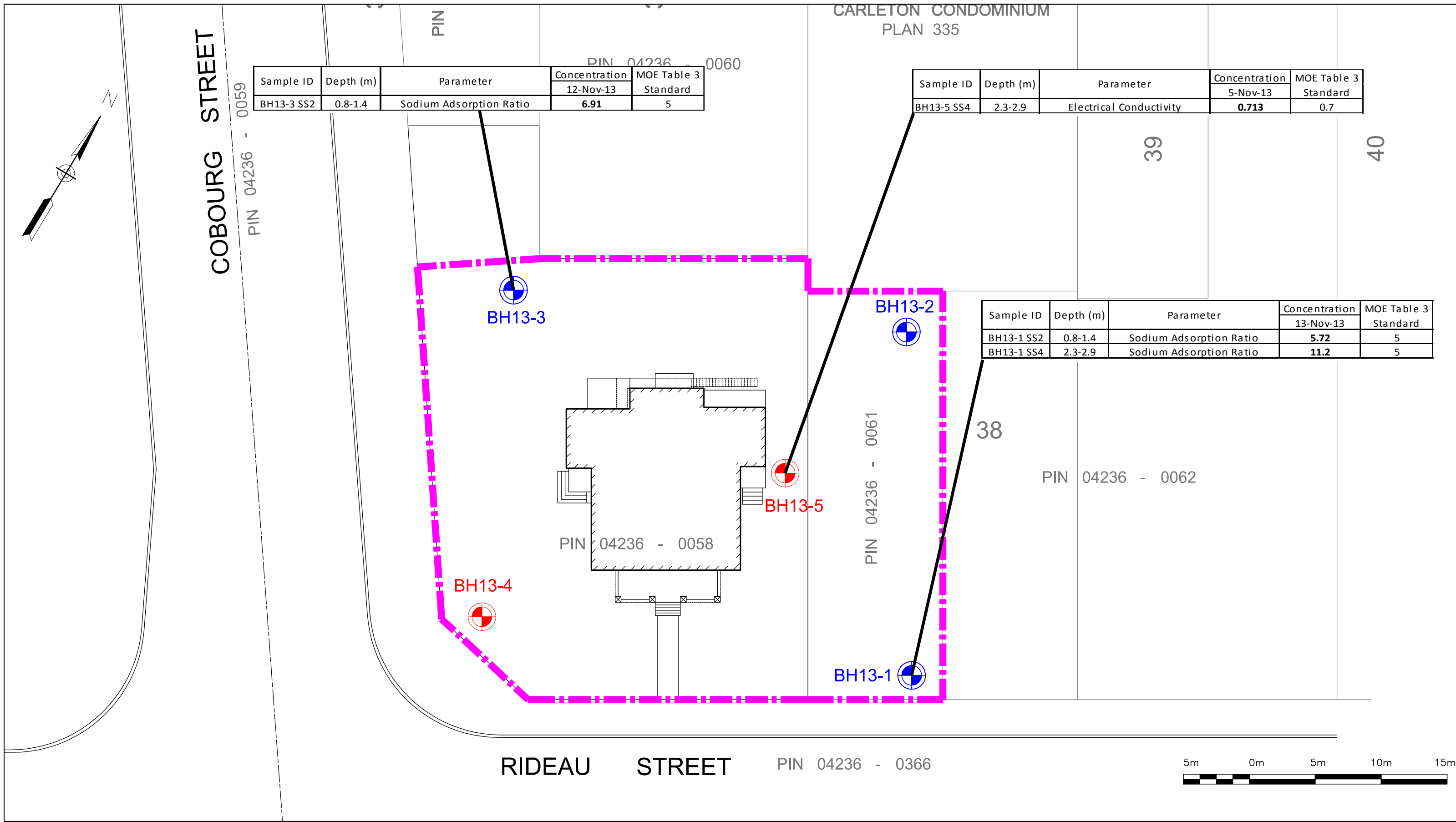


**Legend:**

- - - - - Phase Two Property
- ⊕ Shallow Monitoring Well (7 mbgs) installed by SPL (Nov. 2013)
- ⊕ Deep Monitoring Well (20 mbgs) installed by SPL (Nov. 2013)
- Cross Section Line

|                                    |                        |   |                       |
|------------------------------------|------------------------|---|-----------------------|
| Client: <b>Dharma Developments</b> |                        | Project No.: <b>1912-720</b>  | Drawing No.: <b>2</b> |
| Drawn: <b>RA</b>                   | Approved: <b>DL</b>    | Title: <b>BOREHOLE AND MONITORING WELL LOCATION PLAN AND LOCATION OF CROSS-SECTIONS</b>   |                       |
| Date: <b>January 2014</b>          | Scale: <b>As shown</b> | Project: <b>PHASE TWO ENVIRONMENTAL SITE ASSESSMENT 541 AND 545 RIDEAU STREET, OTTAWA, ON</b>   |                       |
| Original Size: <b>Tabloid</b>      | Rev: <b>N/A</b>        |  <b>SPL Consultants Limited</b><br>Geotechnical * Environmental * Materials * Hydrogeology |                       |

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Legend:

Phase Two Property

Shallow Monitoring Well (7 mbgs) installed by SPL (Nov. 2013)

Deep Monitoring Well (20 mbgs) installed by SPL (Nov. 2013)

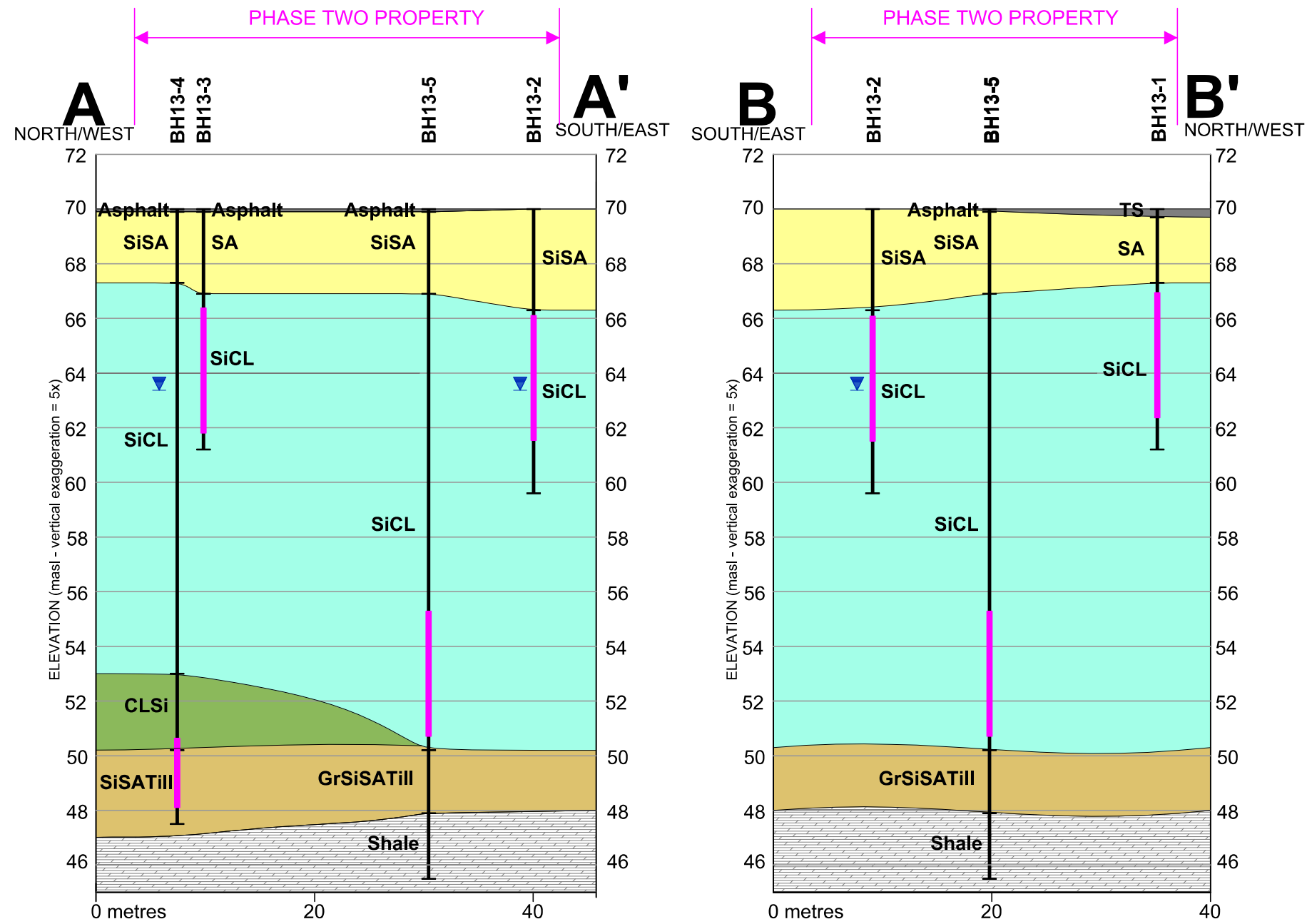
(230.4)


Goundwater Elevation (mbgs)

|                             |                 |  |                |
|-----------------------------|-----------------|--|----------------|
| Client: Dharma Developments |                 | Project No.: 1912-720  | Drawing No.: 3 |
| Drawn: RA                   | Approved: DL    | Title: SUMMARY OF CONTAMINANTS IN SOIL   |                |
| Date: January 2014          | Scale: As shown | Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT<br>541 AND 545 RIDEAU STREET, OTTAWA, ON                                  |                |
| Original Size: Tabloid      | Rev: N/A        | <div><div></div><div>SPL Consultants Limited</div><div>Geotechnical * Environmental * Materials * Hydrogeology</div></div> |                |



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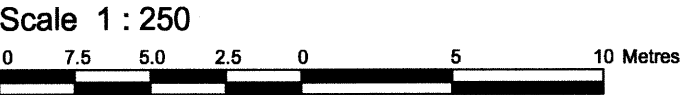
|                                    |                        |   |                       |
|------------------------------------|------------------------|---|-----------------------|
| Client: <b>Dharma Developments</b> |                        | Project No.: <b>1912-720</b>  | Drawing No.: <b>4</b> |
| Drawn: <b>RA</b>                   | Approved: <b>DL</b>    | Title: <b>CROSS-SECTIONS A-A' AND B-B'</b>  |                       |
| Date: <b>January 2014</b>          | Scale: <b>As shown</b> | Project: <b>PHASE TWO ENVIRONMENTAL SITE ASSESSMENT<br/>541 AND 545 RIDEAU STREET, OTTAWA, ON</b>   |                       |
| Original Size: <b>Tabloid</b>      | Rev: <b>N/A</b>        |  <b>SPL Consultants Limited</b><br>Geotechnical * Environmental * Materials * Hydrogeology |                       |

**APPENDIX A**  
**SURVEY PLAN**

SURVEYOR'S REAL PROPERTY REPORT  
PART 1 Plan of

PART OF LOTS 36 AND 37  
(North Rideau Street)  
**REGISTERED PLAN 43586**  
**CITY OF OTTAWA**  
Surveyed by Annis, O'Sullivan, Vollebakk Ltd.

NOTE: Centreline of Construction and Concrete Curb added  
October 18, 2012



Metric  
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND  
CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

Surveyor's Certificate  
I CERTIFY THAT :  
1. This survey and plan are correct and in accordance with the Surveys Act, the  
Surveyors Act, the Land Titles Act and the regulations made under them.  
2. The survey was completed on the 8th day of August, 2012.

Date \_\_\_\_\_ V. Andrew Shelp  
Ontario Land Surveyor

PART 2  
THIS PLAN MUST BE READ IN CONJUNCTION WITH  
SURVEY REPORT DATED: August 16, 2012

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to  
Dharma Developments ("The Client"), their solicitors,  
mortgagees, and other related parties, permission to use original, signed, sealed  
copies of the Surveyor's Real Property Report in transactions involving The Client.

- Notes & Legend
- |       |         |                                   |
|-------|---------|-----------------------------------|
| □     | Denotes | Survey Monument Planted           |
| ■     | "       | Survey Monument Found             |
| SIB   | "       | Standard Iron Bar                 |
| SSIB  | "       | Short Standard Iron Bar           |
| IB    | "       | Iron Bar                          |
| CP    | "       | Concrete Pin                      |
| (WIT) | "       | Witness                           |
| (AOG) | "       | Annis, O'Sullivan, Vollebakk Ltd. |
| Meas. | "       | Measured                          |
| Acc.  | "       | Accepted                          |
| N/S   | "       | North/South                       |
| BF    | "       | Board Fence                       |
| CLF   | "       | Chain Link Fence                  |
| C/L   | "       | Centreline                        |
| Prop. | "       | Proportioned                      |
| C-S   | "       | Commercial Sign                   |
| GM    | "       | Gas Meter                         |
| o B   | "       | Bollard                           |
| (P1)  | "       | Registered Plan 43586             |
| (P2)  | "       | (632) Plan, April 26, 1960        |
| (P3)  | "       | (AOG) Plan, February 14, 1973     |
| (P4)  | "       | Plan 5R-5528                      |
| (P5)  | "       | Plan 5R-5754                      |
| (P6)  | "       | Plan 4R-4198                      |
| (P7)  | "       | Carleton Condominium Plan 335     |
| (P8)  | "       | (1287) Plan, November 1, 1985     |
| (P9)  | "       | (725) Plan, April 29, 1987        |
| (P10) | "       | (1175) Plan, August 24, 1988      |
| OHW   | "       | Overhead Wires                    |



**APPENDIX B**  
**SAMPLING AND ANALYSIS PLAN**



**Project: 1912-720**

**October 31, 2013**

**Codeau Building Ltd  
1488 Stittsville Main Street  
Ottawa, Ontario  
K1S 2A5**

**Attention: Mr. Akash Sinha**

**Phase Two Environmental Site Assessment  
541 and 545 Rideau Street  
Ottawa, Ontario**

SPL is pleased to prepare a Sampling and Analysis Plan to complete a Phase Two ESA for the above noted property. The Phase Two ESA will involve intrusive investigation in the areas determined in the Phase One ESA to be areas of potential environmental concern. The Phase Two ESA will be completed in accordance with O.Reg. 153/04, as amended.

## **1. BACKGROUND AND OBJECTIVES**

Based on the findings of the Phase One ESA completed by SPL for the subject site, we expect that potential environmental issues may exist as a result of potentially contaminating activities identified within the Phase One Study Area, and as such a Phase Two ESA has been proposed to further investigate the environmental condition of the subject site and address all areas of potential environmental concern and parameters of concern identified for the subject site.

As such, a program of soil and groundwater sampling and chemical analysis for inorganic and organic parameters is proposed. The subsurface program will utilize three (3) boreholes to approximately 8 to 10 metres, and two (2) boreholes to approximately 22 to 25 metres to collect soil samples at depth and install five (5) groundwater monitoring wells to allow for groundwater sampling and monitoring. The Phase Two ESA will be conducted in conjunction with a Geotechnical Investigation which will be reported under a separate cover.

A summary of the associated tasks and anticipated chemical testing are provided below.

- Collect soil samples at frequent intervals from five (5) boreholes and submit representative soil samples for chemical analysis;
- Measure combustible gas levels in all retrieved soil samples from environmental boreholes as a preliminary screening method for combustible vapours;
- Install and develop five (5) monitoring wells and collect representative groundwater samples;

- Have all chemical analysis completed by a CALA laboratory in accordance with the Ontario Ministry of the Environment Standards and requirements of O.Reg. 153/04, as amended under the Environmental Protection Act;
- Monitor water levels in all onsite monitoring wells; and,
- Survey the measuring point at each monitoring well location.
- SPL's Standard Operating Procedures will be followed throughout the Phase Two ESA.

The following analytical program is proposed:

- Five (5) soil samples for metals and inorganics
- Four (4) soil samples for electrical conductivity and sodium adsorption ratio (EC/SAR)
- Five (5) soil samples for petroleum hydrocarbons (PHCs)
- Five (5) soil samples for volatile organic hydrocarbons (VOCs)
- Four (4) soil samples for polycyclic aromatic hydrocarbons (PAHs)
- Two (2) soil samples for QA/QC purposes (duplicates)
- Three (3) groundwater samples for metals and inorganics, VOCs, PHCs, PCBs and PAHs
- Two (2) groundwater samples for QA/QC purposes (duplicate and trip blank)

## **2. QUALITY ASSURANCE/QUALITY CONTROL PLAN**

During the investigation, following the QA/QC Plan will ensure sample integrity and validity of the analytical data. Sample collection and handling will be of the utmost importance to ensure the data is reliable and defensible. To achieve this, all soil and groundwater samples will be collected and handled in accordance with generally accepted sampling and handling procedures used by the environmental consulting industry. All sample containers, preservative, and labels will be supplied by the laboratory providing sample analysis. All non-dedicated sampling equipment will be cleaned following sampling events using phosphate free detergent and rinsed with distilled water. New disposable gloves will be used to handle sampling equipment and samples for each individual sampling location. As part of the quality assurance/quality control program, a blind duplicate sample will be analyzed for 10 % of the soil and 10 % of the groundwater samples completed as part of this investigation.

## **3. DATA QUALITY OBJECTIVES**

All soil and groundwater sampling will be carried out in accordance with SPL Standard Operating Procedures (SOPs). Laboratory analyses will be completed in accordance with the requirements of O.Reg. 153/04, as amended, under the Environmental Protection Act. The proposed analytical program will include verification that minimum detection limits are less than the applicable site condition standards. In cases where reported detection limits have been raised above the applicable standards, a discussion will be provided to support the results.

The chemical analyses will be conducted by AGAT Laboratories located in Mississauga, Ontario. AGAT is a member of the Canadian Association for Laboratory Accreditation (CALA) and meets the requirements of Section 47 of O.Reg. 153/04, as amended, certifying that the analytical laboratory be accredited in

accordance with the International Standard ISO/IEC 17025 and with standards developed by the Standards Council of Canada.

Should you have any questions regarding this Sampling and Analysis Plan, please do not hesitate to contact the undersigned at our office.

Yours Very Truly,

**SPL Consultants Limited**

A handwritten signature in blue ink, appearing to read 'D. Lewis', is positioned above the printed name.

**David Lewis, P.Eng.**  
**Principal Engineer**

**APPENDIX C**  
**BOREHOLE LOGS**



PROJECT: Interim Phase Two Environmental Site Assessment  
CLIENT: Dharma Developments  
PROJECT LOCATION: 541 and 545 Rideau Street, Ottawa, Ontario  
DATUM: N/A  
BH LOCATION: See Borehole Location Plan

**DRILLING DATA**  
Method: CME 75 - Hollow Stem Augers  
Diameter: 200 mm  
Date: Nov/13/2013

REF. NO.: 1912-720  
ENCL NO.: 1

| SOIL PROFILE         |   |             | SAMPLES |      |                    | GROUND WATER CONDITIONS | ELEVATION | Head Space Combustable Vapor Reading (ppm) | PLASTIC LIMIT<br>W <sub>p</sub> | NATURAL MOISTURE CONTENT<br>W | LIQUID LIMIT<br>W <sub>L</sub> | POCKET PEN.<br>(Cu) (kPa) | NATURAL UNIT WT<br>(Mg/m <sup>3</sup> ) | REMARKS AND GRAIN SIZE DISTRIBUTION (%) |
|----------------------|---|-------------|---------|------|--------------------|-------------------------|-----------|--|---------------------------------|-------------------------------|--------------------------------|---------------------------|---|---|
| (m)<br>ELEV<br>DEPTH | DESCRIPTION   | STRATA PLOT | NUMBER  | TYPE | "N" BLOWS<br>0.3 m |                         |           |  |                                 |                               |                                |                           |   | GR SA SI CL                             |
| 0.0                  | Topsoil = 330 mm  |             | 1       | SS   | 9                  |                         |           |  |                                 |                               |                                |                           |   |   |
| 0.3                  | <b>SAND:</b> some silt, trace clay, trace gravel, loose, brown, moist   |             | 2       | SS   | 6                  |                         |           |  |                                 |                               |                                |                           |   | 1 73 18 8                               |
|                      |   |             | 3       | SS   | 6                  |                         |           |  |                                 |                               |                                |                           |   |   |
|                      |   |             | 4       | SS   | 11                 |                         |           |  |                                 |                               |                                |                           |   |   |
| 2.7                  | <b>SILTY CLAY:</b> stiff to very stiff, brown to grey, moist - grey below 3 m   |             | 5       | SS   | 3                  |                         |           |  |                                 |                               |                                | 71.4                      | 15.4                                    |   |
| 3.7                  | <b>SILTY CLAY:</b> stiff, grey, moist   |             | 6       | SS   | 2                  |                         |           |  |                                 |                               |                                | 83.5                      |   |   |
|                      |   |             |         | VANE |                    |                         |           |  |                                 |                               |                                |                           |   |   |
|                      |   |             |         | VANE |                    |                         |           |  |                                 |                               |                                |                           |   |   |
|                      |   |             | 7       | SS   | 0                  |                         |           |  |                                 |                               |                                | 72.1                      |   |   |
|                      |   |             |         | VANE |                    |                         |           |  |                                 |                               |                                |                           |   |   |
|                      |   |             |         | VANE |                    |                         |           |  |                                 |                               |                                |                           |   |   |
|                      |   |             | 8       | ST   |                    |                         |           |  |                                 |                               |                                | 68.7                      |   |   |
|                      |   |             |         | VANE |                    |                         |           |  |                                 |                               |                                |                           |   |   |
|                      |   |             |         | VANE |                    |                         |           |  |                                 |                               |                                |                           |   |   |
| 8.8                  | <b>END OF BOREHOLE</b><br>Notes:<br>1) 50 mm OD monitoring well installed in borehole upon completion<br>2) Monitoring well dry on Nov. 18, 2013, Dec. 3 and 3, 2013. |             |         |      |                    |                         |           |  |                                 |                               |                                |                           |   |   |

GROUNDWATER ELEVATIONS

GRAPH NOTES

+ 3 , × 3 : Numbers refer to Sensitivity

○ ε=3% Strain at Failure

Shallow/ Single Installation ▽ ▽ Deep/Dual Installation ▽ ▽

SPL SOIL LOG WITH VOC 0-30 PPM 1912-710.GPJ SPL.GDT 22/1/14

PROJECT: Interim Phase Two Environmental Site Assessment  
CLIENT: Dharma Developments  
PROJECT LOCATION: 541 and 545 Rideau Street, Ottawa, Ontario  
DATUM: N/A  
BH LOCATION: See Borehole Location Plan

**DRILLING DATA**  
Method: CME 75 - Hollow Stem Augers  
Diameter: 200 mm  
Date: Nov/13/2013

REF. NO.: 1912-720  
ENCL NO.: 2

| SOIL PROFILE         |   |             | SAMPLES |      |                    | GROUND WATER CONDITIONS | ELEVATION | Head Space Combustable Vapor Reading (ppm) | PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT |   |                | POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (Mg/m <sup>3</sup> ) | REMARKS AND GRAIN SIZE DISTRIBUTION (%) |
|----------------------|---|-------------|---------|------|--------------------|-------------------------|-----------|--|---|---|----------------|------------------------|--------------------------------------|---|
| (m)<br>ELEV<br>DEPTH | DESCRIPTION   | STRATA PLOT | NUMBER  | TYPE | "N" BLOWS<br>0.3 m |                         |           |  | W <sub>p</sub>                                      | W | W <sub>L</sub> |                        |                                      |   |
| 0.0                  | <b>SILTY SAND:</b> trace gravel, loose to compact, brown, moist<br><br>- wet below 3.0 m              |             | 1       | SS   | 15                 |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             | 2       | SS   | 9                  |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             | 3       | SS   | 8                  |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             | 4       | SS   | 14                 |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             | 5       | SS   | 11                 |                         |           |  |   |   |                |                        |                                      |   |
| 3.7                  | <b>SILTY CLAY:</b> stiff, brown, moist  |             |         |      |                    |                         |           |  |   |   |                |                        |                                      |   |
| 4.6                  | <b>SILTY CLAY:</b> stiff, grey, moist   |             | 6       | SS   | 1                  |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             | 7       | SS   | 0                  |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             | 8       | TW   |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             | 9       | TW   |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
| 10.4                 | <b>END OF BOREHOLE</b><br>Notes:<br>1) 50 mm OD monitoring well installed in borehole upon completion |             |         |      |                    |                         |           |  |   |   |                |                        |                                      |   |

SPL SOIL LOG WITH VOC 0-30 PPM 1912-710.GPJ SPL.GDT 22/1/14

GROUNDWATER ELEVATIONS

GRAPH NOTES

+ 3, × 3: Numbers refer to Sensitivity

○ ε=3% Strain at Failure

Shallow/ Single Installation ▽ ▽ Deep/Dual Installation ▽ ▽

PROJECT: Interim Phase Two Environmental Site Assessment  
CLIENT: Dharma Developments  
PROJECT LOCATION: 541 and 545 Rideau Street, Ottawa, Ontario  
DATUM: N/A  
BH LOCATION: See Borehole Location Plan

**DRILLING DATA**  
Method: CME 75 - Hollow Stem Augers  
Diameter: 200 mm  
Date: Nov/14/2013

REF. NO.: 1912-720  
ENCL NO.: 3

| SOIL PROFILE         |   |             | SAMPLES |      |                    | GROUND WATER CONDITIONS | ELEVATION | Head Space Combustable Vapor Reading (ppm) | PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT |   |                | POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (Mg/m <sup>3</sup> ) | REMARKS AND GRAIN SIZE DISTRIBUTION (%) |
|----------------------|---|-------------|---------|------|--------------------|-------------------------|-----------|--|---|---|----------------|------------------------|--------------------------------------|---|
| (m)<br>ELEV<br>DEPTH | DESCRIPTION   | STRATA PLOT | NUMBER  | TYPE | "N" BLOWS<br>0.3 m |                         |           |  | W <sub>p</sub>                                      | W | W <sub>L</sub> |                        |                                      |   |
| 0.0                  | Asphalt = 20 mm<br>Base = 50 mm (Sand and Gravel)<br><b>SAND:</b> some silt, trace clay, loose, brown, moist  |             | 1       | SS   | 3                  |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             | 2       | SS   | 1                  |                         |           |  |   |   |                |                        |                                      |   |
|                      | - compact below 1.5 m   |             | 3       | SS   | 13                 |                         |           |  |   |   |                |                        |                                      |   |
|                      | - wet below 2.3 m   |             | 4       | SS   | 11                 |                         |           |  |   |   |                |                        |                                      |   |
| 3.1                  | <b>SILTY CLAY:</b> stiff, brown, moist  |             | 5       | SS   | 3                  |                         |           |  |   |   |                | 47.4                   |                                      |   |
| 3.4                  | <b>SILTY CLAY:</b> stiff, grey, moist   |             |         |      |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             | 6       | SS   | 0                  |                         |           |  |   |   |                | 79.6                   |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             | 7       | SS   | 0                  |                         |           |  |   |   |                | 69.9                   | 15.6                                 |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             | 8       | TW   |                    |                         |           |  |   |   |                | 73.6                   |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |   |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
| 8.8                  | <b>END OF BOREHOLE</b><br>Notes:<br>1) 50 mm OD monitoring well installed in borehole upon completion<br>2) Monitoring well dry on Nov. 18, 2013 and Dec. 3 and 13, 2013. |             |         |      |                    |                         |           |  |   |   |                |                        |                                      |   |

GROUNDWATER ELEVATIONS

GRAPH NOTES

+ 3, × 3: Numbers refer to Sensitivity

○ ε=3% Strain at Failure

Shallow/ Single Installation ▽ ▽ Deep/Dual Installation ▽ ▽

SPL SOIL LOG WITH VOC 0-30 PPM 1912-710.GPJ SPL.GDT 22/1/14

REF. NO.: 1912-720  
ENCL NO.: 4

Shallow/ Single Installation   Deep/Dual Installation  

PROJECT: Interim Phase Two Environmental Site Assessment  
CLIENT: Dharma Developments  
PROJECT LOCATION: 541 and 545 Rideau Street, Ottawa, Ontario  
DATUM: N/A  
BH LOCATION: See Borehole Location Plan

**DRILLING DATA**  
Method: CME 75 - Hollow Stem Augers  
Diameter: 200 mm  
Date: Nov/14/2013

REF. NO.: 1912-720  
ENCL NO.: 4

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SPL SOIL LOG WITH VOC 0~30 PPM 1912-710.GPJ SPL.GDT 22/1/14

Continued Next Page




## GROUNDWATER ELEVATIONS

GRAPH  
NOTES

+ 3, × 3: Numbers refer to Sensitivity

○  $\epsilon=3\%$  Strain at Failure

Shallow/ Single Installation   Deep/Dual Installation  

| PROJECT: Interim Phase Two Environmental Site Assessment     |  |             |         |      |                    |   |           | DRILLING DATA  |  |   |                                       |                           |   |   |  |
|--|--|-------------|---------|------|--------------------|---|-----------|--|--|---|---------------------------------------|---------------------------|---|---|--|
| CLIENT: Dharma Developments                                  |  |             |         |      |                    |   |           | Method: CME 75 - Hollow Stem Augers  |  |   |                                       |                           |   |   |  |
| PROJECT LOCATION: 541 and 545 Rideau Street, Ottawa, Ontario |  |             |         |      |                    |   |           | Diameter: 200 mm   |  |   |                                       | REF. NO.: 1912-720        |   |   |  |
| DATUM: N/A   |  |             |         |      |                    |   |           | Date: Nov/14/2013  |  |   |                                       | ENCL NO.: 4               |   |   |  |
| BH LOCATION: See Borehole Location Plan                      |  |             |         |      |                    |   |           |  |  |   |                                       |                           |   |   |  |
| SOIL PROFILE   |  |             | SAMPLES |      |                    | GROUND WATER<br>CONDITIONS  | ELEVATION | Head Space Combustable<br>Vapor Reading<br>(ppm)                                   | PLASTIC<br>LIMIT<br><br>W <sub>p</sub> | NATURAL<br>MOISTURE<br>CONTENT<br><br>W | LIQUID<br>LIMIT<br><br>W <sub>L</sub> | POCKET PEN.<br>(Cu) (kPa) | NATURAL UNIT WT<br>(Mg/m <sup>3</sup> ) | REMARKS<br>AND<br>GRAIN SIZE<br>DISTRIBUTION<br>(%) |  |
| (m)<br>ELEV<br>DEPTH   | DESCRIPTION  | STRATA PLOT | NUMBER  | TYPE | "N" BLOWS<br>0.3 m |   |           |  |  |   |                                       |                           |   |   |  |
|  | SILTY SAND TILL some gravel,<br>trace clay, grey, wet,<br>compact(Continued)   |             |         |      |                    |  |           |  |  |   |                                       |                           |   | GR SA SI CL   |  |
| 22.5   | END OF BOREHOLE<br>Notes:<br>1) 50 mm OD monitoring well<br>installed in borehole upon completion<br>2) Auger and SPT refusal<br>encountered at 22.5 m |             | 17      | SS   | >50 /<br>25<br>mm  |  | Bentonite |  |  |   |                                       |                           |   |   |  |

GROUNDWATER ELEVATIONS

GRAPH NOTES

+ 3, × 3: Numbers refer to Sensitivity

○ ε=3% Strain at Failure

Shallow/ Single Installation ▽ ▽ Deep/Dual Installation ▽ ▽

SPL SOIL LOG WITH VOC 0-30 PPM 1912-710.GPJ SPL.GDT 22/1/14

PROJECT: Interim Phase Two Environmental Site Assessment  
CLIENT: Dharma Developments  
PROJECT LOCATION: 541 and 545 Rideau Street, Ottawa, Ontario  
DATUM: N/A  
BH LOCATION: See Borehole Location Plan

**DRILLING DATA**  
Method: CME 75 - Hollow Stem Augers  
Diameter: 200 mm  
Date: Nov/05/2013

REF. NO.: 1912-720  
ENCL NO.: 5

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SSPL SOIL LOG WITH VOC 0~30 PPM 1912-710.GPJ SPL.GDT 22/1/14

Continued Next Page

GROUNDWATER ELEVATIONS

GRAPH  
NOTES

$+^3, \times^3$ : Numbers refer to Sensitivity

○  $\epsilon=3\%$  Strain at Failure

Shallow/ Single Installation   Deep/Dual Installation  

PROJECT: Interim Phase Two Environmental Site Assessment  
CLIENT: Dharma Developments  
PROJECT LOCATION: 541 and 545 Rideau Street, Ottawa, Ontario  
DATUM: N/A  
BH LOCATION: See Borehole Location Plan

**DRILLING DATA**  
Method: CME 75 - Hollow Stem Augers  
Diameter: 200 mm  
Date: Nov/05/2013

REF. NO.: 1912-720  
ENCL NO.: 5

| SOIL PROFILE         |  |             | SAMPLES |      |                    | GROUND WATER CONDITIONS | ELEVATION | Head Space Combustable Vapor Reading (ppm) | PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT |   |                | POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (Mg/m <sup>3</sup> ) | REMARKS AND GRAIN SIZE DISTRIBUTION (%) |
|----------------------|--|-------------|---------|------|--------------------|-------------------------|-----------|--|---|---|----------------|------------------------|--------------------------------------|---|
| (m)<br>ELEV<br>DEPTH | DESCRIPTION  | STRATA PLOT | NUMBER  | TYPE | "N" BLOWS<br>0.3 m |                         |           |  | W <sub>p</sub>                                      | W | W <sub>L</sub> |                        |                                      |   |
|                      | <b>SILTY CLAY:</b> stiff, grey, moist(Continued)                         |             | 10      | SS   | 0                  |                         |           |  |   |   |                |                        |                                      | GR SA SI CL                             |
|                      |  |             | 11      | SS   | 0                  |                         |           |  |   |   |                | 43.9                   | 18.0                                 |   |
|                      |  |             | 12      | SS   | 0                  |                         |           |  |   |   |                | 50.6                   |                                      |   |
|                      |  |             |         |      |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |  |             | 13      | SS   | 0                  |                         |           |  |   |   |                | 44.9                   | 17.3                                 |   |
|                      |  |             |         |      |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |  |             | 14      | SS   | 10                 |                         |           |  |   |   |                |                        |                                      |   |
|                      |  |             |         | VANE |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |  |             |         |      |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |  |             | 15      | SS   | 6                  |                         |           |  |   |   |                |                        |                                      |   |
|                      |  |             |         |      |                    |                         |           |  |   |   |                |                        |                                      |   |
| 19.8                 | <b>GRAVELLY SILTY SAND TILL:</b> trace clay, loose to compact, grey, wet |             | 16      | SS   | 6                  |                         |           |  |   |   |                |                        |                                      |   |
|                      |  |             |         |      |                    |                         |           |  |   |   |                |                        |                                      |   |
|                      |  |             | 17      | SS   | 50 blows / 125     |                         |           |  |   |   |                |                        |                                      | 23 49 23 6                              |

SPL SOIL LOG WITH VOC 0-30 PPM 1912-710.GPJ SPL.GDT 22/1/14

Continued Next Page

GROUNDWATER ELEVATIONS

GRAPH NOTES

+ 3, × 3: Numbers refer to Sensitivity


○ ε=3% Strain at Failure

Shallow/ Single Installation ▽ ▽ Deep/Dual Installation ▽ ▽



PROJECT: Interim Phase Two Environmental Site Assessment  
CLIENT: Dharma Developments  
PROJECT LOCATION: 541 and 545 Rideau Street, Ottawa, Ontario  
DATUM: N/A  
BH LOCATION: See Borehole Location Plan

**DRILLING DATA**  
Method: CME 75 - Hollow Stem Augers  
Diameter: 200 mm  
Date: Nov/05/2013  
REF. NO.: 1912-720  
ENCL NO.: 5

| SOIL PROFILE         |   |   | SAMPLES |      |                 | GROUND WATER CONDITIONS | ELEVATION | Head Space Combustable Vapor Reading (ppm) | PLASTIC LIMIT NATURAL MOISTURE CONTENT LIQUID LIMIT |   |                | POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (Mg/m <sup>3</sup> ) | REMARKS AND GRAIN SIZE DISTRIBUTION (%) |
|----------------------|---|---|---------|------|-----------------|-------------------------|-----------|--|---|---|----------------|------------------------|--------------------------------------|---|
| (m)<br>ELEV<br>DEPTH | DESCRIPTION   | STRATA PLOT   | NUMBER  | TYPE | "N" BLOWS 0.3 m |                         |           |  | W <sub>p</sub>                                      | W | W <sub>L</sub> |                        |                                      |   |
| 22.1                 | <b>INTERBEDDED LIMESTONE AND SHALE</b> medium to thinly bedded, fresh to slightly weatehered horizontal, dark grey, moderately spaced joints<br><br>R1:<br>Recovery: 90%,<br>Solid Rock Recovery: 65%<br>RQD: 65% (fair)<br><br>slightly to moderately weathered below 23 m, vertical joint below 23.7 m<br><br>R2: |  | R1      | CORE |                 |                         |           |  |   |   |                |                        |                                      |   |
| 24.5                 | Recovery: 80%,<br>Solid Rock Recovery: 0%<br>RQD: 0% (very poor)<br><b>END OF BOREHOLE</b><br>Notes:<br>1) 50 mm OD monitoring well installed in borehole upon completion<br>2) Monitoring well dry on December 13, 2013.   |   |         |      |                 |                         |           |  |   |   |                |                        |                                      |   |

GROUNDWATER ELEVATIONS

GRAPH NOTES

+ 3, × 3: Numbers refer to Sensitivity

○ ε=3% Strain at Failure

Shallow/ Single Installation  Deep/Dual Installation 

SPL SOIL LOG WITH VOC 0-30 PPM 1912-710.GPJ SPL.GDT 22/1/14

**APPENDIX D**  
**CERTIFICATES OF ANALYSES – PHASE TWO ESA**

CLIENT NAME: SPL CONSULTANTS  
6221 HIGHWAY 7 WEST UNIT 16  
VAUGHAN, ON L4H0K8  
(905) 856-0065

ATTENTION TO: Melissa Clement

PROJECT NO: 1912-710

AGAT WORK ORDER: 13Z784392

SOIL ANALYSIS REVIEWED BY: Anthony Dapaah, PhD (Chem), Inorganic Lab Manager

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Nov 25, 2013

PAGES (INCLUDING COVER): 17

VERSION\*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

\*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



## Certificate of Analysis

AGAT WORK ORDER: 13Z784392

PROJECT NO: 1912-710

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

### O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2013-11-18

DATE REPORTED: 2013-11-25

|                                      |          | SAMPLE DESCRIPTION: |       | BH13-1 SS2 | BH13-2 SS1B | BH13-3 SS2 | BH13-4 SS3 | BH13-5 SS2 |
|--------------------------------------|----------|---------------------|-------|------------|-------------|------------|------------|------------|
|                                      |          | SAMPLE TYPE:        |       | Soil       | Soil        | Soil       | Soil       | Soil       |
|                                      |          | DATE SAMPLED:       |       | 11/13/2013 | 11/13/2013  | 11/12/2013 | 11/14/2013 | 11/5/2013  |
| Parameter                            | Unit     | G / S               | RDL   | 4975379    | 4975455     | 4975537    | 4975674    | 4975850    |
| Antimony                             | µg/g     | 7.5                 | 0.8   | <0.8       | <0.8        | <0.8       | <0.8       | <0.8       |
| Arsenic                              | µg/g     | 18                  | 1     | 2          | 4           | 2          | <1         | <1         |
| Barium                               | µg/g     | 390                 | 2     | 64         | 102         | 33         | 49         | 19         |
| Beryllium                            | µg/g     | 4                   | 0.5   | <0.5       | <0.5        | <0.5       | <0.5       | <0.5       |
| Boron                                | µg/g     | 120                 | 5     | <5         | <5          | <5         | <5         | <5         |
| Boron (Hot Water Soluble)            | µg/g     | 1.5                 | 0.10  | 0.22       | 0.53        | 0.77       | 0.14       | <0.10      |
| Cadmium                              | µg/g     | 1.2                 | 0.5   | <0.5       | <0.5        | <0.5       | <0.5       | <0.5       |
| Chromium                             | µg/g     | 160                 | 2     | 19         | 15          | 10         | 18         | 8          |
| Cobalt                               | µg/g     | 22                  | 0.5   | 4.7        | 3.6         | 2.8        | 4.2        | 2.5        |
| Copper                               | µg/g     | 140                 | 1     | 13         | 16          | 6          | 10         | 3          |
| Lead                                 | µg/g     | 120                 | 1     | 36         | 94          | 53         | 2          | 1          |
| Molybdenum                           | µg/g     | 6.9                 | 0.5   | 0.6        | 1.0         | <0.5       | <0.5       | <0.5       |
| Nickel                               | µg/g     | 100                 | 1     | 12         | 10          | 7          | 11         | 7          |
| Selenium                             | µg/g     | 2.4                 | 0.4   | <0.4       | 0.5         | <0.4       | <0.4       | <0.4       |
| Silver                               | µg/g     | 20                  | 0.2   | <0.2       | <0.2        | <0.2       | <0.2       | <0.2       |
| Thallium                             | µg/g     | 1                   | 0.4   | <0.4       | <0.4        | <0.4       | <0.4       | <0.4       |
| Uranium                              | µg/g     | 23                  | 0.5   | <0.5       | <0.5        | <0.5       | <0.5       | <0.5       |
| Vanadium                             | µg/g     | 86                  | 1     | 22         | 17          | 14         | 21         | 11         |
| Zinc                                 | µg/g     | 340                 | 5     | 49         | 81          | 30         | 20         | 13         |
| Chromium VI                          | µg/g     | 8                   | 0.2   | <0.2       | <0.2        | <0.2       | <0.2       | <0.2       |
| Cyanide                              | µg/g     | 0.051               | 0.040 | <0.040     | <0.040      | <0.040     | <0.040     | <0.040     |
| Mercury                              | µg/g     | 0.27                | 0.10  | <0.10      | 0.18        | <0.10      | <0.10      | <0.10      |
| Electrical Conductivity (2:1)        | mS/cm    | 0.7                 | 0.005 | 0.442      | 0.686       | 0.295      | 0.090      | 0.052      |
| Sodium Adsorption Ratio (2:1)        | N/A      | 5                   | N/A   | 5.72       | 1.24        | 6.91       | 2.86       | 2.88       |
| pH, 2:1 CaCl <sub>2</sub> Extraction | pH Units |                     | NA    | 7.79       | 7.74        | 7.78       | 7.76       | 7.53       |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(RPI) - Current  
4975379-4975850 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl<sub>2</sub> extract prepared at 2:1 ratio.

Certified By:



**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 13Z784392

PROJECT NO: 1912-710

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

### O. Reg. 153(511) - ORPs (Soil) - EC/SAR

DATE RECEIVED: 2013-11-18

DATE REPORTED: 2013-11-25

|                               |       | SAMPLE DESCRIPTION: |       | BH13-1 SS4 | BH13-3 SS3 | BH13-4 SS1 | BH13-5 SS4 |
|-------------------------------|-------|---------------------|-------|------------|------------|------------|------------|
|                               |       | SAMPLE TYPE:        |       | Soil       | Soil       | Soil       | Soil       |
|                               |       | DATE SAMPLED:       |       | 11/13/2013 | 11/12/2013 | 11/14/2013 | 11/5/2013  |
| Parameter                     | Unit  | G / S               | RDL   | 4975381    | 4975541    | 4975672    | 4975859    |
| Electrical Conductivity (2:1) | mS/cm | 0.7                 | 0.005 | 0.492      | 0.537      | 0.053      | 0.713      |
| Sodium Adsorption Ratio       | N/A   | 5                   | NA    | 11.2       | 2.75       | 0.197      | 4.03       |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(RPI) - Current  
4975381-4975859 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).

Certified By:



## Certificate of Analysis

AGAT WORK ORDER: 13Z784392

PROJECT NO: 1912-710

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

| O. Reg. 153(511) - PAHs (Soil) |      |                   |      |                           |         |            |         |
|--------------------------------|------|-------------------|------|---------------------------|---------|------------|---------|
| DATE RECEIVED: 2013-11-18      |      |                   |      | DATE REPORTED: 2013-11-25 |         |            |         |
| SAMPLE DESCRIPTION:            |      | BH13-1 SS1B       |      | BH13-2 SS3                |         | BH13-4 SS2 |         |
| SAMPLE TYPE:                   |      | Soil              |      | Soil                      |         | Soil       |         |
| DATE SAMPLED:                  |      | 11/13/2013        |      | 11/13/2013                |         | 11/14/2013 |         |
| G / S                          |      | 4975378           |      | 4975459                   |         | 4975828    |         |
| RDL                            |      | 4975378           |      | 4975459                   |         | 4975828    |         |
| Parameter                      | Unit | G / S             | RDL  | 4975378                   | 4975459 | 4975828    | 4975868 |
| Naphthalene                    | µg/g | 0.6               | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   |
| Acenaphthylene                 | µg/g | 0.15              | 0.05 | <0.05                     | <0.05   | 0.09       | <0.05   |
| Acenaphthene                   | µg/g | 7.9               | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   |
| Fluorene                       | µg/g | 62                | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   |
| Phenanthrene                   | µg/g | 6.2               | 0.05 | <0.05                     | <0.05   | 0.19       | <0.05   |
| Anthracene                     | µg/g | 0.67              | 0.05 | <0.05                     | <0.05   | 0.05       | <0.05   |
| Fluoranthene                   | µg/g | 0.69              | 0.05 | <0.05                     | <0.05   | 0.60       | <0.05   |
| Pyrene                         | µg/g | 78                | 0.05 | <0.05                     | <0.05   | 0.54       | <0.05   |
| Benz(a)anthracene              | µg/g | 0.5               | 0.05 | <0.05                     | <0.05   | 0.18       | <0.05   |
| Chrysene                       | µg/g | 7                 | 0.05 | <0.05                     | <0.05   | 0.34       | <0.05   |
| Benzo(b)fluoranthene           | µg/g | 0.78              | 0.05 | <0.05                     | <0.05   | 0.37       | <0.05   |
| Benzo(k)fluoranthene           | µg/g | 0.78              | 0.05 | <0.05                     | <0.05   | 0.14       | <0.05   |
| Benzo(a)pyrene                 | µg/g | 0.3               | 0.05 | <0.05                     | <0.05   | 0.25       | <0.05   |
| Indeno(1,2,3-cd)pyrene         | µg/g | 0.38              | 0.05 | <0.05                     | <0.05   | 0.13       | <0.05   |
| Dibenz(a,h)anthracene          | µg/g | 0.1               | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   |
| Benzo(g,h,i)perylene           | µg/g | 6.6               | 0.05 | <0.05                     | <0.05   | 0.14       | <0.05   |
| 2-and 1-methyl Naphthalene     | µg/g | 0.99              | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   |
| Moisture Content               | %    |                   | 0.1  | 8.1                       | 2.4     | 13.7       | 7.1     |
| Surrogate                      | Unit | Acceptable Limits |      |                           |         |            |         |
| Chrysene-d12                   | %    | 50-140            |      | 68                        | 69      | 89         | 62      |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(RPI) - Current

4975378-4975868 Results are based on the dry weight of the soil.

Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.

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AGAT WORK ORDER: 13Z784392

PROJECT NO: 1912-710

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CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

### O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)

DATE RECEIVED: 2013-11-18

DATE REPORTED: 2013-11-25

|                                |      | SAMPLE DESCRIPTION: BH13-1 SS5 |     |         | BH13-1 SS7 |         | BH13-2 SS5 |         | BH13-3 SS4 |         | BH13-4 SS4 |  | QA/QC #1  |     | QA/QC #2  |     |
|--------------------------------|------|--------------------------------|-----|---------|------------|---------|------------|---------|------------|---------|------------|--|-----------|-----|-----------|-----|
|                                |      | SAMPLE TYPE: Soil              |     |         | Soil       |         | Soil       |         | Soil       |         | Soil       |  | Soil      |     | Soil      |     |
|                                |      | DATE SAMPLED: 11/13/2013       |     |         | 11/13/2013 |         | 11/13/2013 |         | 11/12/2013 |         | 11/14/2013 |  | 11/5/2013 |     | 11/5/2013 |     |
| Parameter                      | Unit | G / S                          | RDL | 4975407 | RDL        | 4975448 | 4975471    | 4975577 | 4975835    | 4975878 | 4975989    |  |           |     |           |     |
| F1 (C6 to C10)                 | µg/g |                                | 10  | <10     | 5          | <5      | <5         | <5      | <5         | <5      | <5         |  | <5        | <5  |           | <5  |
| F1 (C6 to C10) minus BTEX      | µg/g | 55                             | 10  | <10     | 5          | <5      | <5         | <5      | <5         | <5      | <5         |  | <5        | <5  |           | <5  |
| F2 (C10 to C16)                | µg/g | 98                             | 20  | <20     | 10         | <10     | <10        | <10     | <10        | <10     | <10        |  | <10       | <10 |           | <10 |
| F3 (C16 to C34)                | µg/g | 300                            | 100 | <100    | 50         | <50     | <50        | <50     | <50        | <50     | <50        |  | <50       | <50 |           | <50 |
| F4 (C34 to C50)                | µg/g | 2800                           | 100 | <100    | 50         | <50     | <50        | <50     | <50        | <50     | <50        |  | <50       | <50 |           | <50 |
| Gravimetric Heavy Hydrocarbons | µg/g | 2800                           | 100 | NA      | 50         | NA      | NA         | NA      | NA         | NA      | NA         |  | NA        | NA  |           | NA  |
| Moisture Content               | %    |                                | 0.1 | 43.3    | 0.1        | 39.1    | 19.6       | 16.3    | 19.4       | 22.2    | 16.9       |  |           |     |           |     |
| Surrogate                      | Unit | Acceptable Limits              |     |         |            |         |            |         |            |         |            |  |           |     |           |     |
| Terphenyl                      | %    | 60-140                         |     | 82      |            | 106     | 103        | 96      | 84         | 91      | 104        |  |           |     |           |     |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(RPI) - Current

4975407 Results are based on sample dry weight.  
Due to high moisture content of the sample the reporting detection limit has been raised.  
The C6-C10 fraction is calculated using toluene response factor.  
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.  
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.  
Total C6 - C50 results are corrected for BTEX contributions.  
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.  
nC6 and nC10 response factors are within 30% of Toluene response factor.  
nC10, nC16 and nC34 response factors are within 10% of their average.  
C50 response factor is within 70% of nC10 + nC16 + nC34 average.  
Linearity is within 15%.  
Extraction and holding times were met for this sample.  
Fractions 1-4 are quantified without the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.

4975448-4975989 Results are based on sample dry weight.  
The C6-C10 fraction is calculated using toluene response factor.  
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.  
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.  
Total C6 - C50 results are corrected for BTEX contributions.  
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.  
nC6 and nC10 response factors are within 30% of Toluene response factor.  
nC10, nC16 and nC34 response factors are within 10% of their average.  
C50 response factor is within 70% of nC10 + nC16 + nC34 average.  
Linearity is within 15%.  
Extraction and holding times were met for this sample.  
Fractions 1-4 are quantified without the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.

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AGAT WORK ORDER: 13Z784392

PROJECT NO: 1912-710

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ATTENTION TO: Melissa Clement

### O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-11-18

DATE REPORTED: 2013-11-25

|                             |      | SAMPLE DESCRIPTION: |      | BH13-2 SS6 | BH13-3 SS7 | BH13-4 SS7 |
|-----------------------------|------|---------------------|------|------------|------------|------------|
|                             |      | SAMPLE TYPE:        |      | Soil       | Soil       | Soil       |
|                             |      | DATE SAMPLED:       |      | 11/13/2013 | 11/12/2013 | 11/14/2013 |
| Parameter                   | Unit | G / S               | RDL  | 4975524    | 4975665    | 4975840    |
| Dichlorodifluoromethane     | ug/g | 16                  | 0.10 | <0.10      | <0.10      | <0.10      |
| Vinyl Chloride              | ug/g | 0.02                | 0.04 | <0.04      | <0.04      | <0.04      |
| Bromomethane                | ug/g | 0.05                | 0.10 | <0.10      | <0.10      | <0.10      |
| Trichlorofluoromethane      | ug/g | 4                   | 0.10 | <0.10      | <0.10      | <0.10      |
| Acetone                     | ug/g | 16                  | 1.00 | <1.00      | <1.00      | <1.00      |
| 1,1-Dichloroethylene        | ug/g | 0.05                | 0.10 | <0.10      | <0.10      | <0.10      |
| Methylene Chloride          | ug/g | 0.1                 | 0.10 | <0.10      | <0.10      | <0.10      |
| Trans- 1,2-Dichloroethylene | ug/g | 0.084               | 0.10 | <0.10      | <0.10      | <0.10      |
| Methyl tert-butyl Ether     | ug/g | 0.75                | 0.10 | <0.10      | <0.10      | <0.10      |
| 1,1-Dichloroethane          | ug/g | 3.5                 | 0.04 | <0.04      | <0.04      | <0.04      |
| Methyl Ethyl Ketone         | ug/g | 16                  | 1.00 | <1.00      | <1.00      | <1.00      |
| Cis- 1,2-Dichloroethylene   | ug/g | 3.4                 | 0.04 | <0.04      | <0.04      | <0.04      |
| Chloroform                  | ug/g | 0.05                | 0.08 | <0.08      | <0.08      | <0.08      |
| 1,2-Dichloroethane          | ug/g | 0.05                | 0.06 | <0.06      | <0.06      | <0.06      |
| 1,1,1-Trichloroethane       | ug/g | 0.38                | 0.10 | <0.10      | <0.10      | <0.10      |
| Carbon Tetrachloride        | ug/g | 0.05                | 0.10 | <0.10      | <0.10      | <0.10      |
| Benzene                     | ug/g | 0.21                | 0.04 | <0.04      | <0.04      | <0.04      |
| 1,2-Dichloropropane         | ug/g | 0.05                | 0.06 | <0.06      | <0.06      | <0.06      |
| Trichloroethylene           | ug/g | 0.061               | 0.06 | <0.06      | <0.06      | <0.06      |
| Bromodichloromethane        | ug/g | 13                  | 0.10 | <0.10      | <0.10      | <0.10      |
| Methyl Isobutyl Ketone      | ug/g | 1.7                 | 1.00 | <1.00      | <1.00      | <1.00      |
| 1,1,2-Trichloroethane       | ug/g | 0.05                | 0.08 | <0.08      | <0.08      | <0.08      |
| Toluene                     | ug/g | 2.3                 | 0.10 | <0.10      | <0.10      | <0.10      |
| Dibromochloromethane        | ug/g | 9.4                 | 0.10 | <0.10      | <0.10      | <0.10      |
| Ethylene Dibromide          | ug/g | 0.05                | 0.08 | <0.08      | <0.08      | <0.08      |
| Tetrachloroethylene         | ug/g | 0.28                | 0.10 | <0.10      | <0.10      | <0.10      |
| 1,1,1,2-Tetrachloroethane   | ug/g | 0.058               | 0.08 | <0.08      | <0.08      | <0.08      |
| Chlorobenzene               | ug/g | 2.4                 | 0.10 | <0.10      | <0.10      | <0.10      |
| Ethylbenzene                | ug/g | 2                   | 0.10 | <0.10      | <0.10      | <0.10      |
| m & p-Xylene                | ug/g |                     | 0.10 | <0.10      | <0.10      | <0.10      |
| Bromoform                   | ug/g | 0.27                | 0.10 | <0.10      | <0.10      | <0.10      |

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ATTENTION TO: Melissa Clement

### O. Reg. 153(511) - VOCs (Soil)

DATE RECEIVED: 2013-11-18

DATE REPORTED: 2013-11-25

|                           |            | SAMPLE DESCRIPTION: |      | BH13-2 SS6 | BH13-3 SS7 | BH13-4 SS7 |
|---------------------------|------------|---------------------|------|------------|------------|------------|
|                           |            | SAMPLE TYPE:        |      | Soil       | Soil       | Soil       |
|                           |            | DATE SAMPLED:       |      | 11/13/2013 | 11/12/2013 | 11/14/2013 |
| Parameter                 | Unit       | G / S               | RDL  | 4975524    | 4975665    | 4975840    |
| Styrene                   | ug/g       | 0.7                 | 0.10 | <0.10      | <0.10      | <0.10      |
| 1,1,2,2-Tetrachloroethane | ug/g       | 0.05                | 0.10 | <0.10      | <0.10      | <0.10      |
| o-Xylene                  | ug/g       |                     | 0.10 | <0.10      | <0.10      | <0.10      |
| 1,3-Dichlorobenzene       | ug/g       | 4.8                 | 0.10 | <0.10      | <0.10      | <0.10      |
| 1,4-Dichlorobenzene       | ug/g       | 0.083               | 0.10 | <0.10      | <0.10      | <0.10      |
| 1,2-Dichlorobenzene       | ug/g       | 3.4                 | 0.10 | <0.10      | <0.10      | <0.10      |
| Xylene Mixture            | ug/g       | 3.1                 | 0.10 | <0.10      | <0.10      | <0.10      |
| 1,3-Dichloropropene       | µg/g       | 0.05                | 0.08 | <0.08      | <0.08      | <0.08      |
| n-Hexane                  | µg/g       | 2.8                 | 0.10 | <0.10      | <0.10      | <0.10      |
| Moisture Content          | %          |                     | 0.1  | 44.0       | 41.9       | 44.3       |
| Surrogate                 | Unit       | Acceptable Limits   |      |            |            |            |
| Toluene-d8                | % Recovery | 50-140              |      | 97         | 100        | 97         |
| 4-Bromofluorobenzene      | % Recovery | 50-140              |      | 78         | 84         | 77         |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(RPI) - Current

4975524-4975840 The sample was analysed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil. Due to high moisture content of the sample the reporting detection limit has been raised.

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| O. Reg. 153(511) - VOCs (Soil) |      |            |      |            |      |                           |         |            |         |            |         |
|--------------------------------|------|------------|------|------------|------|---------------------------|---------|------------|---------|------------|---------|
| DATE RECEIVED: 2013-11-18      |      |            |      |            |      | DATE REPORTED: 2013-11-25 |         |            |         |            |         |
| SAMPLE DESCRIPTION:            |      | BH13-1 SS5 |      | BH13-1 SS7 |      | BH13-2 SS5                |         | BH13-3 SS4 |         | BH13-4 SS4 |         |
| SAMPLE TYPE:                   |      | Soil       |      | Soil       |      | Soil                      |         | Soil       |         | Soil       |         |
| DATE SAMPLED:                  |      | 11/13/2013 |      | 11/13/2013 |      | 11/13/2013                |         | 11/12/2013 |         | 11/14/2013 |         |
| Parameter                      | Unit | G / S      | RDL  | 4975407    | RDL  | 4975448                   | 4975471 | 4975577    | 4975835 | 4975878    | 4975989 |
| Dichlorodifluoromethane        | µg/g | 16         | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Vinyl Chloride                 | ug/g | 0.02       | 0.04 | <0.04      | 0.02 | <0.02                     | <0.02   | <0.02      | <0.02   | <0.02      | <0.02   |
| Bromomethane                   | ug/g | 0.05       | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Trichlorofluoromethane         | ug/g | 4          | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Acetone                        | ug/g | 16         | 1.00 | <1.00      | 0.50 | <0.50                     | <0.50   | <0.50      | <0.50   | <0.50      | <0.50   |
| 1,1-Dichloroethylene           | ug/g | 0.05       | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Methylene Chloride             | ug/g | 0.1        | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Trans- 1,2-Dichloroethylene    | ug/g | 0.084      | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Methyl tert-butyl Ether        | ug/g | 0.75       | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| 1,1-Dichloroethane             | ug/g | 3.5        | 0.04 | <0.04      | 0.02 | <0.02                     | <0.02   | <0.02      | <0.02   | <0.02      | <0.02   |
| Methyl Ethyl Ketone            | ug/g | 16         | 1.00 | <1.00      | 0.50 | <0.50                     | <0.50   | <0.50      | <0.50   | <0.50      | <0.50   |
| Cis- 1,2-Dichloroethylene      | ug/g | 3.4        | 0.04 | <0.04      | 0.02 | <0.02                     | <0.02   | <0.02      | <0.02   | <0.02      | <0.02   |
| Chloroform                     | ug/g | 0.05       | 0.08 | <0.08      | 0.04 | <0.04                     | <0.04   | <0.04      | <0.04   | <0.04      | <0.04   |
| 1,2-Dichloroethane             | ug/g | 0.05       | 0.06 | <0.06      | 0.03 | <0.03                     | <0.03   | <0.03      | <0.03   | <0.03      | <0.03   |
| 1,1,1-Trichloroethane          | ug/g | 0.38       | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Carbon Tetrachloride           | ug/g | 0.05       | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Benzene                        | ug/g | 0.21       | 0.04 | <0.04      | 0.02 | <0.02                     | <0.02   | <0.02      | <0.02   | <0.02      | <0.02   |
| 1,2-Dichloropropane            | ug/g | 0.05       | 0.06 | <0.06      | 0.03 | <0.03                     | <0.03   | <0.03      | <0.03   | <0.03      | <0.03   |
| Trichloroethylene              | ug/g | 0.061      | 0.06 | <0.06      | 0.03 | <0.03                     | <0.03   | <0.03      | <0.03   | <0.03      | <0.03   |
| Bromodichloromethane           | ug/g | 13         | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Methyl Isobutyl Ketone         | ug/g | 1.7        | 1.00 | <1.00      | 0.50 | <0.50                     | <0.50   | <0.50      | <0.50   | <0.50      | <0.50   |
| 1,1,2-Trichloroethane          | ug/g | 0.05       | 0.08 | <0.08      | 0.04 | <0.04                     | <0.04   | <0.04      | <0.04   | <0.04      | <0.04   |
| Toluene                        | ug/g | 2.3        | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Dibromochloromethane           | ug/g | 9.4        | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Ethylene Dibromide             | ug/g | 0.05       | 0.08 | <0.08      | 0.04 | <0.04                     | <0.04   | <0.04      | <0.04   | <0.04      | <0.04   |
| Tetrachloroethylene            | ug/g | 0.28       | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| 1,1,1,2-Tetrachloroethane      | ug/g | 0.058      | 0.08 | <0.08      | 0.04 | <0.04                     | <0.04   | <0.04      | <0.04   | <0.04      | <0.04   |
| Chlorobenzene                  | ug/g | 2.4        | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Ethylbenzene                   | ug/g | 2          | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| m & p-Xylene                   | ug/g |            | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Bromoform                      | ug/g | 0.27       | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |

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CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

| O. Reg. 153(511) - VOCs (Soil) |            |                   |      |            |      |                           |         |            |         |            |         |
|--------------------------------|------------|-------------------|------|------------|------|---------------------------|---------|------------|---------|------------|---------|
| DATE RECEIVED: 2013-11-18      |            |                   |      |            |      | DATE REPORTED: 2013-11-25 |         |            |         |            |         |
| SAMPLE DESCRIPTION:            |            | BH13-1 SS5        |      | BH13-1 SS7 |      | BH13-2 SS5                |         | BH13-3 SS4 |         | BH13-4 SS4 |         |
| SAMPLE TYPE:                   |            | Soil              |      | Soil       |      | Soil                      |         | Soil       |         | Soil       |         |
| DATE SAMPLED:                  |            | 11/13/2013        |      | 11/13/2013 |      | 11/13/2013                |         | 11/12/2013 |         | 11/14/2013 |         |
| Parameter                      | Unit       | G / S             | RDL  | 4975407    | RDL  | 4975448                   | 4975471 | 4975577    | 4975835 | 4975878    | 4975989 |
| Styrene                        | ug/g       | 0.7               | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| 1,1,2,2-Tetrachloroethane      | ug/g       | 0.05              | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| o-Xylene                       | ug/g       |                   | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| 1,3-Dichlorobenzene            | ug/g       | 4.8               | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| 1,4-Dichlorobenzene            | ug/g       | 0.083             | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| 1,2-Dichlorobenzene            | ug/g       | 3.4               | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Xylene Mixture                 | ug/g       | 3.1               | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| 1,3-Dichloropropene            | µg/g       | 0.05              | 0.08 | <0.08      | 0.04 | <0.04                     | <0.04   | <0.04      | <0.04   | <0.04      | <0.04   |
| n-Hexane                       | µg/g       | 2.8               | 0.10 | <0.10      | 0.05 | <0.05                     | <0.05   | <0.05      | <0.05   | <0.05      | <0.05   |
| Surrogate                      | Unit       | Acceptable Limits |      |            |      |                           |         |            |         |            |         |
| Toluene-d8                     | % Recovery | 50-140            |      | 94         |      | 97                        | 96      | 95         | 97      | 95         | 97      |
| 4-Bromofluorobenzene           | % Recovery | 50-140            |      | 79         |      | 81                        | 79      | 80         | 80      | 80         | 83      |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(RPI) - Current

4975407 The sample was analysed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil. Due to high moisture content of the sample the reporting detection limit has been raised.

4975448-4975989 The sample was analysed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.

Certified By:



## Guideline Violation

AGAT WORK ORDER: 13Z784392

PROJECT NO: 1912-710

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

| SAMPLEID | SAMPLE TITLE | GUIDELINE         | ANALYSIS PACKAGE                              | PARAMETER                     | GUIDEVALUE | RESULT |
|----------|--------------|-------------------|---|-------------------------------|------------|--------|
| 4975379  | BH13-1 SS2   | T3(RPI) - Current | O. Reg. 153(511) - Metals & Inorganics (Soil) | Sodium Adsorption Ratio (2:1) | 5          | 5.72   |
| 4975381  | BH13-1 SS4   | T3(RPI) - Current | O. Reg. 153(511) - ORPs (Soil) - EC/SAR       | Sodium Adsorption Ratio       | 5          | 11.2   |
| 4975537  | BH13-3 SS2   | T3(RPI) - Current | O. Reg. 153(511) - Metals & Inorganics (Soil) | Sodium Adsorption Ratio (2:1) | 5          | 6.91   |
| 4975859  | BH13-5 SS4   | T3(RPI) - Current | O. Reg. 153(511) - ORPs (Soil) - EC/SAR       | Electrical Conductivity (2:1) | 0.7        | 0.713  |

## Quality Assurance

CLIENT NAME: SPL CONSULTANTS

AGAT WORK ORDER: 13Z784392

PROJECT NO: 1912-710

ATTENTION TO: Melissa Clement

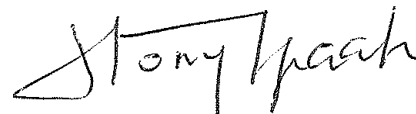
| Soil Analysis                                 |         |           |           |         |       |              |                    |                   |       |                    |                   |       |              |                   |       |
|---|---------|-----------|-----------|---------|-------|--------------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------|-------------------|-------|
| RPT Date: Nov 25, 2013                        |         |           | DUPLICATE |         |       | Method Blank | REFERENCE MATERIAL |                   |       | METHOD BLANK SPIKE |                   |       | MATRIX SPIKE |                   |       |
| PARAMETER                                     | Batch   | Sample Id | Dup #1    | Dup #2  | RPD   |              | Measured Value     | Acceptable Limits |       | Recovery           | Acceptable Limits |       | Recovery     | Acceptable Limits |       |
|   |         |           |           |         |       |              |                    | Lower             | Upper |                    | Lower             | Upper |              | Lower             | Upper |
| O. Reg. 153(511) - Metals & Inorganics (Soil) |         |           |           |         |       |              |                    |                   |       |                    |                   |       |              |                   |       |
| Antimony                                      | 1       |           | < 0.8     | < 0.8   | 0.0%  | < 0.8        | 108%               | 70%               | 130%  | 90%                | 80%               | 120%  | 96%          | 70%               | 130%  |
| Arsenic                                       | 1       |           | 1         | 1       | 0.0%  | < 1          | 114%               | 70%               | 130%  | 100%               | 80%               | 120%  | 108%         | 70%               | 130%  |
| Barium  | 1       |           | 31        | 30      | 3.3%  | < 2          | 103%               | 70%               | 130%  | 86%                | 80%               | 120%  | 101%         | 70%               | 130%  |
| Beryllium                                     | 1       |           | < 0.5     | < 0.5   | 0.0%  | < 0.5        | 75%                | 70%               | 130%  | 95%                | 80%               | 120%  | 95%          | 70%               | 130%  |
| Boron   | 1       |           | < 5       | < 5     | 0.0%  | < 5          |                    | 70%               | 130%  | 102%               | 80%               | 120%  | 98%          | 70%               | 130%  |
| Boron (Hot Water Soluble)                     | 4983718 |           | 0.60      | 0.64    | 7.1%  | < 0.10       | 121%               | 60%               | 140%  | 110%               | 70%               | 130%  | 107%         | 60%               | 140%  |
| Cadmium                                       | 1       |           | < 0.5     | < 0.5   | 0.0%  | < 0.5        | 103%               | 70%               | 130%  | 105%               | 80%               | 120%  | 106%         | 70%               | 130%  |
| Chromium                                      | 1       |           | 10        | 9       | 10.5% | < 2          | 95%                | 70%               | 130%  | 93%                | 80%               | 120%  | 93%          | 70%               | 130%  |
| Cobalt  | 1       |           | 3.67      | 3.58    | 2.5%  | < 0.5        | 98%                | 70%               | 130%  | 101%               | 80%               | 120%  | 100%         | 70%               | 130%  |
| Copper  | 1       |           | 8         | 8       | 0.0%  | < 1          | 89%                | 70%               | 130%  | 91%                | 80%               | 120%  | 92%          | 70%               | 130%  |
| Lead  | 1       |           | 2         | 2       | 0.0%  | < 1          | 101%               | 70%               | 130%  | 88%                | 80%               | 120%  | 96%          | 70%               | 130%  |
| Molybdenum                                    | 1       |           | < 0.5     | < 0.5   | 0.0%  | < 0.5        | 110%               | 70%               | 130%  | 100%               | 80%               | 120%  | 104%         | 70%               | 130%  |
| Nickel  | 1       |           | 5         | 5       | 0.0%  | < 1          | 96%                | 70%               | 130%  | 99%                | 80%               | 120%  | 99%          | 70%               | 130%  |
| Selenium                                      | 1       |           | 0.3       | 0.4     | 28.6% | < 0.4        | 98%                | 70%               | 130%  | 104%               | 80%               | 120%  | 112%         | 70%               | 130%  |
| Silver  | 1       |           | < 0.2     | < 0.2   | 0.0%  | < 0.2        | 98%                | 70%               | 130%  | 102%               | 80%               | 120%  | 109%         | 70%               | 130%  |
| Thallium                                      | 1       |           | < 0.4     | < 0.4   | 0.0%  | < 0.4        | 95%                | 70%               | 130%  | 114%               | 80%               | 120%  | 99%          | 70%               | 130%  |
| Uranium                                       | 1       |           | < 0.5     | < 0.5   | 0.0%  | < 0.5        | 85%                | 70%               | 130%  | 81%                | 80%               | 120%  | 85%          | 70%               | 130%  |
| Vanadium                                      | 1       |           | 21        | 20      | 4.9%  | < 1          | 95%                | 70%               | 130%  | 101%               | 80%               | 120%  | 101%         | 70%               | 130%  |
| Zinc  | 1       |           | 17        | 16      | 6.1%  | < 5          | 101%               | 70%               | 130%  | 94%                | 80%               | 120%  | 115%         | 70%               | 130%  |
| Chromium VI                                   | 1       | 4975455   | < 0.2     | < 0.2   | 0.0%  | < 0.2        | 98%                | 70%               | 130%  | 92%                | 80%               | 120%  | 100%         | 70%               | 130%  |
| Cyanide                                       | 1       | 4975379   | < 0.040   | < 0.040 | 0.0%  | < 0.040      | 103%               | 70%               | 130%  | 101%               | 80%               | 120%  | 94%          | 70%               | 130%  |
| Mercury                                       | 1       |           | < 0.10    | < 0.10  | 0.0%  | < 0.10       | 99%                | 70%               | 130%  | 93%                | 80%               | 120%  | 97%          | 70%               | 130%  |
| Electrical Conductivity (2:1)                 | 1       |           | 0.257     | 0.280   | 8.6%  | < 0.005      | 100%               | 90%               | 110%  | NA                 |                   |       | NA           |                   |       |
| Sodium Adsorption Ratio (2:1)                 | 4974032 |           | 28.3      | 32.2    | 13.0% | N/A          | NA                 |                   |       | NA                 |                   |       | NA           |                   |       |
| pH, 2:1 CaCl2 Extraction                      | 1       | 4975455   | 7.74      | 7.73    | 0.1%  | NA           | 100%               | 80%               | 120%  | NA                 |                   |       | NA           |                   |       |

Comments: NA Signifies Not Applicable.

O. Reg. 153(511) - ORPs (Soil) - EC/SAR

|                         |         |      |      |     |    |    |    |
|-------------------------|---------|------|------|-----|----|----|----|
| Sodium Adsorption Ratio | 4974032 | 28.3 | 32.2 | 13% | NA | NA | NA |
|-------------------------|---------|------|------|-----|----|----|----|

Certified By:



## Quality Assurance

CLIENT NAME: SPL CONSULTANTS

AGAT WORK ORDER: 13Z784392

PROJECT NO: 1912-710

ATTENTION TO: Melissa Clement

### Trace Organics Analysis

| RPT Date: Nov 25, 2013 |       |           | DUPLICATE |        |     | Method Blank | REFERENCE MATERIAL |                   |       | METHOD BLANK SPIKE |                   |       | MATRIX SPIKE |                   |       |
|------------------------|-------|-----------|-----------|--------|-----|--------------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------|-------------------|-------|
| PARAMETER              | Batch | Sample Id | Dup #1    | Dup #2 | RPD |              | Measured Value     | Acceptable Limits |       | Recovery           | Acceptable Limits |       | Recovery     | Acceptable Limits |       |
|                        |       |           |           |        |     |              |                    | Lower             | Upper |                    | Lower             | Upper |              | Lower             | Upper |

#### O. Reg. 153(511) - PAHs (Soil)

|                            |   |         |        |        |      |        |      |     |      |      |     |      |      |     |      |
|----------------------------|---|---------|--------|--------|------|--------|------|-----|------|------|-----|------|------|-----|------|
| Naphthalene                | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 92%  | 50% | 140% | 86%  | 50% | 140% | 64%  | 50% | 140% |
| Acenaphthylene             | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 96%  | 50% | 140% | 84%  | 50% | 140% | 65%  | 50% | 140% |
| Acenaphthene               | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 100% | 50% | 140% | 89%  | 50% | 140% | 74%  | 50% | 140% |
| Fluorene                   | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 96%  | 50% | 140% | 86%  | 50% | 140% | 67%  | 50% | 140% |
| Phenanthrene               | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 97%  | 50% | 140% | 91%  | 50% | 140% | 73%  | 50% | 140% |
| Anthracene                 | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 101% | 50% | 140% | 90%  | 50% | 140% | 73%  | 50% | 140% |
| Fluoranthene               | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 104% | 50% | 140% | 97%  | 50% | 140% | 81%  | 50% | 140% |
| Pyrene                     | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 108% | 50% | 140% | 100% | 50% | 140% | 82%  | 50% | 140% |
| Benz(a)anthracene          | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 97%  | 50% | 140% | 93%  | 50% | 140% | 83%  | 50% | 140% |
| Chrysene                   | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 108% | 50% | 140% | 108% | 50% | 140% | 87%  | 50% | 140% |
| Benzo(b)fluoranthene       | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 105% | 50% | 140% | 92%  | 50% | 140% | 85%  | 50% | 140% |
| Benzo(k)fluoranthene       | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 115% | 50% | 140% | 100% | 50% | 140% | 84%  | 50% | 140% |
| Benzo(a)pyrene             | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 122% | 50% | 140% | 102% | 50% | 140% | 88%  | 50% | 140% |
| Indeno(1,2,3-cd)pyrene     | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 121% | 50% | 140% | 98%  | 50% | 140% | 85%  | 50% | 140% |
| Dibenz(a,h)anthracene      | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 132% | 50% | 140% | 116% | 50% | 140% | 100% | 50% | 140% |
| Benzo(g,h,i)perylene       | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 106% | 50% | 140% | 92%  | 50% | 140% | 77%  | 50% | 140% |
| 2-and 1-methyl Naphthalene | 1 | 4975459 | < 0.05 | < 0.05 | 0.0% | < 0.05 | 86%  | 50% | 140% | 74%  | 50% | 140% | 57%  | 50% | 140% |

#### O. Reg. 153(511) - VOCs (Soil)

|                             |   |  |        |        |      |        |      |     |      |      |     |      |      |     |      |
|-----------------------------|---|--|--------|--------|------|--------|------|-----|------|------|-----|------|------|-----|------|
| Dichlorodifluoromethane     | 1 |  | < 0.05 | < 0.05 | 0.0% | < 0.05 | 127% | 50% | 140% | 68%  | 50% | 140% | 103% | 50% | 140% |
| Vinyl Chloride              | 1 |  | < 0.02 | < 0.02 | 0.0% | < 0.02 | 99%  | 50% | 140% | 111% | 50% | 140% | 97%  | 50% | 140% |
| Bromomethane                | 1 |  | < 0.05 | < 0.05 | 0.0% | < 0.05 | 103% | 50% | 140% | 120% | 50% | 140% | 100% | 50% | 140% |
| Trichlorofluoromethane      | 1 |  | < 0.05 | < 0.05 | 0.0% | < 0.05 | 127% | 50% | 140% | 127% | 50% | 140% | 117% | 50% | 140% |
| Acetone                     | 1 |  | < 0.50 | < 0.50 | 0.0% | < 0.50 | 79%  | 50% | 140% | 93%  | 50% | 140% | 104% | 50% | 140% |
| 1,1-Dichloroethylene        | 1 |  | < 0.05 | < 0.05 | 0.0% | < 0.05 | 101% | 50% | 140% | 105% | 60% | 130% | 108% | 50% | 140% |
| Methylene Chloride          | 1 |  | < 0.05 | < 0.05 | 0.0% | < 0.05 | 105% | 50% | 140% | 97%  | 60% | 130% | 109% | 50% | 140% |
| Trans- 1,2-Dichloroethylene | 1 |  | < 0.05 | < 0.05 | 0.0% | < 0.05 | 81%  | 50% | 140% | 91%  | 60% | 130% | 86%  | 50% | 140% |
| Methyl tert-butyl Ether     | 1 |  | < 0.05 | < 0.05 | 0.0% | < 0.05 | 77%  | 50% | 140% | 78%  | 60% | 130% | 76%  | 50% | 140% |
| 1,1-Dichloroethane          | 1 |  | < 0.02 | < 0.02 | 0.0% | < 0.02 | 78%  | 50% | 140% | 91%  | 60% | 130% | 83%  | 50% | 140% |
| Methyl Ethyl Ketone         | 1 |  | < 0.50 | < 0.50 | 0.0% | < 0.50 | 102% | 50% | 140% | 83%  | 50% | 140% | 83%  | 50% | 140% |
| Cis- 1,2-Dichloroethylene   | 1 |  | < 0.02 | < 0.02 | 0.0% | < 0.02 | 94%  | 50% | 140% | 110% | 60% | 130% | 112% | 50% | 140% |
| Chloroform                  | 1 |  | < 0.04 | < 0.04 | 0.0% | < 0.04 | 85%  | 50% | 140% | 116% | 60% | 130% | 108% | 50% | 140% |
| 1,2-Dichloroethane          | 1 |  | < 0.03 | < 0.03 | 0.0% | < 0.03 | 85%  | 50% | 140% | 102% | 60% | 130% | 96%  | 50% | 140% |
| 1,1,1-Trichloroethane       | 1 |  | < 0.05 | < 0.05 | 0.0% | < 0.05 | 86%  | 50% | 140% | 104% | 60% | 130% | 101% | 50% | 140% |
| Carbon Tetrachloride        | 1 |  | < 0.05 | < 0.05 | 0.0% | < 0.05 | 90%  | 50% | 140% | 110% | 60% | 130% | 113% | 50% | 140% |
| Benzene                     | 1 |  | < 0.02 | < 0.02 | 0.0% | < 0.02 | 81%  | 50% | 140% | 105% | 60% | 130% | 92%  | 50% | 140% |
| 1,2-Dichloropropane         | 1 |  | < 0.03 | < 0.03 | 0.0% | < 0.03 | 101% | 50% | 140% | 114% | 60% | 130% | 100% | 50% | 140% |
| Trichloroethylene           | 1 |  | < 0.03 | < 0.03 | 0.0% | < 0.03 | 82%  | 50% | 140% | 109% | 60% | 130% | 105% | 50% | 140% |
| Bromodichloromethane        | 1 |  | < 0.05 | < 0.05 | 0.0% | < 0.05 | 78%  | 50% | 140% | 99%  | 60% | 130% | 115% | 50% | 140% |

## Quality Assurance

CLIENT NAME: SPL CONSULTANTS

AGAT WORK ORDER: 13Z784392

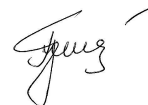
PROJECT NO: 1912-710

ATTENTION TO: Melissa Clement

### Trace Organics Analysis (Continued)

| RPT Date: Nov 25, 2013                         |       |           | DUPLICATE |        |      |              | REFERENCE MATERIAL |                   |       | METHOD BLANK SPIKE |                   |       | MATRIX SPIKE |                   |       |
|--|-------|-----------|-----------|--------|------|--------------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------|-------------------|-------|
| PARAMETER                                      | Batch | Sample Id | Dup #1    | Dup #2 | RPD  | Method Blank | Measured Value     | Acceptable Limits |       | Recovery           | Acceptable Limits |       | Recovery     | Acceptable Limits |       |
|  |       |           |           |        |      |              |                    | Lower             | Upper |                    | Lower             | Upper |              | Lower             | Upper |
| Methyl Isobutyl Ketone                         | 1     |           | < 0.50    | < 0.50 | 0.0% | < 0.50       | 75%                | 50%               | 140%  | 89%                | 50%               | 140%  | 93%          | 50%               | 140%  |
| 1,1,2-Trichloroethane                          | 1     |           | < 0.04    | < 0.04 | 0.0% | < 0.04       | 77%                | 50%               | 140%  | 116%               | 60%               | 130%  | 104%         | 50%               | 140%  |
| Toluene  | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | 70%                | 50%               | 140%  | 94%                | 60%               | 130%  | 82%          | 50%               | 140%  |
| Dibromochloromethane                           | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | 86%                | 50%               | 140%  | 84%                | 60%               | 130%  | 99%          | 50%               | 140%  |
| Ethylene Dibromide                             | 1     |           | < 0.04    | < 0.04 | 0.0% | < 0.04       | 91%                | 50%               | 140%  | 111%               | 60%               | 130%  | 102%         | 50%               | 140%  |
| Tetrachloroethylene                            | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | 74%                | 50%               | 140%  | 111%               | 60%               | 130%  | 110%         | 50%               | 140%  |
| 1,1,1,2-Tetrachloroethane                      | 1     |           | < 0.04    | < 0.04 | 0.0% | < 0.04       | NA                 | 50%               | 140%  | 99%                | 60%               | 130%  | 115%         | 50%               | 140%  |
| Chlorobenzene                                  | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | 70%                | 50%               | 140%  | 116%               | 60%               | 130%  | 108%         | 50%               | 140%  |
| Ethylbenzene                                   | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | 112%               | 50%               | 140%  | 87%                | 60%               | 130%  | 80%          | 50%               | 140%  |
| m & p-Xylene                                   | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | 76%                | 50%               | 140%  | 86%                | 60%               | 130%  | 80%          | 50%               | 140%  |
| Bromoform                                      | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | 75%                | 50%               | 140%  | 98%                | 60%               | 130%  | 109%         | 50%               | 140%  |
| Styrene  | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | 70%                | 50%               | 140%  | 88%                | 60%               | 130%  | 78%          | 50%               | 140%  |
| 1,1,2,2-Tetrachloroethane                      | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | NA                 | 50%               | 140%  | 106%               | 60%               | 130%  | 102%         | 50%               | 140%  |
| o-Xylene                                       | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | 93%                | 50%               | 140%  | 78%                | 60%               | 130%  | 72%          | 50%               | 140%  |
| 1,3-Dichlorobenzene                            | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | 80%                | 50%               | 140%  | 106%               | 60%               | 130%  | 96%          | 50%               | 140%  |
| 1,4-Dichlorobenzene                            | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | 96%                | 50%               | 140%  | 111%               | 60%               | 130%  | 105%         | 50%               | 140%  |
| 1,2-Dichlorobenzene                            | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | 85%                | 50%               | 140%  | 100%               | 60%               | 130%  | 91%          | 50%               | 140%  |
| 1,3-Dichloropropene                            | 1     |           | < 0.04    | < 0.04 | 0.0% | < 0.04       | 97%                | 50%               | 140%  | 93%                | 60%               | 130%  | 102%         | 50%               | 140%  |
| n-Hexane                                       | 1     |           | < 0.05    | < 0.05 | 0.0% | < 0.05       | NA                 | 50%               | 140%  | 90%                | 60%               | 130%  | 80%          | 50%               | 140%  |
| O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil) |       |           |           |        |      |              |                    |                   |       |                    |                   |       |              |                   |       |
| F1 (C6 to C10)                                 | 1     |           | < 5       | < 5    | 0.0% | < 5          | 83%                | 60%               | 140%  | 91%                | 80%               | 120%  | 73%          | 60%               | 140%  |
| F2 (C10 to C16)                                | 1     |           | < 10      | < 10   | 0.0% | < 10         | 107%               | 60%               | 140%  | 87%                | 80%               | 120%  | 80%          | 60%               | 140%  |
| F3 (C16 to C34)                                | 1     |           | < 50      | < 50   | 0.0% | < 50         | 119%               | 60%               | 140%  | 80%                | 80%               | 120%  | 77%          | 60%               | 140%  |
| F4 (C34 to C50)                                | 1     |           | < 50      | < 50   | 0.0% | < 50         | 88%                | 60%               | 140%  | 103%               | 80%               | 120%  | 100%         | 60%               | 140%  |

Certified By:



## Method Summary

CLIENT NAME: SPL CONSULTANTS

AGAT WORK ORDER: 13Z784392

PROJECT NO: 1912-710

ATTENTION TO: Melissa Clement

| PARAMETER                            | AGAT S.O.P   | LITERATURE REFERENCE                    | ANALYTICAL TECHNIQUE    |
|--------------------------------------|--------------|---|-------------------------|
| Soil Analysis                        |              |   |                         |
| Antimony                             | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Arsenic                              | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Barium                               | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Beryllium                            | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Boron                                | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Boron (Hot Water Soluble)            | MET-93-6104  | EPA SW 846 6010C; MSA, Part 3, Ch.21    | ICP/OES                 |
| Cadmium                              | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Chromium                             | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Cobalt                               | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Copper                               | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Lead                                 | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Molybdenum                           | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Nickel                               | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Selenium                             | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Silver                               | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Thallium                             | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Uranium                              | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Vanadium                             | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Zinc                                 | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Chromium VI                          | INOR-93-6029 | SM 3500 B; MSA Part 3, Ch. 25           | SPECTROPHOTOMETER       |
| Cyanide                              | INOR-93-6052 | MOE CN-3015 & E 3009 A; SM 4500 CN      | TECHNICON AUTO ANALYZER |
| Mercury                              | MET-93-6103  | EPA SW-846 3050B & 6020A                | ICP-MS                  |
| Electrical Conductivity (2:1)        | INOR-93-6036 | McKeague 4.12, SM 2510 B                | EC METER                |
| Sodium Adsorption Ratio (2:1)        | INOR 1007    | McKeague 4.12 & 3.26 & EPA SW-846 6010B | ICP/OES                 |
| pH, 2:1 CaCl <sub>2</sub> Extraction | INOR-93-6031 | MSA part 3 & SM 4500-H+ B               | PH METER                |
| Electrical Conductivity (2:1)        | INOR-93-6036 | McKeague 4.12, SM 2510 B                | EC METER                |
| Sodium Adsorption Ratio              | INOR-93-6007 | McKeague 4.12 & 3.26 & EPA SW-846 6010C | ICP/OES                 |



## Method Summary

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| PARAMETER                      | AGAT S.O.P  | LITERATURE REFERENCE                | ANALYTICAL TECHNIQUE |
|--------------------------------|-------------|-------------------------------------|----------------------|
| Trace Organics Analysis        |             |                                     |                      |
| Naphthalene                    | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Acenaphthylene                 | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Acenaphthene                   | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Fluorene                       | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Phenanthrene                   | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Anthracene                     | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Fluoranthene                   | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Pyrene                         | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Benz(a)anthracene              | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Chrysene                       | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Benzo(b)fluoranthene           | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Benzo(k)fluoranthene           | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Benzo(a)pyrene                 | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Indeno(1,2,3-cd)pyrene         | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Dibenz(a,h)anthracene          | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Benzo(g,h,i)perylene           | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| 2-and 1-methyl Naphthalene     | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| Moisture Content               | Org 5506    | EPA SW-846 3540 & 8270              | BALANCE              |
| Chrysene-d12                   | ORG-91-5106 | EPA SW846 3541 & 8270               | GC/MS                |
| F1 (C6 to C10)                 | VOL-91-5009 | CCME Tier 1 Method, SW846 5035      | P & T GC / FID       |
| F1 (C6 to C10) minus BTEX      | VOL-91-5009 | CCME Tier 1 Method, SW846 5035      | P & T GC / FID       |
| F2 (C10 to C16)                | VOL-91-5009 | CCME Tier 1 Method                  | GC / FID             |
| F3 (C16 to C34)                | VOL-91-5009 | CCME Tier 1 Method                  | GC / FID             |
| F4 (C34 to C50)                | VOL-91-5009 | CCME Tier 1 Method                  | GC / FID             |
| Gravimetric Heavy Hydrocarbons | VOL-91-5009 | CCME Tier 1 Method                  | GRAVIMETRIC ANALYSIS |
| Moisture Content               | VOL-91-5009 | CCME Tier 1 Method, SW846 5035,8015 | BALANCE              |
| Terphenyl                      | VOL-91-5009 |                                     | GC/FID               |
| Dichlorodifluoromethane        | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Vinyl Chloride                 | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Bromomethane                   | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Trichlorofluoromethane         | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Acetone                        | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| 1,1-Dichloroethylene           | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Methylene Chloride             | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Trans- 1,2-Dichloroethylene    | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Methyl tert-butyl Ether        | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| 1,1-Dichloroethane             | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Methyl Ethyl Ketone            | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Cis- 1,2-Dichloroethylene      | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Chloroform                     | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| 1,2-Dichloroethane             | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| 1,1,1-Trichloroethane          | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Carbon Tetrachloride           | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Benzene                        | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| 1,2-Dichloropropane            | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Trichloroethylene              | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Bromodichloromethane           | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |
| Methyl Isobutyl Ketone         | VOL-91-5002 | EPA SW-846 5035 & 8260              | (P&T)GC/MS           |

## Method Summary

CLIENT NAME: SPL CONSULTANTS

AGAT WORK ORDER: 13Z784392

PROJECT NO: 1912-710

ATTENTION TO: Melissa Clement

| PARAMETER                   | AGAT S.O.P  | LITERATURE REFERENCE   | ANALYTICAL TECHNIQUE |
|-----------------------------|-------------|------------------------|----------------------|
| 1,1,2-Trichloroethane       | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Toluene                     | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Dibromochloromethane        | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Ethylene Dibromide          | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Tetrachloroethylene         | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,1,1,2-Tetrachloroethane   | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Chlorobenzene               | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Ethylbenzene                | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| m & p-Xylene                | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Bromoform                   | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Styrene                     | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,1,2,2-Tetrachloroethane   | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| o-Xylene                    | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,3-Dichlorobenzene         | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,4-Dichlorobenzene         | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,2-Dichlorobenzene         | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Xylene Mixture              | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,3-Dichloropropene         | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| n-Hexane                    | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Toluene-d8                  | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 4-Bromofluorobenzene        | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Moisture Content            | VOL-91-5002 | MOE E3139              | BALANCE              |
| Dichlorodifluoromethane     | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Vinyl Chloride              | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Bromomethane                | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Trichlorofluoromethane      | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Acetone                     | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,1-Dichloroethylene        | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Methylene Chloride          | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Trans- 1,2-Dichloroethylene | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Methyl tert-butyl Ether     | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,1-Dichloroethane          | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Methyl Ethyl Ketone         | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Cis- 1,2-Dichloroethylene   | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Chloroform                  | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,2-Dichloroethane          | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,1,1-Trichloroethane       | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Carbon Tetrachloride        | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Benzene                     | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,2-Dichloropropane         | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Trichloroethylene           | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Bromodichloromethane        | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Methyl Isobutyl Ketone      | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,1,2-Trichloroethane       | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Toluene                     | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Dibromochloromethane        | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Ethylene Dibromide          | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Tetrachloroethylene         | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,1,1,2-Tetrachloroethane   | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Chlorobenzene               | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |

## Method Summary

CLIENT NAME: SPL CONSULTANTS

AGAT WORK ORDER: 13Z784392

PROJECT NO: 1912-710

ATTENTION TO: Melissa Clement

| PARAMETER                 | AGAT S.O.P  | LITERATURE REFERENCE   | ANALYTICAL TECHNIQUE |
|---------------------------|-------------|------------------------|----------------------|
| Ethylbenzene              | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| m & p-Xylene              | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Bromoform                 | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Styrene                   | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,1,2,2-Tetrachloroethane | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| o-Xylene                  | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,3-Dichlorobenzene       | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,4-Dichlorobenzene       | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,2-Dichlorobenzene       | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Xylene Mixture            | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 1,3-Dichloropropene       | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| n-Hexane                  | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| Toluene-d8                | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |
| 4-Bromofluorobenzene      | VOL-91-5002 | EPA SW-846 5035 & 8260 | (P&T)GC/MS           |



# AGAT

## Laboratories

151K

5835 Coopers Avenue  
Mississauga, ON  
L4Z 1Y2

www.agatlabs.com • webearth.agatlabs.com

### Chain of Custody Record

P: 905.712.5100 • F: 905.712.5122 • TF: 800.856.6261

#### Client Information

Company: SPL CONSULTANTS  
Contact: MELISSA CLEMENT  
Address: 146 COLONNADE ROAD  
Phone: 613-228-0065 Fax: 613-228-0045  
Project: 1912-710 PO: \_\_\_\_\_  
AGAT Quotation #: \_\_\_\_\_

Please note, if quotation number is not provided,  
client will be billed full price for analysis.

#### Invoice To

Same: Yes ☒ No ☐

Company: \_\_\_\_\_  
Contact: \_\_\_\_\_  
Address: \_\_\_\_\_

#### Legend Matrix

**GW** Ground Water **O** Oil  
**SW** Surface Water **P** Paint  
**SD** Sediment **S** Soil

#### Report Information – reports to be sent to:

1. Name: MELISSA CLEMENT  
Email: \_\_\_\_\_  
2. Name: \_\_\_\_\_  
Email: \_\_\_\_\_

#### Regulatory Requirements

☒ Regulation 153/04  
(reg. 511 Amend.)

Table 2  
Indicate one

☐ Ind/Com

☒ Res/Park

☐ Agriculture

Soil Texture (check one)

☒ Coarse

☒ Fine

☐ Sewer Use

Region \_\_\_\_\_  
Indicate one

☐ Sanitary

☐ Storm

☐ Regulation 558

☐ CCME

☐ Other (specify) \_\_\_\_\_

☐ Prov. Water Quality  
Objectives (PWQO)

☐ None

#### Is this a drinking water sample?

(potable water intended for human consumption)

☐ Yes ☐ No

If "Yes", please use the

Drinking Water Chain of Custody Form

#### Is this submission for a Record of Site Condition?

☒ Yes ☐ No

#### Laboratory Use Only

Arrival Temperature: 3/3/3

AGAT WO #: 132 784 892

Lab Temperature: \_\_\_\_\_

Notes: \_\_\_\_\_

#### Turnaround Time Required (TAT) Required\*

##### Regular TAT

☒ 5 to 7 Working Days

Rush TAT (please provide prior notification)

##### Rush Surcharges Apply

☐ 3 Working Days

☐ 2 Working Days

☐ 1 Working Day

##### OR

Date Required (Rush surcharges may apply): \_\_\_\_\_

\*TAT is exclusive of weekends and statutory holidays

| Sample Identification | Date Sampled | Time Sampled | Sample Matrix | # of Containers | Comments Site/Sample Information | Metals and Inorganics | Metal Scan | Hydride Forming Metals | Client Custom Metals | ORPs: <input type="checkbox"/> B-HWS <input type="checkbox"/> Cl- <input type="checkbox"/> CN- <input checked="" type="checkbox"/> EC <input type="checkbox"/> FOC <input type="checkbox"/> Cr+6 <input checked="" type="checkbox"/> SAR <input type="checkbox"/> NO <sub>3</sub> /NO <sub>2</sub> <input type="checkbox"/> N- Total <input type="checkbox"/> Hg <input type="checkbox"/> pH | Nutrients: <input type="checkbox"/> TP <input type="checkbox"/> NH <sub>3</sub> <input type="checkbox"/> TKN <input type="checkbox"/> NO <sub>3</sub> <input type="checkbox"/> NO <sub>2</sub> | VOC: <input checked="" type="checkbox"/> VOC <input type="checkbox"/> THM <input checked="" type="checkbox"/> X | CCME Fractions 1 to 4 <u>1/5/1-X</u> | ABNs | PAHs | Chlorophenols | PCBs | Organochlorine Pesticides | TCLP Metals/Inorganics | Sewer Use |
|-----------------------|--------------|--------------|---------------|-----------------|----------------------------------|-----------------------|------------|------------------------|----------------------|--|--|---|--------------------------------------|------|------|---------------|------|---------------------------|------------------------|-----------|
| BH13-1 SS1B           | 13-Nov-13    | S            |               | 1               |                                  |                       |            |                        |                      |  |  |   |                                      |      |      |               |      |                           |                        |           |
| SS2                   |              | S            |               | 1               |                                  |                       |            |                        |                      |  |  |   |                                      |      |      |               |      |                           |                        |           |
| SS4                   |              | S            |               | 1               |                                  |                       |            |                        |                      |  |  |   |                                      |      |      |               |      |                           |                        |           |
| SS5                   |              | S            |               | 3               |                                  |                       |            |                        |                      |  |  |   |                                      |      |      |               |      |                           |                        |           |
| SS7                   |              | S            |               | 2               |                                  |                       |            |                        |                      |  |  |   |                                      |      |      |               |      |                           |                        |           |
| BH13-2 SS1B           | 13-Nov-13    | S            |               | 1               |                                  |                       |            |                        |                      |  |  |   |                                      |      |      |               |      |                           |                        |           |
| SS3                   |              | S            |               | 1               |                                  |                       |            |                        |                      |  |  |   |                                      |      |      |               |      |                           |                        |           |
| SS5                   |              | S            |               | 2               |                                  |                       |            |                        |                      |  |  |   |                                      |      |      |               |      |                           |                        |           |
| SS6                   |              | S            |               | 2               |                                  |                       |            |                        |                      |  |  |   |                                      |      |      |               |      |                           |                        |           |
| BH13-3 SS2            | 12-Nov-13    | S            |               | 1               |                                  |                       |            |                        |                      |  |  |   |                                      |      |      |               |      |                           |                        |           |
| SS3                   |              | S            |               | 1               |                                  |                       |            |                        |                      |  |  |   |                                      |      |      |               |      |                           |                        |           |
| SS4                   |              | S            |               | 2               |                                  |                       |            |                        |                      |  |  |   |                                      |      |      |               |      |                           |                        |           |

Samples Relinquished By (Print Name and Sign):

DAVID W. WALKER  
Date/Time: 13-Nov-13 10:05am

Samples Received By (Print Name and Sign):

Sharmin  
Date/Time: Nov 19/13 10:00

Samples Received By (Print Name and Sign):

Nov 19/13  
Date/Time: 10:05am

Pink Copy - Client

Yellow Copy - AGAT

White Copy - AGAT

Page 1 of 2

N#: **193166**





# AGAT

## Laboratories

5835 Coopers Avenue  
Mississauga, ON  
L4Z 1Y2

www.agatlabs.com • webeath.agatlabs.com

### Laboratory Use Only

Arrival Temperature: 3/3/3  
AGAT WO #: 132 784392  
Lab Temperature: \_\_\_\_\_  
Notes: \_\_\_\_\_

## Chain of Custody Record

P: 905.712.5100 • F: 905.712.5122 • TF: 800.856.6261

### Client Information

Company: SPL CONSULTANTS  
Contact: MELISSA CLEMENT  
Address: 146 COLONADE RD  
Phone: 613-228-0065 Fax: 613-228-0045  
Project: 1912-710 PO: \_\_\_\_\_  
AGAT Quotation #: \_\_\_\_\_

Please note, if quotation number is not provided,  
client will be billed full price for analysis.

### Regulatory Requirements

☒ Regulation 153/04  
(reg. 511 Amend.)  
Table 2  
Indicate one  
☐ Ind/Com  
☒ Res/Park  
☐ Agriculture  
Soil Texture (check one)  
☐ Coarse ☐ Fine  
☐ Sewer Use  
Region \_\_\_\_\_  
Indicate one  
☐ Sanitary  
☐ Storm  
☐ Regulation 558  
☐ CCME  
☐ Other (specify) \_\_\_\_\_  
☐ Prov. Water Quality  
Objectives (PWQO)  
☐ None

### Turnaround Time Required (TAT) Required\*

#### Regular TAT

☒ 5 to 7 Working Days

Rush TAT (please provide prior notification)

#### Rush Surcharges Apply

☐ 3 Working Days  
☐ 2 Working Days  
☐ 1 Working Day

#### OR

Date Required (Rush surcharges may apply): \_\_\_\_\_

\*TAT is exclusive of weekends and statutory holidays

### Invoice To

Same: Yes ☒ No ☐

Company: \_\_\_\_\_  
Contact: \_\_\_\_\_  
Address: \_\_\_\_\_

#### Is this a drinking water sample?

(potable water intended for human consumption)

☐ Yes ☐ No

If "Yes", please use the  
Drinking Water Chain of Custody Form

#### Is this submission for a Record of Site Condition?

☐ Yes ☐ No

### Legend Matrix

**GW** Ground Water **O** Oil  
**SW** Surface Water **P** Paint  
**SD** Sediment **S** Soil

### Report Information – reports to be sent to:

1. Name: \_\_\_\_\_  
Email: \_\_\_\_\_  
2. Name: \_\_\_\_\_  
Email: \_\_\_\_\_

| Sample Identification | Date Sampled | Time Sampled | Sample Matrix | # of Containers | Comments<br>Site/Sample Information | Metals | Metal S | Hydride | Client C | ORPs:<br><input type="checkbox"/> FOC<br><input type="checkbox"/> NO <sub>2</sub> | Nutrient<br><input type="checkbox"/> NO <sub>3</sub> | VOC: <input checked="" type="checkbox"/> E | CCME | ABNs | PAHs | Chloro | PCBs | Organo | TCLP M | Sewer |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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No: 193167

CLIENT NAME: SPL CONSULTANTS  
6221 HIGHWAY 7 WEST UNIT 16  
VAUGHAN, ON L4H0K8  
(905) 856-0065

ATTENTION TO: Melissa Clement

PROJECT NO: 1912-720

AGAT WORK ORDER: 13T794247

SOIL ANALYSIS REVIEWED BY: Sofka Pehlyova, Senior Analyst

TRACE ORGANICS REVIEWED BY: Alison Sekera, Organics Coordinator

DATE REPORTED: Dec 19, 2013

PAGES (INCLUDING COVER): 8

VERSION\*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

\*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 13T794247

PROJECT NO: 1912-720

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

### O. Reg. 153(511) - ORPs (Soil) pH

DATE RECEIVED: 2013-12-16

DATE REPORTED: 2013-12-19

SAMPLE DESCRIPTION: GS1-13122013

SAMPLE TYPE: Soil

DATE SAMPLED: 12/13/2013

| Parameter                            | Unit     | G / S | RDL  | 5054980 |
|--------------------------------------|----------|-------|------|---------|
| pH, 2:1 CaCl <sub>2</sub> Extraction | pH Units | NA    | 7.84 |         |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard  
5054980 pH was determined on the 0.01M CaCl<sub>2</sub> extract obtained from 2:1 leaching procedure (2 parts extraction fluid:1 part wet soil).

Certified By:

*Sofra Pehlyora*



**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 13T794247

PROJECT NO: 1912-720

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FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

### O. Reg. 558 Metals and Inorganics

DATE RECEIVED: 2013-12-16

DATE REPORTED: 2013-12-19

SAMPLE DESCRIPTION: GS1-13122013

SAMPLE TYPE: Soil

DATE SAMPLED: 12/13/2013

| Parameter                         | Unit | G / S | RDL   | 5054980 |
|-----------------------------------|------|-------|-------|---------|
| Arsenic Leachate                  | mg/L | 2.5   | 0.010 | <0.010  |
| Barium Leachate                   | mg/L | 100   | 0.100 | 1.01    |
| Boron Leachate                    | mg/L | 500   | 0.050 | <0.050  |
| Cadmium Leachate                  | mg/L | 0.5   | 0.010 | <0.010  |
| Chromium Leachate                 | mg/L | 5.0   | 0.010 | <0.010  |
| Lead Leachate                     | mg/L | 5.0   | 0.010 | <0.010  |
| Mercury Leachate                  | mg/L | 0.1   | 0.01  | <0.01   |
| Selenium Leachate                 | mg/L | 1.0   | 0.010 | <0.010  |
| Silver Leachate                   | mg/L | 5.0   | 0.010 | <0.010  |
| Uranium Leachate                  | mg/L | 10.0  | 0.050 | <0.050  |
| Fluoride Leachate                 | mg/L | 150   | 0.05  | 0.14    |
| Cyanide Leachate                  | mg/L | 20.0  | 0.05  | <0.05   |
| (Nitrate + Nitrite) as N Leachate | mg/L | 1000  | 0.70  | <0.70   |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Regulation 558

Certified By:

*Sofra Pehlyra*





**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 13T794247

PROJECT NO: 1912-720

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

### Flash Point Analysis

DATE RECEIVED: 2013-12-16

DATE REPORTED: 2013-12-19

SAMPLE DESCRIPTION: GS1-13122013

SAMPLE TYPE: Soil

DATE SAMPLED: 12/13/2013

| Parameter                              | Unit  | G / S | RDL | 5054980 |
|--|-------|-------|-----|---------|
| Flash point (Pensky Martin Closed Cup) | Deg C |       |     | >100    |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Certified By:

*Alison Sekera*



**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 13T794247

PROJECT NO: 1912-720

5835 COOPERS AVENUE  
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CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

### ON Regulation 558 Benzo(a) pyrene

DATE RECEIVED: 2013-12-16

DATE REPORTED: 2013-12-19

SAMPLE DESCRIPTION: GS1-13122013

SAMPLE TYPE: Soil

DATE SAMPLED: 12/13/2013

| Parameter      | Unit | G / S | RDL   | 5054980 |
|----------------|------|-------|-------|---------|
| Benzo(a)pyrene | mg/L | 0.001 | 0.001 | <0.001  |

Comments: 5054980 RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Regulation 558  
The sample was leached according to Regulation 558 protocol. Analysis was performed on the leachate.

Certified By:

*Alison Sekera*

## Quality Assurance

CLIENT NAME: SPL CONSULTANTS

AGAT WORK ORDER: 13T794247

PROJECT NO: 1912-720

ATTENTION TO: Melissa Clement

| Soil Analysis                     |         |           |           |         |      |              |                    |                   |       |                    |                   |       |              |                   |       |
|-----------------------------------|---------|-----------|-----------|---------|------|--------------|--------------------|-------------------|-------|--------------------|-------------------|-------|--------------|-------------------|-------|
| RPT Date: Dec 19, 2013            |         |           | DUPLICATE |         |      | Method Blank | REFERENCE MATERIAL |                   |       | METHOD BLANK SPIKE |                   |       | MATRIX SPIKE |                   |       |
| PARAMETER                         | Batch   | Sample Id | Dup #1    | Dup #2  | RPD  |              | Measured Value     | Acceptable Limits |       | Recovery           | Acceptable Limits |       | Recovery     | Acceptable Limits |       |
|                                   |         |           |           |         |      |              |                    | Lower             | Upper |                    | Lower             | Upper |              | Lower             | Upper |
| O. Reg. 558 Metals and Inorganics |         |           |           |         |      |              |                    |                   |       |                    |                   |       |              |                   |       |
| Arsenic Leachate                  | 1       |           | 0.013     | 0.013   | 0.0% | < 0.010      | 97%                | 90%               | 110%  | 105%               | 80%               | 120%  | 105%         | 70%               | 130%  |
| Barium Leachate                   | 1       |           | 1.05      | 1.03    | 1.9% | < 0.100      | 101%               | 90%               | 110%  | 117%               | 80%               | 120%  | 111%         | 70%               | 130%  |
| Boron Leachate                    | 1       |           | 0.065     | 0.071   | 8.8% | < 0.050      | 98%                | 90%               | 110%  | 94%                | 80%               | 120%  | 94%          | 70%               | 130%  |
| Cadmium Leachate                  | 1       |           | < 0.010   | < 0.010 | 0.0% | < 0.010      | 98%                | 90%               | 110%  | 99%                | 80%               | 120%  | 98%          | 70%               | 130%  |
| Chromium Leachate                 | 1       |           | < 0.010   | < 0.010 | 0.0% | < 0.010      | 101%               | 90%               | 110%  | 101%               | 80%               | 120%  | 103%         | 70%               | 130%  |
| Lead Leachate                     | 1       |           | 0.140     | 0.141   | 0.7% | < 0.010      | 98%                | 90%               | 110%  | 92%                | 80%               | 120%  | 100%         | 70%               | 130%  |
| Mercury Leachate                  | 1       |           | < 0.01    | < 0.01  | 0.0% | < 0.01       | 104%               | 90%               | 110%  | 88%                | 80%               | 120%  | 93%          | 70%               | 130%  |
| Selenium Leachate                 | 1       |           | < 0.010   | < 0.010 | 0.0% | < 0.010      | 98%                | 90%               | 110%  | 103%               | 80%               | 120%  | 102%         | 70%               | 130%  |
| Silver Leachate                   | 1       |           | < 0.010   | < 0.010 | 0.0% | < 0.010      | 98%                | 90%               | 110%  | 99%                | 80%               | 120%  | 103%         | 70%               | 130%  |
| Uranium Leachate                  | 1       |           | < 0.050   | < 0.050 | 0.0% | < 0.050      | 95%                | 90%               | 110%  | 90%                | 80%               | 120%  | 93%          | 70%               | 130%  |
| Fluoride Leachate                 | 1       |           | 0.23      | 0.23    | 0.0% | < 0.05       | 102%               | 90%               | 110%  | 97%                | 90%               | 110%  | 97%          | 70%               | 130%  |
| Cyanide Leachate                  | 1       |           | < 0.05    | < 0.05  | 0.0% | < 0.05       | 100%               | 90%               | 110%  | 95%                | 90%               | 110%  | 103%         | 70%               | 130%  |
| (Nitrate + Nitrite) as N Leachate | 5048747 |           | <0.70     | <0.70   | 0.0% | < 0.70       | 101%               | 80%               | 120%  | 105%               | 80%               | 120%  | 106%         | 70%               | 130%  |
| O. Reg. 153(511) - ORPs (Soil) pH |         |           |           |         |      |              |                    |                   |       |                    |                   |       |              |                   |       |
| pH, 2:1 CaCl2 Extraction          | 1       |           | 8.07      | 8.06    | 0.1% | NA           | 96%                | 90%               | 110%  | NA                 |                   |       | NA           |                   |       |

Certified By:



## Quality Assurance

CLIENT NAME: SPL CONSULTANTS

AGAT WORK ORDER: 13T794247

PROJECT NO: 1912-720

ATTENTION TO: Melissa Clement

### Trace Organics Analysis

| RPT Date: Dec 19, 2013 |       |           | DUPLICATE |        |     | Method Blank | REFERENCE MATERIAL |                   | METHOD BLANK SPIKE |          |                   | MATRIX SPIKE |          |                   |       |
|------------------------|-------|-----------|-----------|--------|-----|--------------|--------------------|-------------------|--------------------|----------|-------------------|--------------|----------|-------------------|-------|
| PARAMETER              | Batch | Sample Id | Dup #1    | Dup #2 | RPD |              | Measured Value     | Acceptable Limits |                    | Recovery | Acceptable Limits |              | Recovery | Acceptable Limits |       |
|                        |       |           |           |        |     |              |                    | Lower             | Upper              |          | Lower             | Upper        |          | Lower             | Upper |


ON Regulation 558 Benzo(a) pyrene

|                |   |         |         |      |         |      |     |      |      |     |      |      |     |      |
|----------------|---|---------|---------|------|---------|------|-----|------|------|-----|------|------|-----|------|
| Benzo(a)pyrene | 1 | < 0.001 | < 0.001 | 0.0% | < 0.001 | 110% | 70% | 130% | 121% | 70% | 130% | 115% | 70% | 130% |
|----------------|---|---------|---------|------|---------|------|-----|------|------|-----|------|------|-----|------|

Flash Point Analysis

|  |      |         |    |    |       |   |      |     |      |
|--|------|---------|----|----|-------|---|------|-----|------|
| Flash point (Pensky Martin Closed Cup) | 1114 | 5037002 | 12 | 14 | 15.4% | < | 100% | 80% | 120% |
|--|------|---------|----|----|-------|---|------|-----|------|

Certified By:



## Method Summary

CLIENT NAME: SPL CONSULTANTS

AGAT WORK ORDER: 13T794247

PROJECT NO: 1912-720

ATTENTION TO: Melissa Clement

| PARAMETER                              | AGAT S.O.P   | LITERATURE REFERENCE                            | ANALYTICAL TECHNIQUE     |
|--|--------------|---|--------------------------|
| Soil Analysis                          |              |   |                          |
| pH, 2:1 CaCl <sub>2</sub> Extraction   | INOR-93-6031 | MSA part 3 & SM 4500-H+ B                       | pH METER                 |
| Arsenic Leachate                       | MET-93-6103  | EPA SW-846 1311 & 3010A & 6020A                 | ICP-MS                   |
| Barium Leachate                        | MET-93-6103  | EPA SW-846 1311 & 3010A & 6020A                 | ICP-MS                   |
| Boron Leachate                         | MET-93-6103  | EPA SW-846 1311 & 3010A & 6020A                 | ICP-MS                   |
| Cadmium Leachate                       | MET-93-6103  | EPA SW-846 1311 & 3010A & 6020A                 | ICP-MS                   |
| Chromium Leachate                      | MET-93-6103  | EPA SW-846 1311 & 3010A & 6020A                 | ICP-MS                   |
| Lead Leachate                          | MET-93-6103  | EPA SW-846 1311 & 3010A & 6020A                 | ICP-MS                   |
| Mercury Leachate                       | MET-93-6103  | EPA SW-846 1311 & 3010A & 6020A                 | ICP-MS                   |
| Selenium Leachate                      | MET-93-6103  | EPA SW-846 1311 & 3010A & 6020A                 | ICP-MS                   |
| Silver Leachate                        | MET-93-6103  | EPA SW-846 1311 & 3010A & 6020A                 | ICP-MS                   |
| Uranium Leachate                       | MET-93-6103  | EPA SW-846 1311 & 3010A & 6020A                 | ICP-MS                   |
| Fluoride Leachate                      | INOR-93-6018 | EPA SW-846-1311 & SM4500-F- C                   | ION SELECTIVE ELECTRODE  |
| Cyanide Leachate                       | INOR-93-6052 | EPA SW-846-1311 & MOE 3015 & SM 4500 CN- I      | TECHNICON AUTO ANALYZER  |
| (Nitrate + Nitrite) as N Leachate      | INOR-93-6053 | EPA SW 846-1311 & SM 4500 - NO <sub>3</sub> - I | LACHAT FIA               |
| Trace Organics Analysis                |              |   |                          |
| Flash point (Pensky Martin Closed Cup) | TO 2200      | ASTM D93  | Pensky Martin Closed Cup |
| Benzo(a)pyrene                         | ORG-91-5114  | EPA SW846 3540 & 8270                           | GC/MS                    |

## Laboratory Use Only

Arrival Temperature: 13T794247

AGAT WO #: 9-6

Lab Temperature: 9-6

Notes:

## Chain of Custody Record

Ph.: 905.712.5100 • Fax: 905.712.5122 • Toll Free: 800.856.6261

## Turnaround Time Required (TAT) Required\*

### Regular TAT

☒ 5 to 7 Working Days

**Rush TAT** (please provide prior notification)

### Rush Surcharges Apply

☐ 3 Working Days

☒ 2 Working Days

☐ 1 Working Day

### OR

Date Required (Rush surcharges may apply):

\*TAT is exclusive of weekends and statutory holidays

### Client Information:

Company: SPL Consultants Limited  
Contact: Chris Hendry  
Address: 146 Colonnade Road, Unit 17  
Nepean, ON K2E 7Y1  
Phone: 613-228-0065 Fax: 613-228-0065  
Project: 1912-720 PO:   
AGAT Quotation #:

Please note, if quotation number is not provided,  
client will be billed full price for analysis.

### Regulatory Requirements:

☒ Regulation 153/09  
(reg. 51.1 Amend.)

Table 3

Indicate one

☐ Ind/Com

☐ Res/Park

☐ Agriculture

Soil Texture (check one)

☒ Coarse ☐ Fine

☐ Sewer Use

Region

Indicate one

☐ Sanitary

☐ Storm

☒ Regulation 558

☐ CCME

☐ Other (specify)

☐ Prov. Water Quality  
Objectives (PWQO)

☐ None

Is this a drinking water sample?

(potable water intended for human consumption)

☐ Yes ☒ No

If "Yes", please use the  
Drinking Water Chain of Custody Form

Is this submission for a Record of Site Condition?

☐ Yes ☒ No

### Invoice To:

Same: Yes ☐ No ☒

Company: SPL Consultants - Vaughan Office (Accounting)  
Contact:   
Address:

### Legend Matrix

**GW** Ground Water **O** Oil  
**SW** Surface Water **P** Paint  
**SD** Sediment **S** Soil

### Report Information - reports to be sent to:

1. Name: Chris Hendry  
Email: chendry@splconsultants.ca  
2. Name: Melissa Clement  
Email: mclement@splconsultants.ca

| Sample Identification | Date Sampled | Time Sampled | Sample Matrix | # of Containers | Comments<br>Site/Sample Information |
|-----------------------|--------------|--------------|---------------|-----------------|-------------------------------------|
| GS1-13122013          | 13/12/2013   |              | SOIL          | 43              |                                     |

| Metals and Inorganics | Hydride Forming Metals | Client Custom Metals | ORPs  | EC | NO <sub>2</sub> /NO <sub>3</sub> | Nutrients  | VOC   | CCME                                      | ABNs | PAHs | Chlorophenols | PCBs | Organochlorine Pesticides | TCDF Metals/Inorganics | TCDF | Sewer Use | Flashpoint/Inflamability | Benz(a)pyrene |
|-----------------------|------------------------|----------------------|---|----|----------------------------------|--|---|---|------|------|---------------|------|---------------------------|------------------------|------|-----------|--------------------------|---------------|
|                       |                        |                      | <input type="checkbox"/> B-HWS <input type="checkbox"/> CH <input type="checkbox"/> CN <input type="checkbox"/> EC <input type="checkbox"/> FOC <input type="checkbox"/> G+6- <input type="checkbox"/> SAR <input type="checkbox"/> NO <sub>2</sub> /NO <sub>3</sub> <input type="checkbox"/> N-Total <input type="checkbox"/> Hg <input type="checkbox"/> pH |    |                                  | <input type="checkbox"/> TP <input type="checkbox"/> NH <sub>4</sub> <input type="checkbox"/> TN <input type="checkbox"/> NO <sub>2</sub> <input type="checkbox"/> NO <sub>3</sub> | <input type="checkbox"/> VOC <input type="checkbox"/> THM <input type="checkbox"/> BTEX | <input type="checkbox"/> Fractions 1 to 4 |      |      |               |      |                           |                        |      |           |                          |               |
|                       |                        |                      |   |    |                                  |  |   |   |      |      |               |      |                           |                        |      |           |                          |               |

Samples Relinquished by (print name & sign):

Date/Time

Samples Received by (print name & sign):

Date/Time

Pink Copy - Client

Page 1 of 1

Samples Relinquished by (print name & sign):

Date/Time

Samples Received by (print name & sign):

Date/Time

Yellow & Golden Copy - AGAT

NO:

White Copy - AGAT



## Certificate of Analysis

AGAT WORK ORDER: 13Z794635

PROJECT NO: 1912-710

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

### O. Reg. 153(511) - PAHs (Water)

DATE RECEIVED: 2013-12-17

DATE REPORTED: 2013-12-24

|                            |      | SAMPLE DESCRIPTION: |      | MW-2       | MW-4       |
|----------------------------|------|---------------------|------|------------|------------|
|                            |      | SAMPLE TYPE:        |      | Water      | Water      |
|                            |      | DATE SAMPLED:       |      | 12/13/2013 | 12/13/2013 |
| Parameter                  | Unit | G / S               | RDL  | 5060102    | 5060116    |
| Naphthalene                | µg/L | 1400                | 0.20 | <0.20      | <0.20      |
| Acenaphthylene             | µg/L | 1.8                 | 0.20 | <0.20      | <0.20      |
| Acenaphthene               | µg/L | 600                 | 0.20 | <0.20      | <0.20      |
| Fluorene                   | µg/L | 400                 | 0.20 | <0.20      | <0.20      |
| Phenanthrene               | µg/L | 580                 | 0.10 | <0.10      | <0.10      |
| Anthracene                 | µg/L | 2.4                 | 0.10 | <0.10      | <0.10      |
| Fluoranthene               | µg/L | 130                 | 0.20 | <0.20      | <0.20      |
| Pyrene                     | µg/L | 68                  | 0.20 | <0.20      | <0.20      |
| Benz(a)anthracene          | µg/L | 4.7                 | 0.20 | <0.20      | <0.20      |
| Chrysene                   | µg/L | 1                   | 0.10 | <0.10      | <0.10      |
| Benzo(b)fluoranthene       | µg/L | 0.75                | 0.10 | <0.10      | <0.10      |
| Benzo(k)fluoranthene       | µg/L | 0.4                 | 0.10 | <0.10      | <0.10      |
| Benzo(a)pyrene             | µg/L | 0.81                | 0.01 | 0.03       | <0.01      |
| Indeno(1,2,3-cd)pyrene     | µg/L | 0.2                 | 0.20 | <0.20      | <0.20      |
| Dibenz(a,h)anthracene      | µg/L | 0.52                | 0.20 | <0.20      | <0.20      |
| Benzo(g,h,i)perylene       | µg/L | 0.2                 | 0.20 | <0.20      | <0.20      |
| 2-and 1-methyl Naphthalene | µg/L | 1800                | 0.20 | <0.20      | <0.20      |
| Surrogate                  | Unit | Acceptable Limits   |      |            |            |
| Chrysene-d12               | %    | 50-140              | 98   | 95         |            |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(NPGW) - Current  
5060102-5060116 Note: The result for Benzo(b)Flouranthene is the total of the Benzo(b)&(j)Flouranthene isomers because the isomers co-elute on the GC column.

Certified By:



**AGAT** Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 13Z794635

PROJECT NO: 1912-710

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

### O. Reg. 153(511) - PCBs (Water)

DATE RECEIVED: 2013-12-17

DATE REPORTED: 2013-12-24

|                           |      | SAMPLE DESCRIPTION: |     | MW-2       | MW-4       |
|---------------------------|------|---------------------|-----|------------|------------|
|                           |      | SAMPLE TYPE:        |     | Water      | Water      |
|                           |      | DATE SAMPLED:       |     | 12/13/2013 | 12/13/2013 |
| Parameter                 | Unit | G / S               | RDL | 5060102    | 5060116    |
| Aroclor 1242              | µg/L |                     | 0.1 | <0.1       | <0.1       |
| Aroclor 1248              | µg/L |                     | 0.1 | <0.1       | <0.1       |
| Aroclor 1254              | µg/L |                     | 0.1 | <0.1       | <0.1       |
| Aroclor 1260              | µg/L |                     | 0.1 | <0.1       | <0.1       |
| Polychlorinated Biphenyls | µg/L | 7.8                 | 0.1 | <0.1       | <0.1       |
| Surrogate                 | Unit | Acceptable Limits   |     |            |            |
| Decachlorobiphenyl        | %    | 60-140              |     | 98         | 84         |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(NPGW) - Current

Certified By:





# AGAT Laboratories

## Certificate of Analysis

AGAT WORK ORDER: 13Z794635

PROJECT NO: 1912-710

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
TEL (905)712-5100  
FAX (905)712-5122  
<http://www.agatlabs.com>

CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

### O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)

DATE RECEIVED: 2013-12-17

DATE REPORTED: 2013-12-24

|                                   |      | SAMPLE DESCRIPTION: |     | MW-2       | MW-4       |
|-----------------------------------|------|---------------------|-----|------------|------------|
|                                   |      | SAMPLE TYPE:        |     | Water      | Water      |
|                                   |      | DATE SAMPLED:       |     | 12/13/2013 | 12/13/2013 |
| Parameter                         | Unit | G / S               | RDL | 5060102    | 5060116    |
| F1 (C6 to C10)                    | µg/L |                     | 25  | <25        | <25        |
| F1 (C6 to C10) minus BTEX         | µg/L | 750                 | 25  | <25        | <25        |
| F2 (C10 to C16)                   | µg/L | 150                 | 100 | <100       | <100       |
| F2 (C10 to C16) minus Naphthalene | µg/L | 150                 | 100 | <100       | <100       |
| F3 (C16 to C34)                   | µg/L | 500                 | 100 | <100       | <100       |
| F3 (C16 to C34) minus PAHs        | µg/L | 500                 | 100 | <100       | <100       |
| F4 (C34 to C50)                   | µg/L | 500                 | 100 | <100       | <100       |
| Gravimetric Heavy Hydrocarbons    | µg/L | 500                 | 500 | NA         | NA         |
| Surrogate                         | Unit | Acceptable Limits   |     |            |            |
| Terphenyl                         | %    | 60-140              |     | 106        | 101        |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(NPGW) - Current

5060102-5060116 The C6-C10 fraction is calculated using Toluene response factor.

The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.

Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.

Total C6-C50 results are corrected for BTEX and PAH contributions.

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC6 and nC10 response factors are within 30% of Toluene response factor.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

Certified By:



## Certificate of Analysis

AGAT WORK ORDER: 13Z794635

PROJECT NO: 1912-710

5835 COOPERS AVENUE  
MISSISSAUGA, ONTARIO  
CANADA L4Z 1Y2  
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CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

### O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2013-12-17

DATE REPORTED: 2013-12-24

| Parameter                   | Unit | SAMPLE DESCRIPTION: |      | MW-2       | MW-4       | QA/QC      |
|-----------------------------|------|---------------------|------|------------|------------|------------|
|                             |      | SAMPLE TYPE:        |      | Water      | Water      | Water      |
|                             |      | DATE SAMPLED:       |      | 12/13/2013 | 12/13/2013 | 12/13/2013 |
|                             |      | G / S               | RDL  | 5060102    | 5060116    | 5060139    |
| Dichlorodifluoromethane     | µg/L | 4400                | 0.20 | <0.20      | <0.20      | <0.20      |
| Vinyl Chloride              | µg/L | 0.5                 | 0.17 | <0.17      | <0.17      | <0.17      |
| Bromomethane                | µg/L | 5.6                 | 0.20 | <0.20      | <0.20      | <0.20      |
| Trichlorofluoromethane      | µg/L | 2500                | 0.40 | <0.40      | <0.40      | <0.40      |
| Acetone                     | µg/L | 130000              | 1.0  | <1.0       | <1.0       | <1.0       |
| 1,1-Dichloroethylene        | µg/L | 1.6                 | 0.30 | <0.30      | <0.30      | <0.30      |
| Methylene Chloride          | µg/L | 610                 | 0.30 | <0.30      | <0.30      | <0.30      |
| trans- 1,2-Dichloroethylene | µg/L | 1.6                 | 0.20 | <0.20      | <0.20      | <0.20      |
| Methyl tert-butyl ether     | µg/L | 190                 | 0.20 | <0.20      | <0.20      | <0.20      |
| 1,1-Dichloroethane          | µg/L | 320                 | 0.30 | <0.30      | <0.30      | <0.30      |
| Methyl Ethyl Ketone         | µg/L | 470000              | 1.0  | <1.0       | <1.0       | <1.0       |
| cis- 1,2-Dichloroethylene   | µg/L | 1.6                 | 0.20 | <0.20      | <0.20      | <0.20      |
| Chloroform                  | µg/L | 2.4                 | 0.20 | <0.20      | <0.20      | <0.20      |
| 1,2-Dichloroethane          | µg/L | 1.6                 | 0.20 | <0.20      | <0.20      | <0.20      |
| 1,1,1-Trichloroethane       | µg/L | 640                 | 0.30 | <0.30      | <0.30      | <0.30      |
| Carbon Tetrachloride        | µg/L | 0.79                | 0.20 | <0.20      | <0.20      | <0.20      |
| Benzene                     | µg/L | 44                  | 0.20 | <0.20      | <0.20      | <0.20      |
| 1,2-Dichloropropane         | µg/L | 16                  | 0.20 | <0.20      | <0.20      | <0.20      |
| Trichloroethylene           | µg/L | 1.6                 | 0.20 | <0.20      | <0.20      | <0.20      |
| Bromodichloromethane        | µg/L | 85000               | 0.20 | <0.20      | <0.20      | <0.20      |
| Methyl Isobutyl Ketone      | µg/L | 140000              | 1.0  | <1.0       | <1.0       | <1.0       |
| 1,1,2-Trichloroethane       | µg/L | 4.7                 | 0.20 | <0.20      | <0.20      | <0.20      |
| Toluene                     | µg/L | 18000               | 0.20 | <0.20      | <0.20      | <0.20      |
| Dibromochloromethane        | µg/L | 82000               | 0.10 | <0.10      | <0.10      | <0.10      |
| Ethylene Dibromide          | µg/L | 0.25                | 0.10 | <0.10      | <0.10      | <0.10      |
| Tetrachloroethylene         | µg/L | 1.6                 | 0.20 | <0.20      | <0.20      | <0.20      |
| 1,1,1,2-Tetrachloroethane   | µg/L | 3.3                 | 0.10 | <0.10      | <0.10      | <0.10      |
| Chlorobenzene               | µg/L | 630                 | 0.10 | <0.10      | <0.10      | <0.10      |
| Ethylbenzene                | µg/L | 2300                | 0.10 | <0.10      | <0.10      | <0.10      |
| m & p-Xylene                | µg/L |                     | 0.20 | <0.20      | <0.20      | <0.20      |
| Bromoform                   | µg/L | 380                 | 0.10 | <0.10      | <0.10      | <0.10      |

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# Certificate of Analysis

AGAT WORK ORDER: 13Z794635

PROJECT NO: 1912-710

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CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

**O. Reg. 153(511) - VOCs (Water)**

DATE RECEIVED: 2013-12-17

DATE REPORTED: 2013-12-24

|                           |            | SAMPLE DESCRIPTION: |      | MW-2       | MW-4       | QA/QC      |
|---------------------------|------------|---------------------|------|------------|------------|------------|
|                           |            | SAMPLE TYPE:        |      | Water      | Water      | Water      |
|                           |            | DATE SAMPLED:       |      | 12/13/2013 | 12/13/2013 | 12/13/2013 |
| Parameter                 | Unit       | G / S               | RDL  | 5060102    | 5060116    | 5060139    |
| Styrene                   | µg/L       | 1300                | 0.10 | <0.10      | <0.10      | <0.10      |
| 1,1,2,2-Tetrachloroethane | µg/L       | 3.2                 | 0.10 | <0.10      | <0.10      | <0.10      |
| o-Xylene                  | µg/L       |                     | 0.10 | <0.10      | <0.10      | <0.10      |
| 1,3-Dichlorobenzene       | µg/L       | 9600                | 0.10 | <0.10      | <0.10      | <0.10      |
| 1,4-Dichlorobenzene       | µg/L       | 8                   | 0.10 | <0.10      | <0.10      | <0.10      |
| 1,2-Dichlorobenzene       | µg/L       | 4600                | 0.10 | <0.10      | <0.10      | <0.10      |
| 1,3-Dichloropropene       | µg/L       | 5.2                 | 0.30 | <0.30      | <0.30      | <0.30      |
| Xylene Mixture            | µg/L       | 4200                | 0.20 | <0.20      | <0.20      | <0.20      |
| n-Hexane                  | µg/L       | 51                  | 0.20 | <0.20      | <0.20      | <0.20      |
| Surrogate                 | Unit       | Acceptable Limits   |      |            |            |            |
| Toluene-d8                | % Recovery | 50-140              |      | 115        | 127        | 102        |
| 4-Bromofluorobenzene      | % Recovery | 50-140              |      | 118        | 125        | 109        |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(NPGW) - Current

Certified By:



## Certificate of Analysis

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PROJECT NO: 1912-710

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CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

### O. Reg. 153(511) - Metals & Inorganics (Water)

DATE RECEIVED: 2013-12-17

DATE REPORTED: 2013-12-24

|                         |          | SAMPLE DESCRIPTION: |      | MW-2       |      | MW-4       |  |
|-------------------------|----------|---------------------|------|------------|------|------------|--|
|                         |          | SAMPLE TYPE:        |      | Water      |      | Water      |  |
|                         |          | DATE SAMPLED:       |      | 12/13/2013 |      | 12/13/2013 |  |
| Parameter               | Unit     | G / S               | RDL  | 5060102    | RDL  | 5060116    |  |
| Antimony                | µg/L     | 20000               | 0.5  | 0.8        | 0.5  | 1.8        |  |
| Arsenic                 | µg/L     | 1900                | 1.0  | 1.4        | 1.0  | 1.5        |  |
| Barium                  | µg/L     | 29000               | 2.0  | 40.4       | 2.0  | 144        |  |
| Beryllium               | µg/L     | 67                  | 0.5  | <0.5       | 0.5  | <0.5       |  |
| Boron                   | µg/L     | 45000               | 10.0 | 48.2       | 10.0 | 146        |  |
| Cadmium                 | µg/L     | 2.7                 | 0.2  | <0.2       | 0.2  | <0.2       |  |
| Chromium                | µg/L     | 810                 | 2.0  | <2.0       | 2.0  | <2.0       |  |
| Cobalt                  | µg/L     | 66                  | 0.5  | 11.9       | 0.5  | <0.5       |  |
| Copper                  | µg/L     | 87                  | 1.0  | 2.1        | 1.0  | <1.0       |  |
| Lead                    | µg/L     | 25                  | 0.5  | <0.5       | 0.5  | <0.5       |  |
| Molybdenum              | µg/L     | 9200                | 0.5  | 21.8       | 0.5  | 17.2       |  |
| Nickel                  | µg/L     | 490                 | 1.0  | 17.9       | 1.0  | 1.9        |  |
| Selenium                | µg/L     | 63                  | 1.0  | <1.0       | 1.0  | <1.0       |  |
| Silver                  | µg/L     | 1.5                 | 0.2  | <0.2       | 0.2  | <0.2       |  |
| Thallium                | µg/L     | 510                 | 0.3  | <0.3       | 0.3  | <0.3       |  |
| Uranium                 | µg/L     | 420                 | 0.5  | 4.3        | 0.5  | 2.1        |  |
| Vanadium                | µg/L     | 250                 | 0.4  | <0.4       | 0.4  | 1.1        |  |
| Zinc                    | µg/L     | 1100                | 5.0  | 10.9       | 5.0  | <5.0       |  |
| Mercury                 | µg/L     | 0.29                | 0.02 | <0.02      | 0.02 | <0.02      |  |
| Chromium VI             | µg/L     | 140                 | 5    | <5         | 5    | <5         |  |
| Cyanide                 | µg/L     | 66                  | 2    | <2         | 2    | <2         |  |
| Sodium                  | µg/L     | 2300000             | 1000 | 83600      | 500  | 64400      |  |
| Chloride                | µg/L     | 2300000             | 1000 | 156000     | 200  | 94000      |  |
| Nitrate as N            | µg/L     |                     | 500  | <500       | 100  | <100       |  |
| Nitrite as N            | µg/L     |                     | 500  | <500       | 100  | <100       |  |
| Electrical Conductivity | uS/cm    |                     | 2    | 1380       | 2    | 604        |  |
| pH                      | pH Units |                     | NA   | 7.87       | NA   | 8.11       |  |

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(NPGW) - Current

5060102 Sample was diluted prior to analysis; The RDLs was changed to indicate dilution prior to analysis due to the matrix and in order to keep the analytes within a valid calibration range of the instruments.

Certified By:

*Parvathi Malenath*

# Certificate of Analysis

AGAT WORK ORDER: 13Z789890

PROJECT NO: 1912-720

5835 COOPERS AVENUE  
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CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

| O. Reg. 153(511) - PAHs (Water) |      |                     |                           |           |
|---------------------------------|------|---------------------|---------------------------|-----------|
| DATE RECEIVED: 2013-12-03       |      |                     | DATE REPORTED: 2013-12-09 |           |
|                                 |      | SAMPLE DESCRIPTION: |                           | MW2       |
|                                 |      | SAMPLE TYPE:        |                           | Water     |
|                                 |      | DATE SAMPLED:       |                           | 12/3/2013 |
| Parameter                       | Unit | G / S               | RDL                       | 5025397   |
| Naphthalene                     | µg/L | 1400                | 0.20                      | <0.20     |
| Acenaphthylene                  | µg/L | 1.8                 | 0.20                      | <0.20     |
| Acenaphthene                    | µg/L | 600                 | 0.20                      | <0.20     |
| Fluorene                        | µg/L | 400                 | 0.20                      | <0.20     |
| Phenanthrene                    | µg/L | 580                 | 0.10                      | <0.10     |
| Anthracene                      | µg/L | 2.4                 | 0.10                      | <0.10     |
| Fluoranthene                    | µg/L | 130                 | 0.20                      | <0.20     |
| Pyrene                          | µg/L | 68                  | 0.20                      | <0.20     |
| Benz(a)anthracene               | µg/L | 4.7                 | 0.20                      | <0.20     |
| Chrysene                        | µg/L | 1                   | 0.10                      | <0.10     |
| Benzo(b)fluoranthene            | µg/L | 0.75                | 0.10                      | <0.10     |
| Benzo(k)fluoranthene            | µg/L | 0.4                 | 0.10                      | <0.10     |
| Benzo(a)pyrene                  | µg/L | 0.81                | 0.01                      | <0.01     |
| Indeno(1,2,3-cd)pyrene          | µg/L | 0.2                 | 0.20                      | <0.20     |
| Dibenz(a,h)anthracene           | µg/L | 0.52                | 0.20                      | <0.20     |
| Benzo(g,h,i)perylene            | µg/L | 0.2                 | 0.20                      | <0.20     |
| 2-and 1-methyl Naphthalene      | µg/L | 1800                | 0.20                      | <0.20     |
| Surrogate                       | Unit | Acceptable Limits   |                           |           |
| Chrysene-d12                    | %    | 50-140              | 76                        |           |

**Comments:** RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(NPGW) - Current  
**5025397** Note: The result for Benzo(b)Flouranthene is the total of the Benzo(b)&(j)Flouranthene isomers because the isomers co-elute on the GC column.

Certified By:



# Certificate of Analysis

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PROJECT NO: 1912-720

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CLIENT NAME: SPL CONSULTANTS

ATTENTION TO: Melissa Clement

| O. Reg. 153(511) - VOCs (Water) |      |                     |                           |           |
|---------------------------------|------|---------------------|---------------------------|-----------|
| DATE RECEIVED: 2013-12-03       |      |                     | DATE REPORTED: 2013-12-09 |           |
|                                 |      | SAMPLE DESCRIPTION: |                           | MW2       |
|                                 |      | SAMPLE TYPE:        |                           | Water     |
|                                 |      | DATE SAMPLED:       |                           | 12/3/2013 |
| Parameter                       | Unit | G / S               | RDL                       | 5025397   |
| Dichlorodifluoromethane         | µg/L | 4400                | 0.20                      | <0.20     |
| Vinyl Chloride                  | µg/L | 0.5                 | 0.17                      | <0.17     |
| Bromomethane                    | µg/L | 5.6                 | 0.20                      | <0.20     |
| Trichlorofluoromethane          | µg/L | 2500                | 0.40                      | <0.40     |
| Acetone                         | µg/L | 130000              | 1.0                       | <1.0      |
| 1,1-Dichloroethylene            | µg/L | 1.6                 | 0.30                      | <0.30     |
| Methylene Chloride              | µg/L | 610                 | 0.30                      | <0.30     |
| trans- 1,2-Dichloroethylene     | µg/L | 1.6                 | 0.20                      | <0.20     |
| Methyl tert-butyl ether         | µg/L | 190                 | 0.20                      | <0.20     |
| 1,1-Dichloroethane              | µg/L | 320                 | 0.30                      | <0.30     |
| Methyl Ethyl Ketone             | µg/L | 470000              | 1.0                       | <1.0      |
| cis- 1,2-Dichloroethylene       | µg/L | 1.6                 | 0.20                      | <0.20     |
| Chloroform                      | µg/L | 2.4                 | 0.20                      | <0.20     |
| 1,2-Dichloroethane              | µg/L | 1.6                 | 0.20                      | <0.20     |
| 1,1,1-Trichloroethane           | µg/L | 640                 | 0.30                      | <0.30     |
| Carbon Tetrachloride            | µg/L | 0.79                | 0.20                      | <0.20     |
| Benzene                         | µg/L | 44                  | 0.20                      | <0.20     |
| 1,2-Dichloropropane             | µg/L | 16                  | 0.20                      | <0.20     |
| Trichloroethylene               | µg/L | 1.6                 | 0.20                      | <0.20     |
| Bromodichloromethane            | µg/L | 85000               | 0.20                      | <0.20     |
| Methyl Isobutyl Ketone          | µg/L | 140000              | 1.0                       | <1.0      |
| 1,1,2-Trichloroethane           | µg/L | 4.7                 | 0.20                      | <0.20     |
| Toluene                         | µg/L | 18000               | 0.20                      | <0.20     |
| Dibromochloromethane            | µg/L | 82000               | 0.10                      | <0.10     |
| Ethylene Dibromide              | µg/L | 0.25                | 0.10                      | <0.10     |
| Tetrachloroethylene             | µg/L | 1.6                 | 0.20                      | <0.20     |
| 1,1,1,2-Tetrachloroethane       | µg/L | 3.3                 | 0.10                      | <0.10     |
| Chlorobenzene                   | µg/L | 630                 | 0.10                      | <0.10     |
| Ethylbenzene                    | µg/L | 2300                | 0.10                      | <0.10     |
| m & p-Xylene                    | µg/L |                     | 0.20                      | <0.20     |
| Bromoform                       | µg/L | 380                 | 0.10                      | <0.10     |

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ATTENTION TO: Melissa Clement

| O. Reg. 153(511) - VOCs (Water) |            |                     |                           |           |
|---------------------------------|------------|---------------------|---------------------------|-----------|
| DATE RECEIVED: 2013-12-03       |            |                     | DATE REPORTED: 2013-12-09 |           |
|                                 |            | SAMPLE DESCRIPTION: |                           | MW2       |
|                                 |            | SAMPLE TYPE:        |                           | Water     |
|                                 |            | DATE SAMPLED:       |                           | 12/3/2013 |
| Parameter                       | Unit       | G / S               | RDL                       | 5025397   |
| Styrene                         | µg/L       | 1300                | 0.10                      | <0.10     |
| 1,1,2,2-Tetrachloroethane       | µg/L       | 3.2                 | 0.10                      | <0.10     |
| o-Xylene                        | µg/L       |                     | 0.10                      | <0.10     |
| 1,3-Dichlorobenzene             | µg/L       | 9600                | 0.10                      | <0.10     |
| 1,4-Dichlorobenzene             | µg/L       | 8                   | 0.10                      | <0.10     |
| 1,2-Dichlorobenzene             | µg/L       | 4600                | 0.10                      | <0.10     |
| 1,3-Dichloropropene             | µg/L       | 5.2                 | 0.30                      | <0.30     |
| Xylene Mixture                  | µg/L       | 4200                | 0.20                      | <0.20     |
| n-Hexane                        | µg/L       | 51                  | 0.20                      | <0.20     |
| Surrogate                       | Unit       | Acceptable Limits   |                           |           |
| Toluene-d8                      | % Recovery | 50-140              |                           | 117       |
| 4-Bromofluorobenzene            | % Recovery | 50-140              |                           | 105       |

**Comments:** RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(NPGW) - Current

Certified By:

