GLENVIEW HOMES (INNES) LTD.

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

3610 INNES ROAD, OTTAWA, ON

DECEMBER 10, 2020



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GLENVIEW HOMES (INNES) LTD.

PROJECT NO.: 17M-01348-00
DATE: DECEMBER 10, 2020

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December 10, 2020

Glenview Homes (Innes) Ltd. and Glenview Properties Inc.
190 O'Connor Street, 11th floor
Ottawa, Ontario, K2P 2R3

Attention: Jake Shabinsky, Managing Director

Dear Mr. Shabinsky,

Subject: Phase Two Environmental Site Assessment
3610 Innes Road, Ottawa, Ontario

We are pleased to present our report documenting the results of the Phase Two Environmental Site Assessment (ESA) completed at the above-noted property. The Phase Two ESA, completed in accordance with Ontario Regulation 153/04, included an investigation of areas of potential environmental concern (APECs) identified in the Phase One ESA to document the environmental quality of soil and groundwater at the Site as well as investigations to address APECs identified through the Record of Site Condition (RSC) process, as raised through comments from the Ministry of the Environment, Conservation and Parks (MECP).

As part of the Phase Two ESA, elevated concentrations of contaminants of concern that were identified in soil and groundwater at the Site were managed through a remediation program in July 2019. Remediation details are appended to this report. Confirmation of groundwater quality was completed through two rounds of groundwater sampling and supplemental investigations were conducted in November 2020 to respond to MECP comments.

This Phase Two ESA report was updated based on comments received from the MECP and reflects the information in the RSC that was submitted for ministry acknowledgement. The date of the report agrees with the RSC, however, to be complete, figures dated February 2021 are included in this report to agree with the RSC documentation.

If you have any questions or require further information, please contact the undersigned.

Kind regards,





Natalia Codoban, P.Eng.
Senior Hydrogeologist / Environmental Engineer

Carolyn Adams, P.Eng.
Senior Environmental Engineer

WSP ref.: 17M-01348-00

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REVISION HISTORY

FIRST ISSUE

August 29, 2019	Draft report			
Prepared by	Reviewed by	Approved By		
Adrian Menyhart	Natalia Codoban	Carolyn Adams		
REVISION 1				
February 14, 2020	Revised Groundwater Flow Map and Phase One ESA Information			
Prepared by	Reviewed by	Approved By		
Adrian Menyhart	Natalia Codoban	Carolyn Adams		
REVISION 2	Inclusion of remediation program and groundwater verification sampling			
April 8, 2020	Final report			
Prepared by	Reviewed by	Approved By		
Natalia Codoban	Carolyn Adams	Carolyn Adams		
REVISION 3	Updated to reflect Ministry of the Environment, Conservation and Parks comments			
December 10, 2020	Final report to support RSC submission			
Prepared by	Reviewed by	Approved By		
Natalia Codoban	Carolyn Adams	Carolyn Adams		

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EXECUTIVE SUMMARY

WSP Canada Inc. (WSP) was retained by Glenview Homes (Innes) Ltd. and Glenview Properties Inc. (Glenview) to conduct a Phase Two Environmental Site Assessment (ESA) for the property located at 3610 Innes Road, midway between Navan Road and Mer Bleu Road, in Ottawa, Ontario. The Phase Two Property is Parts 1, 2 and 3 of Part of Lot 4, Concession 3 (Ottawa Front), in Gloucester Township, now in the City of Ottawa Ontario, as shown on Plan 4R-32049 deposited July 5, 2019, referred to as 3610 Innes Road, or, the "Site". The Site consists of a partially paved property (northern portion); the south portion of the Site is vacant/cleared land with farmed cover.

The Phase Two ESA was completed to characterize subsurface conditions according to current industry standards, in accordance with Ontario Regulation (O. Reg.) 153/04. We understand that the Site will be redeveloped with residential dwellings. Compliance with O. Reg. 153/04 would require the filing of a Record of Site Condition (RSC). This Phase Two ESA may be used to support the filing of an RSC.

The Phase Two ESA was carried out between 2013 and 2020 and the RSC was accepted by the MECP on February 17, 2021. In finalizing the RSC, minor changes were made to figures for clarification purposes. These figures, dated February 2021, are included in this report for completeness. The conclusions of the report remain unchanged. The report is referenced in the RSC documents and is issued with the date of December 10, 2020.

Through an evaluation of the information gathered from a records review, interviews, and a site reconnaissance, the WSP Phase One ESA identified three Areas of Potential Environmental Concern (APECs) at the Site resulting from three on site Potentially Contaminating Activities (PCAs). The potential environmental concerns are related to a confirmed exceedance of petroleum hydrocarbon compound (PHC) fractions F3 and F4; historical snow storage identified through interview and buried debris across the south portion of the former commercial operation where sampling identified elevated concentrations of PHCs and polycyclic aromatic hydrocarbons (PAHs).

Comments received from the Ministry of the Environment, Conservation and Parks (MECP) through the submission of a Record of Site Condition identified three additional APECs resulting from on-site PCAs. These included the potential for wood preservatives to have leached from materials stored outdoors at the Site; the use of salt for vehicular and pedestrian traffic in the areas of the outdoor storage; and, the pumping of infiltrated groundwater from a remediation excavation to the grassed area east of the excavation.

The Phase Two ESA consisted of the boreholes, test pits and surface grab samples collected on the Site from 2013 to 2020. The maximum depth investigated was 7.0 m below ground surface (mbgs). Groundwater monitoring wells were installed at locations where groundwater quality required verification.

On November 2, 2018, WSP notified the City of Ottawa of the intended use of non-potable standards on the Site (Table 3: Full Depth Generic Site Condition Standards) and no objections were received. Subsequent follow-up notifications were sent to the City on February 4, 2020 and July 20, 2020. Since no response has been received by WSP from the City to date, WSP interprets that the City has no objections to the non-potable groundwater criteria (i.e., MECP Table 3 SCS) for the Site.

Therefore, the applicable generic soil and groundwater standards selected for evaluating subsurface conditions are the MECP Table 3: Full Depth Generic Site Condition Standards (SCS) in a Potable Ground Water Condition for residential/ institutional/ parkland (RPI) property uses. However, at the time of previous investigations, comparison of data was also made to MECP Table 2 SCS for industrial/ commercial and community (ICC) land uses. Where relevant, references in this report may include MECP Table 2 SCS.

Based on the results of the Phase Two ESA, elevated concentrations of metals and other inorganic parameters, PHCs (including BTEX), and/or PAHs in soil exceeding the Table 3 SCS were identified within the fill and native soils, extending to at least 6.1 mbgs across the Site. In summary:

- Review of the chemical analysis of metals and other inorganic parameters of the soil submitted within the fill and native materials across the Site identified exceedances of barium, cobalt, and vanadium. Due to the presence of these chemicals in the native silty clay or clayey silt (in both 2013 and 2016 drilling programs), they are considered representative of background in this area and not indicative of any off-Site or on-Site sources of contamination.

- The elevated concentrations of electrical conductivity (EC) and sodium adsorption ratio (SAR) identified in BH16-6 and BH16-8 may be attributed to the historical application of road salt on the Site. The salt impacts were identified in the shallow native soils.
- In 2013, elevated concentrations of PHC- F3 and F4 were identified within the fill material at TE-02 (located on the southeast corner of the 'overstock storage yard'), from ground surface to 0.35 mbgs. The fill material was described as 55% brick, wood, burnt wood, plastic and 45% sandy silt with trace organic material. In 2016, BH16-4, BH/MW16-5 and BH16-6 were advanced around TE-02 to delineate the PHC F3 and F4 contamination. All samples collected from these boreholes met the applicable Table 2 SCS, indicating that impacts are limited to surface soil at TE-02.
- Elevated concentrations of ethylbenzene, toluene, PHC F2 and/or PHC F3 were present in the groundwater of MW16-5, and later, at MW17-5 (located in the southeast corner of the 'overstock storage yard'), when compared to the Table 3 SCS.
- In the fall of 2016, a remedial program was conducted in the vicinity of TE-02, which saw the removal and off-site disposal of approximately 80 metric tonnes of PHC F3 and F4 impacted soils. Confirmatory samples were found to comply with the site standards chosen for the Site at the time (MECP Table 2 conditions, for ICC use). Since then, site standards have been re-evaluated, and revised to reflect the proposed residential use. As such, certain confirmatory samples (EW8 and SW11) were found to be in exceedance of the MECP Table 3 SCS. These areas were addressed in the 2019 remediation.
- In the summer of 2019, a second soil remediation program was completed, which saw the excavation of five areas of the Site, where impacted soil was previously identified. This included the former "cemetery" area, two areas with noted PHC exceedances on the perimeter of the 2016 remediation area, two areas with SAR and EC exceedances on the eastern side, and finally, an area with PHC impacted soils in the vicinity of MW17-5. Approximately 14,636 metric tonnes of impacted soil were removed from the APECs on the Site and disposed of at a licensed waste disposal facility by an environmental contractor Tomlinson Environmental Services. Sampling following the excavation activities confirmed that remaining soils within the APEC and remediation areas complied with the selected site standards. A detailed remediation report is included in Appendix B.
- Results of groundwater samples collected for PHCs (BTEX and fractions F1 to F4) for three samples on September 5, 2019, October 10, 2019 and January 14, 2020 from MW19-5 were below method detection limits. This indicated that the source of groundwater contaminant was removed during soil remediation activities. In November 2020, two additional wells (MW20-5D and MW20-5S) were installed near MW19-5 to assess vertical delineation and lateral delineation to the south. No measurable PHCs were identified in the groundwater samples recovered from these two wells. No off-site groundwater migration is expected to be occurring, based on findings of the Phase Two ESA.

1 INTRODUCTION

1.1 SITE DESCRIPTION

WSP Canada Inc. (WSP) was retained by Glenview Homes (Innes) Ltd. and Glenview Properties Inc. (Glenview) to conduct a Phase Two Environmental Site Assessment (ESA) for the property located at 3610 Innes Road, midway between Navan Road and Mer Bleu Road, in Ottawa, Ontario. The Phase Two Property is Parts 1, 2 and 3 of Part of Lot 4, Concession 3, in Gloucester Township, now in the City of Ottawa, Ontario, as shown on Plan 4R-32049 deposited July 5, 2019 (**Appendix A**). The Phase Two Property was formerly part of 3636 Innes Road and is now referred municipally as 3610 Innes Road. For the purposes of this report, the Phase Two Property is referred to as the "Site". The Site location is shown on **Figure 1** and property information is provided in **Table 1.1**.

The Site is an irregularly-shaped vacant property, covering approximately 14.98 hectares (37.02 m^2) in area. The northwestern portion of the Site was formerly occupied by ancillary buildings, associated with a commercial building supply operation. The buildings have been demolished. The south portion of the Site is vacant/cleared land.

Access to Innes Road is via a narrow strip with a commercial storage and truck rental operation to the east of the strip and a parking area being proposed for development into a commercial car wash to the west of the strip. These adjacent parcels had been part of a larger property owned by Glenview, but they have been separated for divestment to new owners. The balance of the Site (south of the Innes Road access strip) is bounded by vacant undeveloped land to the east, south and west. A hydro corridor extends along the south boundary of the Site and to the north, across Innes Road is a residential subdivision. The property boundary is shown on **Figure 2**.

Table 1.1 Property Information

INFORMATION	PHASE TWO PROPERTY INFORMATION
Municipal Address	3610 Innes Road
Property Information Number	All of 04404-1655 (LT) and All of 04404-1581(LT) PIN #044041912
Property Owner	Glenview Homes (Innes) Ltd.
Legal Description.	PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT) GLOUCESTER, PARTS 1, 2 AND 3 PLAN 4R-32049; SUBJECT TO AN EASEMENT OVER PART 2 PLAN 4R-32049 IN FAVOUR OF PART LOT 4, CONCESSION 3 (OTTAWA FRONT) GLOUCESTER, PART 4 PLAN 4R-32049 AS IN OC1970226; TOGETHER WITH AN EASEMENT OVER PART LOT 4, CONCESSION 3 (OTTAWA FRONT) GLOUCESTER, PART 4 PLAN 4R-32049 AS IN OC1970226; SUBJECT TO AN EASEMENT OVER PARTS 2 AND 3 PLAN 4R-32049 IN FAVOUR OF PART LOT 4, CONCESSION 3 (OTTAWA FRONT) PART 2 PLAN 4R-31279 AS IN OC2037945; CITY OF OTTAWA

1.2 PROPERTY OWNERSHIP

Mr. Jake Shabinsky of Glenview, owner of the lands, authorized completion of the Phase Two ESA on October 12, 2017. Glenview offices are at 190 O'Connor Street in Ottawa, Ontario. Mr. Shabinsky can be reached at jshabinsky@glenview.com. Property ownership information for the Site is provided in **Table 1-1**.

1.3 CURRENT AND PROPOSED FUTURE USES

The Site consists of a vacant property on the south side of Innes Road. Commercial buildings that were part of a building supply operation were formerly located on the north portion of the Site. These ancillary buildings were demolished in 2018 and no buildings remain on the Site. The principle commercial building remains at 3636 Innes Road, to the north and east of the Site. Vacant former commercial land at 3604 Innes Road, currently being developed into a commercial car wash, is to the north and west of the Site. For the purposes of this report, the property formerly occupied by the building supply operation is referred to as the "former BMR property", when referencing environmental investigations completed by WSP for this larger property.

The surface of the north part of the Site is asphalt-covered with remains of concrete foundations. The south limit of the former commercial operations on the Site consists of gravel or soil cover. Beyond the former commercial area, making up most of the Site, the ground is covered with natural and cultivated vegetation. Trees that had covered a portion of the property have been removed in preparation for the residential development proposed for the Site.

The Phase Two ESA was completed by WSP to investigate areas of potential environmental concern (APECs), identified in the Phase One ESA, and to document the environmental quality of soil and groundwater at the Site. The Phase Two ESA was completed in accordance with Ontario Regulation (O. Reg.) 153/04. Because a portion of the Site has been used for commercial purposes and the planned redevelopment will consist of residential uses, compliance with O. Reg. 153/04 requires the filing of a Record of Site Condition (RSC). This Phase Two ESA documents site conditions prior to and after remediation of identified contamination and it may be used to support the filing of an RSC.

1.4 APPLICABLE SITE CONDITION STANDARD

WSP identified the applicable generic soil and groundwater standards based on the following information available for the Site:

- A ditch used to collect surface water runoff runs south along the west side of the Site. This ditch has since been filled in a result of activities relating to residential development at the western neighbouring property. The ditch is not a watercourse, as defined in O. Reg. 153/04;
- There are three records of wells located on the Site, and 30 well records for the Phase One Study Area (within 250 m of the Site boundary). The well records identified twenty-five domestic and public wells, one commercial well, three monitoring wells and test holes and one abandoned well within the Phase One Study Area. It is considered that the water supply wells, domestic wells and commercial well are not likely to be actively used as a source of water for human consumption or agriculture as the properties along Innes Road are fully serviced for potable water and the City of Ottawa obtains its potable water for this area from the Ottawa River;
- The Site will not be used for agricultural or other use upon filing of the RSC;
- There are no well-head protection areas, Provincially Significant Wetlands or Areas of Natural and Scientific Interest on or adjacent to the Site;
- City of Ottawa was notified by WSP on November 2, 2018 of the intended use of non-potable standards (Table 3: Full Depth Generic Site Condition Standards) and no objections were received at that time. Subsequent follow up notifications were sent on February 4, 2020 and July 20, 2020 and no objections were received from the City;
- Surrounding properties are residential, commercial and vacant;

- The Site is not considered an “environmentally sensitive” site and it is not a shallow soil site, as defined by O. Reg. 153/04;
- Field observations indicate that the soil at the Site is consistent with the definition of ‘coarse textured’ in O. Reg 153/04;
- Residential land use is proposed for some or all of the Site; and
- Stratified soil conditions were not used for evaluating laboratory results.

Based on the above site specific details, soil and groundwater quality at the Site was compared to Table 3: Full Depth Generic Site Condition Standards (SCS) in a Non-Potable Ground Water Condition for residential, institutional and parkland (RPI) property uses set out in the Ministry of Environment, Conservation and Parks (MECP) publication *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (April 15, 2011), hereinafter referred to as the “MECP Table 3 SCS”.

2 BACKGROUND INFORMATION

2.1 PHYSICAL SETTING

The Site is situated within the Ottawa Valley Clay Plains physiographic region, which consists of clay plains, interrupted by ridges of rock or sand and characterized by deep grey silty clays mildly calcareous suggesting an origin from the more acidic rocks of the Canadian Shield (Chapman et al., 2007). Surficial geology mapping from Ontario Geological Survey (2010) indicates that the Site is dominated by glaciomarine and marine deposits of silt and clay, corresponding to the post-glacial Champlain Sea deposits. Bedrock in the area consists of the Middle Ordovician Rocks of Bobcaygeon Training Group of Simcoe and consists of limestone (Ontario Geological Survey, 2011).

Geological conditions encountered on the Site during drilling programs consisted of granular fill materials on the north side of the Site, including foreign constituents in some areas such as wood, charred remains and brick fragments. Where present, the fill extended from ground surface to 0.61 metres below ground surface (mbgs); in other locations, top soil was present from ground surface to 0.23 mbgs. The surficial layer was underlain by native clayey silt or silty clay, to a maximum depth of 6.25 mbgs. A lens of gravel to sandy gravel was found in the central portion of the Site. The overburden represents one single aquifer of gravel to sandy gravel at the depths investigated.

The investigation included sampling and monitoring groundwater elevations in the overburden, within the upper weathered bedrock layer and deeper bedrock, to provide lateral and vertical delineation. Based on groundwater elevation monitoring data obtained in November 2020, the average horizontal hydraulic gradient in the shallow overburden was calculated to be about 0.003 m/m. The vertical hydraulic gradient, as measured at the nested well set of MW19-5 and MW20-5D was calculated to be 0.2 in a downward direction, based on the same November 2020 groundwater monitoring data.

Bedrock was encountered from approximately 2.3 mbgs in the northern portions of the Site to 7.2 mbgs at boreholes advanced further south on the Site. The depth to bedrock was more than 2 mbgs at the sampling locations, and, therefore, the Site is not a shallow soil site.

The Site is located with an urban area, with full servicing for municipal water and sewer available along Innes Road. The Site is located at an approximate elevation of 87 meters above sea level (masl). The surface topography of the Site generally slopes down to the southwest.

Groundwater elevations fluctuate at the Site, through seasonal influences from precipitation and freeze-thaw periods. The measurements collected over a three-year period indicated that the groundwater ranged from 1.46 mbgs to 3.10 mbgs, translating to an elevation of approximately 85.1 masl to 86.8 masl. The highest elevations were generally in spring conditions (i.e., from March to May), with variability of up to 1.17 m throughout a hydrological cycle each year.

McKinnon Creek is present approximately 600 m southeast of the Site (MNRF, February 2020). Several agricultural ditches were documented to be present on the adjacent property west of the Site, but these have been removed as part of the residential redevelopment of the area.

A stormwater management pond is located on the south adjacent property, just southwest of the Site. This pond was formed over an area with historical watercourses, located more than 80 m from the Site. There are no Provincially Significant Wetlands or Areas of Natural and Scientific Interest on or in proximity to the Site (Muncaster Environmental Planning Inc., 2019).

The principle direction of local groundwater flow in the overburden is inferred to the south/southwest, with regional aquifer groundwater flow expected to be to the north towards the Ottawa River (approximately 5 km away).

2.2 PAST INVESTIGATIONS

2.2.1 PHASE I ESA - 2013

A Phase I ESA entitled "*Site 38 Orléans, 3636-3646, chemin Innes, Orléans (Ontario), Évaluation environnementale de site Phase I*" was completed by GENIVAR (now WSP) for the former BMR property in June 2013. The report outlined the following information:

- The Phase I was completed to the CSA Z768-01 Standards for a property covering a larger parcel of land, which includes the Site.
- The Phase I Property consisted of seven (7) lots owned by the Builder's Warehouse Inc.:
  - 3646 Innes Road (PIN 044040470);
  - 3636 Innes Road (PIN 044040452, 044040451, 044040450 and 044040448);
  - 3604 Innes Road (PIN 044040444);
  - The north portion of Part of Lot 4, Concession 3, Part 2, Plan 5R8348, Gloucester, Ontario (PIN 044040099).
- The records review included an ERIS Custom Report, a Ministry of the Environment (now MECP) FOI request, a City of Ottawa FOI request and aerial photographs.
- The report identified the following environmental concerns:
  - A barrel filled with potentially contaminated water on the northeast corner of the former BMR property at 3646 Innes Road (outside of the Site).
  - Nine (9) barrels of waste oil observed on the southwest portion of the former BMR property with visible evidence of petroleum hydrocarbon impacts. (Note that as noted in 2.2.2, the impacts from some of the barrels were investigated through test pit TE-02, and subsequent remediation was conducted in this area.)
  - A dump was located on the southwest portion of the former BMR property (on the Site).
  - Snow storage historically occurred on the southern land (on the Site).
- A Phase II ESA was recommended to assess soil and groundwater quality for Petroleum Hydrocarbons (PHC) fractions F1-F4 and benzene, toluene, ethylbenzene and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) contaminants in the areas of concern.
- It was recommended that observed wood debris, bricks, plastics, used tires located on the southwest corner of the former BMR property be removed from site for disposal.

2.2.2 PHASE II ESA - 2013

A Phase II ESA entitled "*Site 38 Orléans, 3636-3646, chemin Innes, Orléans (Ontario), Évaluation environnementale de site Phase II*" was completed by GENIVAR for the former BMR property in September 2013. The report outlined the following information:

- The Phase II ESA was completed in general accordance with O. Reg. 153/04 Records of Site Condition - XV.1 Part of the Environmental Protection Act, however, the report format is not compliant with the regulation.
- The Phase II ESA was conducted on a property covering a larger parcel of land, which included the Site.
- The program consisted of advancing five test pits and 10 boreholes across the Phase II Property, one of which was completed into a monitoring well.
- Five test pits were completed in the following areas:
  - TE-01 in the southeast sector of the Phase II Property, near a container of waste;
  - TE-02 in the southeast section of the Phase II Property, where visible staining was observed underneath 9 barrels of waste oil;
  - TE-03 in the southern section of the Phase II Property, east of observed railway sleepers;
  - TE-04 southwest of the Phase II Property, north of the brick storage area;
  - TE-05 along the south boundary of the Phase II Property, north of the brick storage area, into a pile of soil;
- A total of 61 soil samples (including five duplicate samples) were collected from the test pits and boreholes. Twenty-three samples (including two duplicate samples, with one analysed twice) were analyzed for PHC F1-F4 including BTEX and PAHs, and metals (Ag, As, B, Ba, Be, Cd, Cr, Co, Cu, Mo, Ni, Pb, Se, Sn, Tl, U, V and Zn) at EXOVA laboratory located in Ottawa, Ontario;
- A total of four samples (including three quality control samples) for groundwater were collected from the monitoring well and submitted to EXOVA laboratory located in Ottawa, Ontario;
- The results of the soil and groundwater chemical analysis were compared to Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Groundwater Condition, Industrial/Commercial/Community (ICC) and RPI property use under the Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act;
- The sample collected from 0 to 0.35 metres below ground surface (mbgs) in test pit TE-02 had concentrations of PHC F3 and F4 above the Table 7 ICC and RPI SCS;
- A soil sample analysed from borehole F-05 (see **Figure 2**) located at depths between 1.32 to 1.83 mbgs and a sample collected from TE-02 between 1.00 to 1.45 mbgs had concentrations of vanadium above the Table 7 SCS ICC and barium above the Table 7 SCS RPI uses. These exceedences were determined to likely be representative of the natural soil conditions of that area;
- All other soil samples submitted for analysis met the Table 7 SCS ICC and RPI criteria;
- The groundwater sample submitted for the monitoring well met the Table 7 SCS ICC and RPI criteria;
- The volume of impacted soil located in the area of TE-02 was estimated to be approximately 105 m^3, assuming the depth of contamination extends to 0.35 mbgs, and a 300 m^2 surface area.

2.2.3 PHASE ONE ESA - 2016

A Phase One ESA was completed by WSP for the former BMR property on June 27, 2016, in accordance with the requirements of O. Reg. 153/04. The Phase One ESA included a review of the Phase I and II ESAs completed by GENIVAR in 2013.

Two Areas of Potential Concern (APECs) at the former BMR property were identified that were resulting from two on site PCAs, and one APEC that was attributed to one off-site PCA with the potential for contaminant migration though groundwater movement.

The APECs identified at the former BMR property include:

APEC-1 (southern corner of the 'overstock storage yard'): The former Phase I and II ESA confirmed an exceedance of PHC F3 and F4 above the Table 7 SCS. The extent of the soil contamination was recommended to be delineated to provide an accurate estimate of the quantity of soil to be removed from the Site.

APEC-2 (south of the overstock storage yard/soil pile and fence/gate running east west south of the 'overstock storage yard'): Historical snow storage identified in the former Phase I ESA and interview may have impacted the soil and groundwater quality at the Site.

APEC-3 (along the east property line): Review of the 1996 and 2014 aerial photographs revealed that 3637, 3682 and 3698 Innes Road (located 70 metres east of the Site) had disturbed areas on the north side of the properties, with large commercial vehicle storage/maintenance present.

A Phase Two ESA was recommended to investigate soil and groundwater quality at the APECs identified at the former BMR property.

Based on subsequent information obtained for the Site, and updated analytical results, APECs were revised as discussed later in this report.

The Phase One ESA report recommended that the miscellaneous plastics, wood, drywall and construction debris located across the northwestern section of the Site (near TE-04, see **Figure 2**) be removed for off-site disposal.

2.2.4 PHASE TWO ESA – JUNE 2016

A Phase Two ESA was completed by WSP for the former BMR property on June 27, 2016, following recommendations of the Phase One ESA. The Phase Two ESA was completed in general accordance with O. Reg. 153/04.

The Phase Two ESA consisted of advancing of 13 boreholes to a maximum depth of 7.0 mbgs, installation of three monitoring wells, and the collection of soil and groundwater samples for chemical analysis. As the Phase One ESA identified multiple well records that may be located on the Site and within the Phase One Study Area, WSP selected Table 2: Full Depth Generic Site Condition Standards (SCS) in a Potable Ground Water Condition for residential/ institutional/ parkland property uses, to evaluate soil and groundwater conditions.

Based on the results of the Phase Two ESA, elevated concentrations of metals and other inorganic parameters, and/or PHCs (including BTEX) in soil exceeding the Table 2 SCS were identified within the fill and native soils, extending to at least 6.1 mbgs across the Site. In summary:

- Review of the chemical analysis of metals and other inorganic parameters of the soil submitted within the fill and native materials across the Site identified exceedances of barium, cobalt, and vanadium. Due to the presence of these chemicals in the native silty clay or clayey silt (in both 2013 and 2016 drilling programs), WSP concluded that elevated concentrations were representative of background in this area and not necessarily indicative of any off-Site or on-Site sources of contamination.
- The elevated concentrations of electrical conductivity (EC) and sodium adsorption ratio (SAR) identified in BH16-6 and BH16-8 (see **Figure 2**) may be attributed to the historical application of road salt on the Site. The salt impacts were identified in the shallow native soils.
- In 2013, elevated concentrations of PHC- F3 and F4 were identified within the fill material at TE-02 (see **Figure 2**), from ground surface to 0.35 mbgs. The fill material was described as 55% brick, wood, burnt wood, plastic and 45% sandy silt with trace organic material. In 2016, BH16-4, BH/MW16-5 and BH16-6 were advanced around TE-02 to delineate the PHC F3 and F4 contamination. All samples collected from these boreholes met the applicable Table 2 SCS, indicating that impacts are limited to surface soil at TE-02.
- Elevated concentrations of ethylbenzene and PHC F2 were present in the groundwater of MW16-5, when compared to the Table 2 SCS.

Based on the findings of the investigation, WSP identified elevated concentrations of contaminants of concern in soil and groundwater at the Site. Based on delineation efforts of the PHC F3 impacted soil located at FE-02, it has been determined that approximately 105 m^2 of impacted soil is present in this location. Removal of the impacted soil was recommended to address groundwater impacts. WSP recommended to re-sample groundwater after soil remediation. WSP recommended to manage elevated metal concentrations in soil through a risk assessment process to identify risk management measures that will allow for this soil to remain on-site.

2.2.5 PHASE TWO ESA UPDATE AND REMEDIATION – NOVEMBER 2016

Following completion of a Phase Two ESA for the former BMR property in June 2016, a remediation program was conducted by WSP near test pit TE-02 (see **Figure 2**), where PHC fractions F3 and F4 were identified above site condition standards. On November 2, 2016, approximately 80 metric tonnes of impacted soils were removed from the area and disposed of at a licensed waste disposal facility. Confirmatory sampling indicated that the soil quality in that area met the site standards selected for the property at the time (MECP Table 2, for a commercial/industrial use property). Elevated concentrations of ethylbenzene, and the PHC fraction F2 were identified in the groundwater located at well MW16-5 (see **Figure 2**), when compared to Table 2 SCS.

The updated report also concluded that impacts from road salt use were within standards for the Site, and that elevated metals noted in certain soil samples could be managed to stay on site.

2.2.6 FILL AND CONTAMINATED GROUNDWATER DELINEATION – 2017

In February 2017, Paterson Group (Paterson) conducted a fill and contaminated groundwater delineation program at the Site, with the intention of quantifying and qualifying areas of fill material previously identified by WSP, and to delineate impacts identified at monitoring well BH/MW16-5.

In total, 24 test pits and six boreholes were advanced, with test pits TP1 and TP2 and borehole BH3 placed north of the Site on the former BMR property. The remaining 22 test pits advanced in areas of suspected fill on the Site and boreholes concentrated in the area of BH/MW16-5 (see **Figure 2**). Soil samples were analyzed for BTEX, PHC fractions F1-F4, PAHs and metals/inorganics. Exceedances of PHCs were found in soil samples collected in TP19 (F3 and F4) and TP20 (F3), locations shown on **Figure 2**; exceedances for PAHs were noted in soil samples collected from TP19 and TP21; and soil samples from BH16-6 and BH16-8 each had one parameter exceeding Table 3 RPI SCS in surface soil.

The soil matrix observed at test pits TP3-TP24, advanced in various fill piles ranged from topsoil to silty clay. Composition of fill also contained trace to significant percentages of waste. Waste consisted of building materials, such as plastic wrap, metal sheeting, plywood, asphalt shingles, nylon rope, mortar, corrugated plastic tile, etc. Test pits with the most significant component of waste materials included: TP3, TP5, TP7, TP9, TP13, TP15, TP17, TP18, TP19, TP21, and TP23. These waste materials require removal, leaving only soil suitable for reuse on Site.

Paterson concluded that once the PHC and PAH impacts are removed at TP19, TP20 and TP21, the balance of the fill piles would need to be screened to remove the waste materials from the soil. This may be impractical where the clayey nature of the soil matrix inhibits manipulation of the soil, and in these conditions, some non-impacted soil may require removal along with waste materials.

2.2.7 PHASE ONE ESA – MARCH 2020

A Phase One ESA was completed by WSP for the Site on March 12, 2020, in accordance with the requirements of O. Reg. 153/04. The Phase One ESA included a review of the environmental reports completed for the Site to date. Three APECs were identified that were resulting from three on site PCAs (see **Figure 2**).

The APECs identified at the Site include:

- APEC 1 (south of the overstock storage yard, on east part of the Site): Previous ESA reports confirmed impacts of PHC F3 in soil at concentrations exceeding the Table 7 SCS applied at the time. Residual concentrations, after initial remediation exceeded RPI land use Table 3 SCS and concentrations of ethylbenzene and the PHC fraction F2 were identified in groundwater at well MW16-5, when compared to Table 2 SCS. Remediation conducted as part of the Phase Two ESA extended the limits of the APEC. Groundwater impacts could be limited to water entrained in contaminated soil layer.
- APEC 2 (south of the gate/fence at the south limit of the overstock storage yard). The historical snow storage has the potential to impact the soil and groundwater quality on the Site. Groundwater impacts would only be considered if impacts in the soil were present at significant values; and
- APEC 3 (across the overstock area and extending south along the west property boundary). Buried debris and elevated concentrations PHCs and PAHs were identified in the fill piled along the west property boundary and south part of the overstock area. Fill with debris, but no identified contaminants at concentrations exceeding the SCS were also noted across the overstock area. The concentrations of noted impacts were not expected to extend into groundwater.

A Phase Two ESA was recommended to characterize soil and groundwater quality at APECs identified at the Site and remediation was conducted in the areas of identified contamination.

2.3 POTENTIAL CONTAMINANTS OF CONCERN

This Phase Two ESA report has been updated to include documentation of activities undertaken to remove contaminated soil from the Site. Based on the existing ESA information, contaminants of concern associated with past activities at the Site were investigated and documented through soil and groundwater investigations. The potential contaminants of concern identified in APECs 1 to 3 included: other regulated parameters (ORPs), particularly electrical conductivity (EC) and sodium adsorption ratio (SAR), PAHs and PHCs.

Through feedback from the MECP from an earlier submission of an RSC, three additional APECs were identified, and the following potential contaminants of concern were added:

- Metals, hydride-forming metals, PAHs, acid, base and neutral (ABN) compounds and chlorinated phenols (CPs) were related to the outdoor storage of preserved wood products that may be included railway ties (APEC-4). These contaminants were of concern in soil, with groundwater concerns only to result if impacts were noted below the water table;
- EC and SAR were related to the use of road salt for the safety of vehicular and pedestrian traffic in the area of outdoor material storage (APEC-5). This APEC was identified and investigated and was then removed from consideration through the exemption provided under section 49.1, paragraph 1 of O. Reg. 153/04.
- PHCs and BTEX were considered possible when groundwater that infiltrated a remediation excavation was pumped to a nearby grassed surface (APEC-6). The PHCs were of concern in soil, with groundwater concerns only to result if impacts were present in soil.

The investigation summarized in Section 2.2 included measures to confirm the findings of the previous investigations. Furthermore, verification sampling conducted during the remediation activities of 2019 supported the data obtained from previous investigations. Based on consistent findings over several years, the data from previous investigations was considered adequate for the purpose of confirming soil and groundwater quality and establishing likely maximum contaminant concentrations.

3 SCOPE OF THE INVESTIGATION

3.1 OVERVIEW OF THE SITE INVESTIGATION

The scope of work for the Phase Two ESA is in general accordance with the objectives outlined in O. Reg. 153/04. The sampling methods complied with the requirements established by the MECP in the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", 2004 amended in 2011 and technical updates provided to support regulatory amendments. The tasks completed during the Phase Two ESA included:

- Preparing a sample and analysis plan (SAP) to document the rationale for the investigation, including the number of sampling points, sampling frequency, analytical parameters and media to be sampled;
- Co-ordinating with the drilling contractor Strata Group Ltd. (Strata), and private/public locators to obtain utility locates near the proposed borehole locations;
- Providing site supervision during drilling to obtain samples of soil that are representative of the worst-case conditions observed during the investigation;
- Advancing 13 boreholes in 2016, to a maximum depth of 7.0 m. Soil samples were recovered from each borehole. Three of the boreholes were advanced into bedrock and completed as groundwater monitoring wells constructed with 51 mm diameter polyvinyl chloride (PVC) pipe with 3 m long screens and locked monument casings;
- Replacing a monitoring well at MW16-5, with a monitoring well MW17-5 in December 2017 and subsequently with a monitoring well MW19-5 in August 2019. Two additional monitoring wells (MW20-5S and MW20-5D) were added in this area to provide lateral and vertical delineation;
- Collecting, screening, and classifying soil samples at each borehole for possible laboratory analysis. Soil sample headspace vapours were monitored using a combustible gas indicator (CGI) and/or photoionization detector (PID) to assess the presence of volatile organic compounds (VOCs) and combustible petroleum contaminants;
- Selecting soil samples for submission to AGAT Laboratories, an accredited laboratory for chemical analysis of the potential contaminants of concern;
- Monitoring subsurface vapour concentrations and water levels in the monitoring wells. Groundwater samples were collected from the monitoring wells and submitted and analysed for metals and other inorganic parameters, PAHs and PHCs;
- Collecting quality assurance/quality control (QA/QC) trip blanks for groundwater and duplicate samples for soil and groundwater at a frequency of 10% throughout the field program, in general compliance with regulatory requirements; and
- Comparing the results of soil and groundwater analysis to MECP Table 3 SCS for RPI uses.

3.2 MEDIA INVESTIGATED

An SAP was developed prior to the field sampling events, which outlined the proposed sampling locations and related analysis for both the soil and groundwater investigation. The field investigation was completed to assess the quality of fill across the site, the potential for PHC releases to have impacted surface soil and the potential for past releases of PHCs to have impacted groundwater. The sample locations are shown on **Figure 2** and the SAPs are provided in **Appendix A-1**.

3.3 PHASE ONE CONCEPTUAL SITE MODEL

The preliminary Phase One Conceptual Site Model (CSM) presented in the Phase One ESA report by WSP in 2016 included figures and narrative that provided the logical basis for the interpretation of PCAs and APECs on the former BMR property. An updated CSM has been prepared in 2020 to reflect the conditions at the Site at the time that remediation was undertaken in 2019.

The Phase One CSM is summarized as follows:

- A surface water management ditch runs south along the west side of the Site and connects with the storm water management pond located on the south adjacent property;
- Based on well records, there are three wells on the Site and 30 wells used to be present in the Phase One Study Area. These were identified predominantly as public, domestic and commercial wells. Based on the availability of municipally treated drinking water in the Study Area, it is considered unlikely that potable wells remain in use. No objection to the use of non-potable SCS was received from the municipality, after the initial notification in November 2018 and subsequent update on February 4, 2020;
- Surrounding properties are residential, commercial and vacant;
- Road names are shown on **Figures 1** and **2**;
- The Site is located at approximate elevation of 87 masl and slopes slightly down to the south. The surrounding lands generally slope gently down to the south;
- Surficial geology mapping, the Phase II ESA report completed by GENIVAR in 2013 and well records suggest the Site consists predominantly of silt and clay. Bedrock consists of limestone of the Middle Ordovician Rocks starting at ground surface in some areas;
- Based on the findings of the records review, interviews, and the site reconnaissance completed as part of the Phase One ESA, three PCAs were identified that have led to APECs at the Site. These PCAs include:
  - Other (known contamination). An area of impacted soil and groundwater located in the vicinity of BH/MW17-5 was identified during remediation activities;
  - Other (snow storage areas). In an area south of the overstock storage area; and
  - Other (known contamination and buried debris). Buried debris and impacts in soil were identified in the fill piled along the west property boundary and at the south part of the overstock area.

Information considered for the development of this CSM was gathered from numerous sources (i.e., aerial photographs, city directories, environmental database searches, physical setting sources, historical reports, interviews and a site reconnaissance), which reduces the potential for not identifying a former property use or PCA. It is noted that through comments received from the MECP, two additional PCAs were added for consideration, including the outdoor storage of preserved wood and the discharge of water from a remediation excavation to ground surface. As a result of the additional PCAs, two more APECs were added as part of the Phase Two ESA and were not included in the Phase One ESA.

3.4 DEVIATIONS FROM SAMPLING AND ANALYSIS PLAN

The SAPs prepared in advance of the Phase Two ESA sampling events are included in **Appendix A-1**. The intent of these plans was followed during the investigations to ensure that the subsurface was adequately assessed at the APECs identified on the Site.

3.5 IMPEDIMENTS

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

4 INVESTIGATION METHOD

4.1 GENERAL

The soil and groundwater quality at the Site were investigated at the locations shown on **Figure 2** through the advancement of boreholes and installation of monitoring wells to characterize environmental conditions at the APECs identified in the Phase One ESA. Investigation methods followed Standard Operating Procedures (SOP), prepared by WSP for the conduct of environmental investigations. The investigation methods are described in the following sections.

4.2 DRILLING AND EXCAVATING

WSP retained Strata Drilling Group (Strata), a MECP-licensed driller to conduct the drilling activities at the Site under the supervision of WSP field staff between June 1 and June 2, 2016. The boreholes were advanced to evaluate subsurface locations, collect soil samples, and install monitoring wells at the Site. Damaged monitoring wells were replaced in 2017 and 2019 and new monitoring wells were installed in 2020, using similar procedures. Test pitting was conducted for other investigations, to provide post-remediation verification.

The drilling included:

- Six exterior boreholes to delineate the extent of the contaminants identified at TE-02 and F-05, which were advanced during the 2013 Phase II ESA (GENIVAR, September 2013). Two of these boreholes were completed as monitoring wells (BH/MW16-3 and BH/MW16-5), with screen lengths of 3.05 m in order to determine if the contaminants of concern were present in the groundwater.
- Four exterior boreholes into the areas identified during the Phase I ESA (GENIVAR, June 2013) and Phase One ESA (WSP, 2016) as snow storage areas. One of these boreholes (BH/MW16-8) was completed as a monitoring well, with a screen length of 3.05 m to assess the groundwater conditions.
- Three exterior boreholes BH16-11, BH16-12 and BH16-13 along the ATV/snowmobile trail running east-west in the vacant southern portion of the Site in order to assess soil quality.
- Monitoring wells BH/MW16-3, BH/MW16-5 were screened at depths from 1.52 to 4.57 mbgs; and BH/MW16-8 was screened at depths from 1.06 to 4.11 mbgs.
- In 2017, it was noted that MW16-5 had become damaged. As a result, the well was decommissioned in accordance with O. Reg. 903. A new well MW17-5 was installed immediately adjacent to the decommissioned well on December 8, 2017.
- During soil remediation activities in June 2019, monitoring well MW17-5 was damaged. This was decommissioned in accordance with O. Reg. 903 on June 18, 2019. A replacement well MW19-5 was installed immediately adjacent to the former location of MW17-5 on August 28, 2019.
- In response to MECP comments, two additional monitoring wells, MW20-5S and MW20-5D, were installed in November 2020 to provide lateral and vertical delineation of groundwater impacts identified at the wells installed as MW16-5 and MW17-5. Soil samples were submitted as part of the drilling field program.

Other soil sampling activities included:

- Test-pits were advanced to provide delineation of remediated areas after the 2019 remediation. A backhoe excavated into the soil at the direction of a WSP field technician who recovered soil samples at depths to characterize the potential contaminants at the area of investigation.

— In areas of potential surface soil impacts (outdoor storage of preserved wood and groundwater discharge), soil samples (grab samples) were recovered through the use of a garden shovel.

Soil samples were recovered from each of the borehole, test pit or grab sample locations, visually inspected and logged. The borehole logs are presented in **Appendix A-2** and borehole locations are presented in **Figure 2**.

4.3 SOIL

4.3.1 SOIL SAMPLING

During the drilling programs, soil samples were collected continuously using plastic dual tube liners inserted into an outer rod (also known as an outer extension). Prior to sampling at each depth interval (1.2 m), a new tube was inserted into the outer rod to prevent potential cross-contamination of the recovered samples.

The geological conditions at the Phase Two Property were observed in the soil samples and recorded to a field log by a WSP technologist. Soil samples were collected with dedicated nitrile gloves to prevent cross contamination between sampling locations and were split into two portions: one placed into labeled polyethylene bags for field screening and another jarred into the appropriate laboratory-supplied sample containers and stored in a cooler with ice for possible laboratory analysis. For samples considered for PHC fraction F1 analysis, a core of soil was placed in a pre-weighed laboratory prepared vial containing a measured amount of methanol. Soil samples considered to be representative of "worst-case" environmental conditions were selected for chemical analysis based on visual and olfactory observations made in the field and vapour readings.

Soil samples (including field duplicate samples) were submitted by Genivar (in 2013) to Exova Laboratories and by WSP (in 2016, 2019 and 2020) to AGAT Laboratories (AGAT) in Ottawa, Ontario. AGAT is accredited by the Standards Council of Canada (SCC). The soil samples submitted for chemical analysis and results received are summarized in **Table 1** to **Table 6** (appended). Locations of soil sampling are shown on **Figures 2, 3**, **4** and **5**, with cross-sections provided as **Figures 4-1** to **4-4**, **5-1** and **5-2**.

4.4 SOIL FIELD SCREENING MEASUREMENTS

Soil samples were screened using an RKI Eagle 2, which operates as both a PID and CGI, to measure total organic vapours and combustible vapours, respectively. Results of field screening and the soil samples submitted to the laboratory for chemical analysis are included on the borehole logs (see **Appendix A-2**).

The PID was equipped with a 10.6 electron-volt (eV) lamp, which was calibrated with a known concentration of isobutylene. This instrument detects VOCs that emit below an ionization potential of 10.6 eV, which includes a wide range of chemicals such as solvents and fuels. The detection limit of the instrument ranges from 0 to 15,000 ppm and accuracy is +/- 10% for VOCs in the range of 0 and 2,000 ppm and +/- 20% of the reading above 2,000 ppm. The resolution of this instrument is 0.1 ppm for VOCs in the range of 0 and 1,000 ppm and 1 ppm for readings above 1,000 ppm. The PID provides an indication of organic contamination in soil but does not measure concentrations of individual contaminants.

The CGI detects combustible vapours such as those associated with fuels. This instrument measures total combustible gases, calibrated to a known concentration of hexane. The instrument was operated in the methane elimination mode. The detection limit of the instrument ranges from 0 to 11,000 ppm (i.e., 100 % LEL of hexane). The CGI has an accuracy of 25 ppm below 1,000 ppm and 5% of the lower explosive limit (LEL)

between 1,000 ppm and 100% LEL. As with the PID, it provides an indication of contamination but not chemical specific concentrations.

The instruments were obtained from Pine Environmental Services Inc. (Pine) for this project. Pine calibrates their instruments on a regular basis, including prior to the use on this project, to ensure consistent results. Site calibration of the field instruments was completed each day according to the manufacturer's instructions.

4.5 GROUNDWATER: MONITORING WELL INSTALLATION

As described in Section 4.2, monitoring wells were installed at the Site to investigate the APECs identified during the Phase One ESA. The monitoring wells were constructed as follows:

- Each monitoring well was constructed using 51 mm diameter well screens and PVC riser pipe;
- The screened interval in the monitoring wells was 3.05 m long with a No. 10 slot size screen;
- Sand pack, consisting of No. 2 silica sand, was placed around the well and piezometer screens and the sand pack was extended to a minimum of 0.3 m above the top of the screen;
- A bentonite seal was then placed around the PVC riser pipe up to within 0.3 m of the ground surface; and
- The monitoring wells were completed with locked monument casings which were cemented into place.

The monitoring wells were installed by a licensed well technician from Strata in accordance with O. Reg. 903, as amended. The monitoring well construction details are shown on the borehole logs, included as **Appendix A-2**.

After installation, well development was carried out to remove particulates and fluids that may have collected in the sand pack during drilling activities. The monitoring wells were equipped with dedicated 5/8-inch LDPE Waterra tubing and an inertial pump (foot valve), to facilitate groundwater sampling. The wells were then developed by purging five well volumes or by purging the wells dry five times prior to sampling.

4.6 GROUNDWATER: FIELD MEASUREMENT OF WATER PARAMETERS

Following development, monitoring wells were sampled. Periodic measurements of the groundwater were recorded for temperature, pH, oxidation/reduction potential (ORP), dissolved oxygen (DO) and electrical conductivity (EC).

Prior to sampling, the depth to groundwater and depth to the bottom of each well was measured with an oil/water interface probe.

4.7 GROUNDWATER SAMPLING

Following purging of the wells, groundwater samples were collected using waterra tubing and an inertial lift foot valve.

Groundwater samples were conveyed directly into laboratory-supplied sample containers. Samples submitted for metals analysis were filtered in the field with dedicated 0.45-micron (µm) filters. Groundwater samples were placed in a cooler with ice and a completed chain of custody form for submission to the laboratory.

The monitoring well at MW16-5 (and later wells MW17-5 and MW19-5) was sampled on a seasonal basis following its installation. The well MW17-5 was sampled in May 2019 prior to the initiation of remediation activities on the Site; soil remediation activities were completed on July 5, 2019. Following recommendations of Section 39.8 "Confirmatory Sampling and Analysis" of O. Reg. 153/04 on groundwater sampling following soil remediation activities (i.e., collect groundwater samples from two consecutive sampling events at minimum of 90 days after the last remediation action), well MW19-5 was sampled on October 10, 2019 and January 14, 2020. MW20-5S and MW20-5D, installed in 2020, were sampled in November 2020. Groundwater sampling results are included in **Tables 7** and **8** and presented on **Figure 6**, including cross sections shown on **Figures 6-1** and **6-2**.

4.8 SEDIMENT SAMPLING

A water body is not present at the Site. Therefore, sediment was not sampled as part of the investigation.

4.9 ANALYTICAL TESTING

Soil and groundwater samples were analyzed by AGAT Laboratories in Mississauga, Ontario, and analytical work was conducted in accordance with the requirements of O. Reg. 153/04. Soil and groundwater samples were submitted for analysis of metals, inorganic parameters, PAHs, ABNs, CPs, and PHCs, including BTEX. Laboratory Certificates of Analysis are included in **Appendix A-3**.

4.10 RESIDUE MANAGEMENT PROCEDURES

The management of residues such as soil cuttings, purge and development groundwater, and fluids from equipment cleaning was conducted as indicated in the following table.

Table 4.1 Summary of Residue Management Procedures

RESIDUE	MANAGEMENT PROCEDURE
Soil cuttings from drilling and excavations	Soil cuttings from the drilling were left on-site and managed at the time of site remediation. Leachate analysis to permit off-Site management of soil during remediation was conducted as presented in **Table 9**.
Water from well development and purging	Ground water from the development and purging of the monitoring wells was emptied onto the ground adjacent to the wells consistent with no visual evidence of PHC impacts, and the understanding that the vicinity of MW16-8 was to be excavated during remediation. Groundwater from purged groundwater from well 16-05/17-05 was contained in pails/200-L drums, which were removed by licensed contractors on August 28, 2019.
Fluids from equipment cleaning.	Cleaning water from sampling equipment was emptied onto the ground in the general area of the investigation.

4.11 ELEVATION SURVEYING

The elevation of the monitoring wells (ground elevation and top of PVC pipe) was surveyed by WSP and referenced to a geodetic elevation of the foundation of a former building, located immediately to the northeast

of the Site (88.00 masl). A replacement well MW17-5 was surveyed by WSP in December 2017, using the foundation of a former building. The building and foundation have been removed since the surveying activities have taken place. Monitoring well MW19-5 was surveyed in March 2020, using a geodetic benchmark of the sewer manhole located at the entrance of the Site. The sewer manhole elevation was shown on the Site's survey drawing completed by J. D. Barnes on the Site on December 4, 2019. Upon installation, monitoring wells MW20-5S and MW20-5D were surveyed to the same elevation of the sewer manhole in November 2020. Elevation details are presented in **Table 10**.

4.12 QUALITY ASSURANCE AND QUALITY CONTROL MEASURES

Quality assurance and quality control of the soil and groundwater water samples was monitored and maintained in a number of ways:

- This field investigation was completed under WSP's SOPs. Deviations from the SOPs are documented and referenced in this report;
- Samples were given unique identifications as they were collected, identifying the project number, date, and sample location and depth. The sample numbers were recorded in field notes for each location;
- Sample containers provided by the laboratory were used and laboratory requirements for sample size, container type, preservatives and filtering were followed.
- Non-disposable sampling equipment was cleaned using Alconox and distilled water following each use;
- A chain-of-custody form was filled out for the samples prior to submitting the samples to the laboratory. The chain-of-custody documented sample movement from collection to receipt at the laboratory and provided sample identification, requested analysis and conditions of samples upon arrival at the laboratory (e.g., temperature, container status, etc.);
- Soil samples were randomly selected by the WSP field staff for duplicate testing. The number of QC samples submitted is equivalent to a minimum of 10% of the total number of samples submitted.
- Field monitoring equipment was calibrated according to industry requirements prior to the site visit including onsite calibration; and
- Samples were randomly selected by the laboratory for Quality Assurance checks. Generally, one sample for every ten samples submitted is checked. For each parameter, there is an acceptable upper and lower limit for the measured concentration of the parameter. Measured concentrations of analysed samples must fall within the upper and lower acceptable limits in order for the sample to be valid. If a result exceeds the upper or lower acceptable limits, the sample must be re-analysed.

5 REVIEW AND EVALUATION

5.1 GEOLOGY

The soil conditions encountered at the Site during the 2013, 2016, 2017, 2019 and 2020 drilling activities are presented in the borehole logs (**Appendix A-2**). The environmental conditions of the overburden were evaluated during these investigations.

Fill (sand and gravel) was encountered in the boreholes BH16-1 to BH16-6 advanced into the 'overstock storage yard' (see **Figure 2**). The depth of this layer of granular fill ranged from 0.23 mbgs to 0.43 mbgs. In 2013, granular fill (sandy gravel/gravelly sand or sand and gravel) was encountered to depths as shallow as 0.20 mbgs, to a maximum depth of 0.61 mbgs. A sandy silt fill with some organic materials was encountered in TE-01, TE-02 and TE-05 to depths of 0.35 mbgs to 3.60 mbgs. At many locations, the fill material included foreign constituents such as wood, ash, coal and brick fragments. Topsoil was encountered in BH16-7 to BH16-13 from surface to depths of 0.15 to 0.23 mbgs.

The fill and topsoil were underlain by native clayey silt to silty clay. The 2013 investigation that focused on the north part of the Site observed the native soil to extend from 0.5 mbgs to a maximum depth of 2.34 mbgs. At the south part of the Site, the native soil was observed as extend to depths ranging between 2.53 mbgs and 6.25 mbgs, where boreholes BH16-2, BH16-3, BH16-4, BH16-6, and BH16-11 to BH16-13 were terminated on assumed bedrock.

A gravel to sandy gravel layer was encountered in BH16-1, BH16-3 and BH16-7 to BH16-10 to depths between 2.89 to 7.01 mbgs, where the boreholes BH16-1, and BH16-7 to BH16-10 were terminated on assumed bedrock. BH16-3 and BH16-5 were advanced into bedrock, to a depth of 4.57 mbgs where they were terminated.

Groundwater was investigated (**Figure 6**) in a single aquifer of gravel to sandy gravel that was present as original depths ranging from 2.4 to 7.0 mbgs.

Figure 6-1 and **Figure 6-2** present the geological cross-sections for the Site. The cross section was prepared using the borehole information from investigations completed by WSP between 2013 and 2019.

5.2 GROUNDWATER: ELEVATIONS AND FLOW DIRECTION

The rationale for the location of the monitoring wells was to provide an investigation of groundwater quality at the APECs that were identified in the Phase One ESA reports. The monitoring wells consisted of 3.05 m screen lengths. The screens typically intersected the inferred water table, based on the soil sampling observations.

Initial groundwater monitoring program was completed at the Site on June 7, 2016. No free product or sheen was observed or measured in any of the monitoring wells as part of this investigation; however, a PHC odour was observed in BH/MW16-5, located in the area of TE-02. The measured water levels ranged from 1.46 to 3.10 mbgs in monitoring wells measured between June 7, 2016 and May 16, 2019. This corresponds to groundwater elevations of 85.10 to 86.82 masl (see **Table 10**).

Since the initial 2016 groundwater measurement, additional sampling events occurred in the wells in 2019 and 2020 with final groundwater analysis conducted in December 2020. Groundwater elevations were measured in on-site wells on August 28, 2019, September 5, 2019, October 9, 2019, January 14, 2020, March 11, 2020 and

November 27, 2020 (see **Table 10**). Based on the November 2020 groundwater elevations, the groundwater flow direction is interpreted to be in a south to southwest direction (see **Figure 7**, with cross sections included as **Figures 7-1** and **7-2**). As there are no expected buried services on the Site, influences from subsurface features are not expected.

Groundwater elevations fluctuate at the Site, through seasonal influences from precipitation and freeze-thaw periods. The measurements collected over the calendar year indicated that the highest elevations in MW17-5 and MW19-5 were generally in spring conditions (i.e., from March to May), with variability of up to 1.17 m throughout a hydrological cycle each year.

5.3 GROUNDWATER: HYDRAULIC GRADIENTS

The investigation included sampling and monitoring groundwater elevations in the overburden, within the upper weathered bedrock layer and deeper bedrock, to provide lateral and vertical delineation. Based on groundwater elevation monitoring data obtained in November 2020, the average horizontal hydraulic gradient in the shallow overburden was calculated to be about 0.003 m/m. The vertical hydraulic gradient, as measured at the nested well set of MW19-5 and MW20-5D was calculated to be 0.2 in a downward direction, based on the same November 2020 groundwater monitoring data.

5.4 SOIL TEXTURE

As stated in previous sections, the soil texture at the Site is coarse, and SCS for coarse textured soil are applied.

5.5 SOIL: FIELD SCREENING

CGI and PID readings are shown on the borehole logs in **Appendix A-2** and the results are summarized below. The purpose of the screening was to evaluate whether combustible compounds (e.g., PHCs) and VOCs may be present in the recovered samples.

The PID readings for the soil samples were between 0 ppm to 35 ppm, and the CGI readings were from 0 ppm to 15 ppm. The results of the CGI and PID readings were at levels not indicative of gross PHC or VOC contamination.

5.6 SOIL QUALITY

Laboratory analytical results from the 2013 drilling/excavating program were tabulated with the current sampling results and compared to the MECP Table 3 SCS. The majority of boreholes in the 2016 drilling program encountered more than 2 metres of overburden; therefore, the Table 7 SCS that were used in the 2013 report are considered to not apply.

Comparison of the laboratory analytical results for soil samples to the MECP Table 3 SCS identified elevated concentrations of metals, inorganic parameters, and PHCs at the 13 locations in the June 2016 drilling program, and two of 15 locations in the 2013 drilling/excavating program. In addition, elevated concentrations of PHCs and PAHs were identified when compared to MECP Table 3 SCS in an investigation conducted by Paterson Group in 2017. Based on the results of sampling, the contaminants of concern identified at the Site included Other Regulated Parameters (ORPs), PAHs and PHCs. There was no indication in the results of soil analysis that contaminants were present as a result of chemical or biological transformations.

The locations, depths, and type of chemical analysis of soil samples are provided on the borehole logs in **Appendix A-2** as well as identified in the analytical soil results tables provided in **Table 1** to **Table 6**. The certificates of analysis are presented in **Appendix A-3**.

5.6.1 METALS AND OTHER REGULATED PARAMETERS

The soil analytical results for ORPs are summarized in **Tables 1, 3** and **5**, and are presented on **Figure 3**. A total of 12 soil samples (excluding QA/QC samples) were submitted for analysis of metals in 2013, and 31 (excluding QA/QC samples) were submitted for metals, (inorganics included in 13 of those samples) in June 2016. Initial submission of the samples in June 2016 did not request the full O. Reg. 153 metals and inorganics package for analysis; however, this analysis was requested in subsequent correspondence with AGAT Laboratories.

BARIUM, COBALT AND VANADIUM

The results of the two sampling programs identified barium, cobalt and vanadium at multiple locations (**Figure 8,** with cross sections included as **Figures 8-1** to **8-3**) with concentrations exceeding the MECP Table 3 SCS. No other metal parameters were measured at concentrations exceeding the SCS in the 45 samples submitted for analysis.

The samples with elevated metal parameters (**Tables 1** and **5**) were described as either clayey silt or silty clay. Of the 32 samples of clayey silt or silty clay submitted for analysis, the concentrations of barium, cobalt or vanadium exceeded the MECP Table 3 SCS at 25 locations; meaning that at 80% of the locations one or more of these parameters exceeded provincial standards. WSP considers the presence of barium, cobalt and vanadium can be attributed to naturally elevated concentrations in the clay soils of the eastern Ontario and western Quebec regions. The rationale supporting this opinion is as follows:

- No potentially contaminating activities (PCAs) were identified on the Site or in the surrounding study area that would results in elevated concentrations of these three metal parameters.
- The elevated concentrations are present in native soil only, with no evidence of anthropogenic disturbance. No soil described as other than clayey silt or silty clay had barium, cobalt or vanadium at concentrations exceeded the MECP Table 3 SCS.
- Vanadium is the most prevalent of the naturally occurring metals, being in each sample with elevated metals. The ratio of vanadium to the other two metals is generally consistent: the concentration of barium is approximately 4 to 5 times higher than the concentration of vanadium and the concentration of cobalt is 20% to 25% of the concentration of vanadium.
- Elevated concentrations of barium, cobalt and vanadium have been noted to be present in the Ottawa area, through a study conducted by the City of Ottawa (Sterling, et. al., 2017). This study compared the findings of metal concentrations presented in 59 reports for sites in the Ottawa area. The measured concentrations of barium, cobalt and vanadium at the Site were less than the maximum measured concentrations of these parameters as reported in the study. One sample recovered from the Site had a barium concentration that exceeded the proposed regional background concentration, however, the other sampled had barium, cobalt and vanadium at concentrations less than these proposed values (of 460 ug/g of barium, 35.2 ug/g of cobalt and 123 ug/g of vanadium).
- WSP identified three other ESA or remediation reports that were available on public on-line sources with reported elevated concentrations of barium, cobalt and vanadium in clay of marine origin in the Ottawa area, as follows:
  - The report for 3490 Innes Road (Golder, 2016) identified elevated cobalt and vanadium in native silty clay at concentrations in the range measured at the Site.

- A remediation report (Golder, 2017) identified naturally occurring barium, cobalt and vanadium in silty clay soil. In this report, the conclusion of the natural occurrence of the metals was based on a further four sites with findings similar to the Site.
- A Phase Two ESA of a property on Pretoria Avenue (Gemtec, 2018) reported two samples of clay soil with elevated concentrations of barium, cobalt and vanadium at concentrations greater than those measured at the Site.

These observations of metal concentrations at the Site and surrounding area support the conclusion that barium, cobalt and vanadium are naturally occurring in the clayey silt and silty clay soils at the Site and that they do not represent contamination. In accordance with MECP interpretation of O. Reg. 153/04, an RSC can be filed for the Site with these reported concentrations of barium, cobalt and vanadium.

As these parameters are not considered to be contaminants, the distribution of metals in soil are not presented in a figure.

ELECTRICAL CONDUCTIVITY AND SODIUM ADSORPTION RATIO

The inorganic parameters of electrical conductivity (EC) and sodium adsorption ratio (SAR) in soil can be indicators of impacts from the use of road salt to control ice on roads and parking areas. EC and SAR were measured in 13 samples, with 10 of the samples representing soil from the surface layer (top 1.5 mbgs) and three samples representing deeper soil in the area where snow disposal and placement of salt for vehicle or pedestrian safety were likely past activities.

SAR was present in one sample recovered from 0.23 mbgs to 1.5 mbgs at BH16-6 and EC was measured in one sample recovered from 0.2 mbgs to 1.5 mbgs at BH16-8. These two boreholes are in areas of the Site that were just beyond the edge of the asphalt surface used for material storage, and the impacts are likely from of the salt applied to maintain clear winter passage in the storage area. In conjunction with the remediation undertaken in 2019 and comments received from the MECP from initial RSC submissions, additional soil sampling was undertaken through a test pitting program in July 2020. SAR was investigated at two test pits (TP20-1 and TP20-2) advanced to the north and east of BH16-6, to achieve delineation that was not captured in remediation verification sampling. Results at these two locations met the MECP Table 3 SCS. EC was measured in three test pits (TP20-3, TP20-4 and TP20-5), to achieve delineation around BH16-8. One value of EC at TP20-3 (0.718 mS/cm) marginally exceeded the MECP Table 3 SCS of 0.7 mS/cm. Excavation of soil from this area indicated one of four samples exceeded the MECP Table 3 SCS with a value of 0.767 mS/cm along the east sidewall. The other samples, including the stockpiled soil from the excavation met the MECP Table 3 SCS. The marginal exceedances of EC and SAR in this eastern area of the Site per attributed to the use of road salt for vehicle and pedestrian safety and the resulting values were considered to not be indicative of contamination.

The measured values of EC and SAR are not indicative of loadings that would suggest groundwater contamination and therefore groundwater was not a media of concern for salt related parameters in this area.

Details of the frequency and distribution of the inorganic parameters (other regulated parameters or ORP) exceeding the Table 3 SCS are shown in **Figure 3**.

5.6.2 PETROLEUM HYDROCARBONS (INCLUDING BTEX)

The soil analytical results for petroleum hydrocarbons (PHC) including benzene, toluene, ethylbenzene, and xylenes (BTEX) are summarized in **Tables 2, 4** and **6** and presented in **Figure 4**, with cross-sections provided as **Figures 4-1 to 4-4**. In 2013, a total of 16 soil samples were submitted for analysis of PHC including BTEX, and 4 soil samples were submitted for analysis of PHC F2 to F4, only. In 2016, three samples (including a duplicate) were submitted for PHC F2 to F4 analysis, and four samples were submitted for PHC F1 to F4 (including BTEX).

One (TE-02) of the 20 samples from 2013 had elevated PHC F2 and F3 concentrations exceeding the MECP Table 3 SCS. This impact was present on the southeast corner of the 'overstock storage yard' in the fill material (55% brick, wood, burnt wood, plastic and 45% sandy silt with trace organic material) located from ground surface to 0.35 mbgs. Sampling conducted in 2016 did not identify any further PHC impacts.

Based on presence of residual PHC impacts in the area of TE-02, EW8 and SW11 located approximately 25 m north of MW16-5/MW17-5 (see **Figure 4**) and fluctuating groundwater sampling results collected from MW16-5/MW17-5 (see **Table 8**), it is concluded that the source of groundwater contamination with PHCs was located in this area. Once the soil with elevated concentrations of PHCs that was the source of groundwater contamination had been removed, groundwater results met the MECP Table 3 SCS (see Sections 5.3 and 5.9.8).

In response to comments received from the MECP from initial RSC submissions, additional soil sampling was undertaken through a test pitting program in July 2020. The potential for PHC impacts was investigated in the snow disposal area south of the commercial operations through three test pits (TP20-6, TP20-7 and TP20-8) advanced to the south of an existing fence marking the edge of the over-stock storage area. No PHCs were detected in the soil samples from this area that were submitted for analysis.

In November 2020, in response to further comments from the MECP on RSC submissions, two additional soil samples were recovered by grab samples (GS20-6 and GS20-7) at ground surface from APEC-6, where groundwater had been discharged from the remediation excavation Area 6 (see **Appendix B**). PHC F3 was detected in sample GS20-7 at a concentration of 51 ug/g, marginally exceeding the detection limit of 50 ug/g and less than the MECP Table 3 SCS of 300 ug/g. The other PHC parameters were not detected in the samples from this area submitted for analysis.

These findings supported that the soil impacts didn't represent a mass loading that provided an on-going source of groundwater contamination. In addition, measured concentrations of PHCs in soil and groundwater were relatively low, with no indication of non-aqueous phase liquid contamination.

5.6.3 POLYCYCLIC AROMATIC HYDROCARBONS AND ACID-BASE AND NEUTRAL EXTRACTABLES

A total of 20 soil samples were submitted for analysis of PAH in 2013, and three soil samples were submitted in 2016. The soil analytical results for PAHs are summarized in **Tables 1, 3** and **5**. The concentrations of PAHs from soil recovered by WSP in the 2013 and 2016 drilling programs were less than the MECP Table 3 SCS.

Samples of soil recovered from the soil mound by Paterson Group in 2017 did have two locations with PAH exceedances (TP-19 and TP-21) as shown on **Figure 5**, with cross-sections provided as **Figures 5-1** and **5-2**.

In November 2020, in response to comments from the MECP on RSC submissions, five additional soil samples were recovered by grab samples (GS20-1 to GS20-5) at ground surface from the area where treated wood had been stored at the Site (APEC-4). Samples were submitted for analysis of ABNs and CPs, to capture the potential for wood preservative chemicals to be present in surface soils. PAHs were detected in sample GS20-3 and GS20-5 at concentrations exceeding the detection limits but less than the MECP Table 3 SCS (**Table 5**). The other ABN and CP parameters were not detected in the samples from this area submitted for analysis. As only PAHs were detected in the soil samples, CPs and ABNs are not presented in summary tables. Results are included in the Certificates of Analysis presented in **Appendix A-3**.

5.6.4 TOXICITY CHARACTERISTIC LEACHING PROCEDURE RESULTS

The results of four soil samples collected for the Toxicity Characteristic Leaching Procedure TCLP analysis indicated that concentrations of most metals, semi-VOCs, PHCs, VOCs and total PCBs were below their MDL

(see **Table 9**). Fluoride, barium and boron in two samples showed concentrations slightly above MDLs but well below the MECP O. Reg. 558 Schedule 4 criteria. Based on this, the soil in the Study Area can be classified as non-hazardous waste. Laboratory Certificate of Analysis for soil samples analysed (TCLP) are attached in **Appendix A-3**.

5.7 GROUNDWATER QUALITY

The analytical groundwater results tables are provided in **Table 7** and **Table 8** and presented on **Figure 6**, with cross-sections shown on **Figure 6-1** and **Figure 6-2**. The certificate of analysis is presented in **Appendix A-3**.

A total of 4 samples (including 1 duplicate) were submitted for MI, PHC including BTEX and PAH analysis during the 2016 sampling event. As per O. Reg. 153/04, groundwater samples were field filtered for metals/inorganic parameters prior to submitting samples to the laboratory. A trip blank was also analysed for PHC F1 and BTEX for QA/QC purposes. Results from the 2013 groundwater sampling event were not tabulated with the 2016 results, as groundwater quality changes over time.

Note that in early 2017, MW16-5 was damaged and as a result, it was decommissioned, and a new monitoring well was drilled in close proximity. The new monitoring well was labelled MW17-5. Additional samples were collected from MW17-5 over the years, targeting seasonal sampling periods (winter, and summer).

In July 2019, while removing impacted soil in the vicinity of MW17-5, the monitoring well was inadvertently damaged. The well was then decommissioned, with a new well being drilled immediately adjacent to it. The new well, identified as MW19-5, was installed on August 28, 2019.

A comparison of the laboratory analytical results for the groundwater samples to the Table 3 SCS identified elevated concentrations of ethylbenzene and PHC F2 in MW16-5, and later, PHC F3 and toluene in MW17-5 (in addition to the ethylbenzene and F2 detections from previous sampling events). As discussed in Section 5.6.2, the source of groundwater contamination in wells MW16-5/MW17-5 is interpreted to be soil contamination with PHCs in the area of TE-02 and SW-11. Once the source of groundwater contamination had been removed, groundwater results met the MECP Table 3 SCS (see Sections 5.3 and 5.9.8).

All metals and PAH parameters met the Table 3 SCS. The measured concentrations of contaminants in groundwater were relatively low, with no indication of non-aqueous phase liquid contamination. In addition, the contaminants identified at the Site are not indicative of contaminants that have undergone chemical or biological transformations.

5.8 QUALITY ASSURANCE AND QUALITY CONTROL RESULTS

AGAT completed a variety of QA/QC measures on the soil and groundwater samples submitted as part of the sampling program. These QA/QC measures include: sample replicates, matrix spiked laboratory blanks, and process blanks.

All samples were handled in general accordance with the analytical protocol, no significant deviations were noted during the program.

All certificates of analysis, compliant with clause 47 (3), have been included in full in **Appendix A-3**.

No laboratory qualifiers of concern were reported by AGAT laboratory. Some qualifiers were related to internal laboratory quality control methods (specifically for analytical results obtained by others), and some

pertained to the requirements of gravimetric analysis for the F4 fraction of petroleum hydrocarbons. These are not considered to have impacted the outcome of the Phase Two study.

Soil and groundwater samples were randomly selected by the WSP field staff for field duplicate testing during the Phase Two investigation. Duplicate samples were selected for every 10 samples submitted for analysis. WSP submitted the following field duplicate soil and groundwater samples:

Soil

- BH16-4-102 was a blind field duplicate of BH16-4-2 (2.28-3.05 m) and analyzed for MI;
- BH16-5-101B was a blind field duplicate of BH16-5-1B (0.23-1.52 m) and analyzed for MI;
- BH16-13-102A was a blind field duplicate of BH16-13-2A (1.52-2.75 m) and analyzed for MI;
- BH16-5-101B was a blind field duplicate of BH16-5-1B (0.23-1.52.66 m) and analyzed for PHC F2 to F4;
- FL101 was a blind field duplicate of FL-01 and analysed for PHCs and BTEX;
- Area1B5Dup1 was a field duplicate of Area1B5 for PAHs and PHCs;
- Area6-E7Dup1 was a field duplicate of Area6-E7 for PHCs;
- TP20-2 was duplicated for SAR analysis;
- GSDUP1 was a duplicate of GS20-7 for BTEX and PHCs; and
- GSDUP2 was a duplicate of GS20-3 for PAHs.

Groundwater

- MW16-108 was a blind field duplicate of MW16-8 and analyzed for MI, PAHs, and PHCs;
- MW17-5 was duplicated for analysis of PHCs with samples identified as MW17-105 on January 23, February 13, February 27, March 13 and March 28, 2018 and May 16, 2019;
- MW19-105 was a blind field duplicate of MW19-5 from September and October 2019 and analyzed for PHCs
- MW-DUP-GW1 was a duplicate of MW20-5S for PHCs.

The results from the duplicate samples were used to assess the accuracy and reliability of the laboratory procedures and instruments.

A calculation of the relative percent difference (RPD) between the sample and its duplicate was performed and compared to the acceptance limits outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, April 2011. The RPD calculation is only applicable when both the sample and the field duplicate concentrations are greater than five times the reported detection limit.

The results are presented in **Table 11** and **Table 12** for soil and groundwater, respectively. An unacceptable level of agreement between the results of the parent and duplicate samples were identified as follows:

Soil

- Barium at BH16-4-102 exceeded the RPD criteria of 20% with a value of 32.5%, indicating some variability in this soil sample. Other metals in the same sample for which RPDs could be calculated were within the acceptable limits, therefore, sampling methods were considered reliable;
- Barium, chromium (total), cobalt, copper, nickel, vanadium and zinc at BH16-5-101B exceeded the RPD criteria of 20%. The variability noted across the metal parameters indicated that the soil at this location is variable; and

— PHCF4 at Area1-B5 had an RPD of 30.5%, marginally exceeding the MECP Alert Criteria of 30%. The concentration at this location was well below the MECP Table 3 SCS and the variability had no effect on the interpretation of the results.

The elevated RPDs may be attributed to the heterogeneity within the soil. These deviations from acceptable RPD criteria were noted in a sample where the concentration of vanadium, identified to be naturally occurring at an elevated concentration was also noted to be variable and elevated. It is concluded the variability is associated with naturally occurring metals or variable distribution of PHCs in soil. The concentrations are not considered indicative of unacceptable data quality but are rather indicative of variability in the soil.

Groundwater

The RPDs for groundwater samples were all below the 20% RPD criteria, for all parameters where the RPD could be calculated. Therefore, groundwater data were acceptable for use in evaluating environmental quality at the Site.

5.9 PHASE TWO CONCEPTUAL SITE MODEL

5.9.1 POTENTIALLY CONTAMINATING ACTIVITIES AND AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

The Phase One ESA identified potentially contaminating activities (PCAs) on the Site that may have contributed to areas of potential environmental concern (APECs), as defined in Ontario Regulation (O. Reg.) 153/04. The building supply operation began sometime after 1973 (reported to be early 1980s in a Phase One ESA interview) and would have included the storage of wood that may have been treated with wood preservatives. Wood preservation activities were not conducted on Site.

PCAs that were identified on the Site included an area of stained soil that was confirmed (through sampling at TE-02) to have contamination from petroleum hydrocarbon compounds (PHCs) contributing to the potential for groundwater contamination; the storage of snow from the parking areas on the Site and the adjacent sites, that may have contributed other regulated parameters (ORPs) such as electrical conductivity (EC), sodium adsorption ratio (SAR), and PHCs to soil; the mixing of debris with soil which was placed at grade along the south part of the commercial operations and in an above grade soil and debris pile along the west property boundary with confirmed impacts from PHCs and polycyclic aromatic hydrocarbons (PAHs) in soil in the debris pile; and, the storage of preserved wood products that may have contained chromated arsenicals (metals and hydride-forming metals), PAHs, creosote/phenols (Acid/Base/Neutral (ABNs) compounds) or chlorinated phenols (CPs), including pentachlorophenol which may have dispersed into soil.

Based on documentation from the United States Environmental Protection Agency (USEPA), wood preservation for uses in residential applications typically relied on chromated arsenicals (https://www.epa.gov/ingredients-used-pesticide-products/overview-wood-preservative-chemicals#reregistration), which included a combination of chromium, copper and arsenic. Oil-based wood preservatives that used creosote/phenols (ABN compounds) or CPs (specifically pentachlorophenol) were generally used for commercial purposes, such as railway ties, highway guard rails and hydro poles. These materials are not expected to have been stored at the Site but use of railway ties in landscaping was possible and these contaminants (PAHs, ABNs and CPs) have been included in the assessment.

No PCAs from off-site locations were considered to have the potential to result in an APEC. In previous reports, the soil staining at TE-02 was suggested to have been related to oily liquids observed in drums stored at the retail operation's ancillary buildings. The buildings and associated drum storage were not on the Site. The

potential for soil contamination associated with releases from oily liquids was considered to have only a local effect (impacts of a few square metres) and, therefore, storage of oily liquids in drums on the adjacent property was not considered as a PCA leading to an APEC.

Six APECs (**Figure 2**) were identified at the Site:

- APEC-1 (south part of the overstock storage yard, on east part of the Site): Previous ESA reports confirmed impacts of PHC F3 in soil at TE-02, in an area where surface staining had been noted. Additional sampling was conducted in 2016, with analysis of samples for PHCs, benzene, toluene, ethylbenzene and xylenes (BTEX) and metals, EC and SAR, and PAHs (associated with APEC-3, which includes APEC-1). No additional impacts from PHCs were identified in soil; however, one sample exhibited an exceedance of SAR (BH16-6), considered as part of APEC-5. Initial remediation (2016) removed approximately 100 m^3 of PHC impacted soil to a depth of approximately 0.35 m and restored the Site to industrial, commercial, community (ICC) site condition standards (SCS). Further remediation was conducted in 2019 to prepare the Site for residential, parkland and institutional (RPI) land use. Nearby groundwater impacts at wells BH16-5 and MW17-5 from PHCs were confirmed to be limited to water entrained in a separate contaminated soil layer with no residual groundwater impacts at MW19-5 noted after removal of contaminated soil in the area. Remediation areas in APEC-1 included Area 2 and Area 3, related to removal of ICC soil from the 2016 remediation area around TE-02 and Area 4 (removal of soil with elevated SAR from BH16-6 – part of APEC-5 that is within APEC-1) and Area 6 (discussed below and shown on Figure 9), removal of stained soil encountered during remediation at Area 4;

- APEC-2 (south of the gate/fence at the south limit of the overstock storage yard). Snow from the parking surfaces at the overstock storage yard was stored in the area and there was the potential to impact the soil and groundwater quality from the use of road salt (EC and SAR) and PHCs (including BTEX) from automotive fluid releases. Soil samples were analysed for metals, EC, SAR, and PHCs (with BTEX). Groundwater impacts would only occur if significant impacts in the soil were present at or below the groundwater elevation. No impacts were identified in soil and groundwater in this APEC and no remediation excavations were associated with APEC-2;

- APEC-3 (across the overstock area and extending north to the outdoor storage and ancillary building area and south along the west property boundary). Based on information provided in interviews, soil was imported from local aggregate suppliers to maintain the grades in the south area of the building supply operations used for overstock materials. During the placement of the aggregate soil, debris (plastic, concrete, mortar, rubble, etc.) was mixed in with the soil and buried. In addition, a pile of soil mixed with debris was placed above grade along the west property boundary. The soil was of a known quality, having originated from on-site topsoil or local quarries, however, the inclusion of debris materials represented a potential for contamination from metals, hydride forming metals, EC, SAR, PHCs, BTEX and PAHs. SAR was identified at BH16-6 (also part of APEC-1); PHCs were identified at TP19 and TP20; and PAHs were identified at TP19 and TP21. Groundwater impacts would only occur if significant impacts in the soil were present at or below the groundwater elevation, which was not noted to be present at APEC-3. Remediation Area 1 was identified to consist of the stockpiled soil that included TP19, TP20 and TP21. Remediation Area 4 discussed under APEC-1 involved removal of SAR impacted soil at BH16-6;

- APEC-4 (unpaved area of overstock storage). Preserved wood may have been stored on ground surface in the area, with metals, hydride-forming metals, PAHs, ABNs and CPs potentially leaching to soil. ABNs and CPs were analysed in samples GS20-1 to GS20-5 and no contaminants were identified at concentrations exceeding the MECP Table 3 SCS. Concentrations of PAHs in samples submitted for analysis in APEC-4 were also less than the MECP Table 3 SCS, as indicated on the figure showing the distribution of PAHs. Groundwater impacts would only occur if significant impacts in soil were present at or below the groundwater elevation. The only contaminants in soil identified within APEC-4 were the

PHCs and SAR discussed as part of APEC-1, which is wholly within APEC-4. No remediation excavations were associated with APEC-4;

- APEC-5 (unpaved area of east overstock storage). Areas between rows of stored materials may have been salted for the safety of vehicular or pedestrian traffic in winter months, with EC and SAR potentially impacting soil. The areas between stored materials would have been cleared to allow year-round access and the gravel surface might have allowed the infiltration of salt in soil resulting in elevated values of EC and SAR. Assessment of EC and SAR was included in the evaluation of fill of unknown quality. Elevated SAR was noted at BH16-6 (also in APEC-1) and elevated EC was noted at BH16-8, included as remediation Area 5. Under section 49.1, paragraph 1 of O. Reg. 153/04, the elevated values of EC and SAR observed at these two locations and associated verification sampling from Areas 2 and 5 are considered to not exceed the site condition standards because they are related to the application of salt for the safety of vehicular or pedestrian traffic; and
- APEC-6 (grassed area to east of remediation Area 6). During remediation, groundwater infiltrating the open excavation at Area 6 from damaged well MW17-5 was pumped and discharged to surface in the grassed area to the east of the excavation. Impacts from PHCs and BTEX are possible from the discharge water that contained elevated concentrations of PHCs-F2 at the previous sampling event. Groundwater impacts would only occur if significant impacts in soil were present at or below the groundwater elevation. No contaminants were identified in the sampling at APEC-6 and no remediation was conducted for this APEC.

5.9.2 SUBSURFACE UTILITIES

The Site was historically used as the outdoor storage area of a retail building supply operation. The lands occupied by the retail operation were divested and no longer form part of the Site. Services associated with the retail operation would be located between the retail building and Innes Road.

There are no known underground utilities at the Site. Therefore, there are no subsurface conditions that would affect the local groundwater flow and any associated contaminant distribution.

5.9.3 PHYSICAL SETTING

The Site is situated within the Ottawa Valley Clay Plains physiographic region, which consists of clay plains, interrupted by ridges of rock or sand and characterized by deep grey silty clays mildly calcareous, suggesting an origin from the more acidic rocks of the Canadian Shield (Chapman et al., 2007). Surficial geology mapping from Ontario Geological Survey (2010) indicates that the Site is dominated by glaciomarine and marine deposits of silt and clay, corresponding to the post-glacial Champlain Sea deposits. Bedrock in the area consists of the Middle Ordovician Rocks of Bobcaygeon Training Group of Simcoe and consists of limestone (Ontario Geological Survey, 2011).

Geological conditions encountered on the Site during drilling programs consisted of granular fill materials on the north side of the Site, including foreign constituents in some areas such as wood, charred remains and brick fragments. Where present, the fill extended from ground surface to 0.61 metres below ground surface (mbgs); in other locations, top soil was present from ground surface to 0.23 mbgs. The surficial layer was underlain by native clayey silt or silty clay, to a maximum depth of 6.25 mbgs. A lens of gravel to sandy gravel was found in the central portion of the Site. The overburden represents one single aquifer of gravel to sandy gravel at the depths investigated.

The investigation included sampling and monitoring groundwater elevations in the overburden, within the upper weathered bedrock layer and deeper bedrock, to provide lateral and vertical delineation. Based on groundwater

elevation monitoring data obtained in November 2020, the average horizontal hydraulic gradient in the shallow overburden was calculated to be about 0.003 m/m. The vertical hydraulic gradient, as measured at the nested well set of MW19-5 and MW20-5D was calculated to be 0.2, based on the same November 2020 groundwater monitoring data.

Bedrock was encountered from approximately 2.3 mbgs in the northern portions of the Site to 7.2 mbgs at boreholes advanced further south on the Site. The depth to bedrock was more than 2 mbgs at the sampling locations, and, therefore, the Site is not a shallow soil site.

The Site is located with an urban area, with full servicing for municipal water and sewer available along Innes Road. The Site has an approximate elevation of 87 meters above sea level (masl). The surface topography of the Site generally slopes down to the southwest.

Groundwater elevations fluctuate at the Site, through seasonal influences from precipitation and freeze-thaw periods. The measurements collected over a three-year period indicated that the groundwater ranged form 1.46 mbgs to 3.10 mbgs, translating to an elevation of approximately 85.1 masl to 86.8 masl. The highest elevations were generally in spring conditions (i.e., from March to May), with variability of up to 1.17 m throughout a hydrological cycle each year.

McKinnon Creek is present approximately 600 m southeast of the Site (MNRF, February 2020). Several agricultural ditches were documented to be present on the adjacent property west of the Site, but these have been removed as part of the residential redevelopment of the area.

A stormwater management pond is located on the south adjacent property, just southwest of the Site. This pond was formed over an area with historical watercourses, located more than 80 m from the Site. There are no Provincially Significant Wetlands or Areas of Natural and Scientific Interest on or in proximity to the Site (Muncaster Environmental Planning Inc., 2019).

The principle direction of local groundwater flow in the overburden is inferred to the south/southwest, with regional aquifer groundwater flow expected to be to the north towards the Ottawa River (approximately 5 km away).

5.9.4 BUILDINGS AND STRUCTURES

There are no buildings present on the Site. Previously, there were three unheated structures, used as out-buildings for the retail operations. The concrete floor slabs remain on part of the western side of the Site.

The Site is proposed for a residential development that will see construction of residential and mixed-use buildings across much of the area. Land not covered by buildings will be completed with roadways, pathways or natural landscaping. The exact locations of buildings are not known.

5.9.5 GROUNDWATER USE AND ENVIRONMENTALLY SENSITIVE AREAS

Non-potable groundwater conditions are considered to apply to the Site (as described in more detail in Section 1.8), in accordance with Section 35 of O. Reg. 153/04, as follows:

1. Based on the information reviewed, the properties within 250 m of the Site boundary receive their drinking water from the municipality, and the source of the municipal system is the Ottawa River;
2. The Site will not be used for agricultural or other use upon filing of the record of site condition;
3. There are no well-head protection areas, Provincially Significant Wetlands or Areas of Natural and Scientific Interest on or adjacent to the Site that have been identified for the protection of groundwater, nor have properties within the Phase One study area been identified to have a well intended for use as a source of water for human consumption or agriculture; and

4 The Clerk of the City of Ottawa has been notified of the intention to apply non-potable groundwater conditions by letter dated July 20, 2020.

No conditions were found on the Site which would apply under Section 41 (Environmentally Sensitive Areas) and Section 43.1 (Shallow Soil Property or lands within 30 m of a water body) of O. Reg. 153/04.

5.9.6 IMPORTED SOIL

Mixed fill conditions were encountered during the investigation programs. The origin of the fill material is unknown; however, an interview with the former co-owner of the Site, indicated that the fill was brought in from local pits/quarries. Sampling of the fill material identified contamination only where associated with debris, with staining or asphalt inclusions. This supports the interview information that the fill was obtained from local commercial quarry sources.

In preparation for the 2019 remediation, approximately 80 m^3 of soil was imported to the Site from a Glenview-owned property approximately 2 km to the south. A Phase One ESA of the source site did not identify APECs; and the soil to be imported was analysed for standard potential contaminants including metals, hydride-forming metals, EC, SAR, PHCs and BTEX. Samples were recovered from 15 test pits with 35 samples submitted to provide characterization of the site. This sampling frequency exceeded the requirement under O. Reg. 153/04 for a single sample for up to 160 m^3 of imported soil. Comparison of the analytical results against MECP Table 1 SCS confirmed that soil quality met this standard and was, therefore, suitable for import to the Site, to backfill areas of remediation. The imported soil was used in part to backfill the remediated Areas 2 to 6. Backfill was not required for Area 1, which was a mound placed above grade.

5.9.7 SOIL AND GROUNDWATER QUALITY

The laboratory analytical results indicate that the maximum measured concentrations of the following soil parameters exceed the applicable MECP Table 3 SCS:

Soil Parameters That Exceed the MECP Table 3 SCS

OTHER REGULATED PARAMETERS	Electrical Conductivity
	Sodium Adsorption Ratio
PHCs	Petroleum Hydrocarbon F3 Fraction
	Petroleum Hydrocarbon F4 Fraction
PAHs	Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b/j)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene

The other regulated parameters (ORPs) are anticipated to have resulted from the use of road salt on parking and material storage areas (BH16-6 with SAR from 0.23 to 1.52 mbgs, and BH16-8 with EC from 0.20 to 1.52 mbgs **Figure 3**). It is expected that salt would have been used for safety purposes within the aisles of the yard, where BH16-6 and BH16-8 are situated. It was confirmed through verification sampling after remediation (Areas 2 and 5 in Section 1.10) that impacts didn't extend past 2 mbgs. There was no migration of contamination to groundwater as confirmed in samples from BH16-8. The area where salt would have been applied for safety (APEC-5) is distinct from the former snow stockpiling area (APEC-2). Based on a review of aerial photographs, the snow stockpiling area would have been located south of a fence, which separated the overstock yard from the fallow lands to the south. The ORPs in APEC-2 complied with MECP Table 3 SCS and the ORPs in APEC-5 (TP20-3 and at Sidewall-E at TP20-3) are exempt under the application of Section 49.1 of O. Reg. 153/04. For this reason, cross sections of the areas are not provided. Remediation of these areas was conducted prior to changes in the regulation that allowed for the exemption.

The PHC parameters were noted to exceed MECP Table 3 SCS in two areas on the Site. The source of the PHCs are expected to have resulted from debris mixed with soil in the pile at the west boundary of the Site (TP19 and TP20, **Figure 4**) and the release of oily liquid in the overstock area (near TE-02 and MW19-5, **Figure 4**). Cross sections showing stratigraphy and sampling conducted in these areas are included as **Figure 4-1** to **Figure 4-4**. Impacts were noted to extend over a relatively small area at each of these locations, with impacts not extending to the next closest sampling locations.

For the fill pile where PHCs were identified at TP19 and TP20 (**Figure 4**), impacts were considered to have been associated with buried debris, such as tar or oily materials. Contaminants were within the fill pile as shown in the cross-sections (**Figure 4-1** and **Figure 4-2**). It was confirmed through verification sampling after remediation (Area 1 in Section 1.10) that impacts did not extend to the base of the pile and groundwater impacts were not considered possible, as the contamination was in soil placed above grade on the Site.

For the area where previous PHC contamination was identified at location TE-02 in APEC-1, sampling during multiple investigations indicated that soil impacts didn't extend south of the area around TE-02, as documented through results from TE-01, BH16-4, BH16-5, BH16-6 and BH5 (**Figure 4**). Residual impacts, exceeding MECP Table 3 RPI SCS were noted at the east (EW8) and south (SW11) limits of the 2016 remediation at TE-02, as shown in cross section on **Figure 4-3** and **Figure 4-4** and these were addressed through remediation Areas 2 and 3 in 2019 (see Section 1.10 for remediation details).

Groundwater impacts noted at BH16-5/MW17-5 (in APEC-1) were not accompanied by contamination in soil at the well location. (Note that the well installed at BH16-5 was damaged during site activities and was replaced with well MW17-5. This well was damaged during remediation and was replaced with MW19-5 after remediation, to document groundwater quality). During remediation of Area 4 (BH16-6 to the northeast), soil with PHC-contamination was observed to extend toward MW17-5, suggesting that the groundwater impacts were associated with a contaminated soil layer and this area was included in APEC-1. The delineation of impacts in this added remediation area (Area 6) of PHC impacts is discussed more in Section 1.10. Delineation was achieved during remediation, with the depth of PHC impacts in soil extended to the top of bedrock, observed to be at approximately 3 mbgs in the area.

The PAHs at TP19 and TP21 (**Figure 5**) are associated with fill that could have included asphalt pieces placed in a pile on the western boundary of the Site. The concentrations are consistent with asphalt and the presence of contamination was limited to two samples in the fill as shown in cross sections included as **Figure 5-1** and **Figure 5-2**. It was confirmed through verification sampling after remediation (Area 1 in Section 1.10) that impacts did not extend to the base of the pile and groundwater impacts were not anticipated, as the contamination was from contaminants with low solubility in soil placed above grade on the Site.

The laboratory analytical results indicate that the maximum measured concentrations of the following groundwater parameters exceeded the applicable MECP Table 3 SCS:

Groundwater Parameters That Exceed the MECP Table 3 SCS

PHCS	F1, F2 and F3 Fractions

The groundwater impacts were noted in an area south of where previous staining had been noted. It was also noted that drums containing oily liquid had been stored off the Site, near former ancillary buildings, but this area was more than 175 m from the area of impacts. The groundwater impacts appeared to be limited to the one monitoring well, no soil impacts were identified in the samples analysed from the monitoring well and PHC impacts in groundwater didn't extend to adjacent wells advanced for delineation. There was no evidence of migration of PHC contamination from the area at BH16-5 (no impacts encountered at BH16-8 to the south, BH2 to the north, and BH3, BH5 and BH6 to the east).

The historical distribution of the impacted groundwater identified on the Site is illustrated on **Figure 6**, with cross sections shown on **Figure 6-1** and **Figure 6-2**. Based on initial and delineation groundwater sampling, impacts were noted to be isolated to MW16-5/17-5 in groundwater at the interface between the overburden soil

and limestone bedrock. Soil at this location was sampled from 0.23 m to 1.52 m and from 2.9 m to 3.05 m and did not exhibit concentrations of PHCs that exceeded the MECP Table 3 SCS. Upon excavation of the soil during remediation of Area 6, soil impacts were identified to extend from MW16-5/17-5 to the east and north toward BH16-6. During remediation, it became evident that groundwater impacts were related to water entrained within the layer of soil contamination. Vertical and additional lateral delineation (to the south) was conducted in November 2020 and these assumptions were confirmed. No measurable PHCs were identified in groundwater from a deeper well or a well advanced to the south of MW19-5.

Groundwater contours are provided in **Figure 7** and hydrogeological cross sections are provided in **Figure 7-1** and **Figure 7-2**. Groundwater conditions were assessed in overburden soil and bedrock through the investigation. Contamination was found to be limited to a single borehole location, assumed to have resulted from PHCs in soil. Groundwater quality returned after soil removal and PHCs were not detected in samples recovered after remediation.

Soil remediation was completed at the Site in July 2019 (see Section 1.10) and groundwater samples were collected in MW19-5 on October 10, 2019 and January 14, 2020. Concentrations of PHCs (BTEX and fractions F1 to F4) for these samples were below method detection limits.

Free flowing product was not encountered during remedial excavation and was not reported in previous ESAs involving the Phase Two Property.

Seasonal effects to the contaminant distribution was noted for PHCs prior to remediation, with groundwater concentrations fluctuating seasonally. No climatic effects were anticipated for the ORPs or PAHs in soil. With the remediation that was implemented in 2019, no fluctuations are anticipated in future groundwater quality.

5.9.8 DISCUSSION OF NATURALLY OCCURRING METALS

Metals (barium, cobalt and vanadium) were measured in native clayey soil at concentrations that exceeded the MECP Table 3 SCS. No other metals were measured at concentrations exceeding the SCS in the 45 samples of native and fill soil submitted for analysis.

The samples with elevated metal parameters were described as either clayey silt or silty clay. Of the 34 samples of clayey silt or silty clay submitted for analysis, the concentrations of barium, cobalt or vanadium exceeded the MECP Table 3 SCS at 23 locations; meaning that at approximately 70% of the locations one or more of these parameters exceeded generic SCS. Impacts were noted as deep as 6.1 mbgs at one location (BH16-10). The location of samples and respective concentrations of barium, cobalt and vanadium in the native clayey silt or silty clay layers is shown on **Figure 8**. The results of sampling are shown in cross section on **Figure 8-1**, **Figure 8-2** and **Figure 8-3**. In the clayey silt material, the concentrations of these three metals ranged as follows:

- Barium: from 84 ug/g to 524 ug/g,
- Cobalt: from 5.4 ug/g to 27 ug/g, and
- Vanadium: from 21 ug/g to 114 ug/g.

Analysis of metals in the overlying fill layer were also sampled at TE-01, TE-02 and TE-04, and measured concentrations of barium, cobalt and vanadium met the applicable SCS at each of these locations, with ranges in concentrations in the fill material as follows:

- Barium: from 61 ug/g to 177 ug/g,
- Cobalt: from 4 ug/g to 14 ug/g, and
- Vanadium: from 10 ug/g to 72 ug/g.

The barium, cobalt and vanadium are attributed to naturally elevated concentrations in the clay soils of the eastern Ontario and western Quebec regions. The MECP District Engineer for the Ottawa Region was consulted to confirm the findings of metals in clayey soil and compare these results to other investigations in the area that included sampling of clayey soil of the Champlain Sea deposition. The rationale supporting this opinion is as follows:

- No potentially contaminating activities (PCAs) were identified on the Site or in the surrounding study area that would results in elevated concentrations of these three metal parameters. Anthropogenic sources of the metals are considered to include the following:
  - Barium: mining of barium sulphate ore, oil and gas drilling muds, manufacture of paints, brick, glass and rubber (ASTDR.cdc.gov.toxprofiles tp24-c1.pdf)
  - Cobalt: metal alloys, industrial applications and paint and ceramic dyes (ASTDR.cdc.gov.toxprofiles tp33-c1.pdf)
  - Vanadium: deposition from industries burning coal and crude oils (ASTDR.cdc.gov.toxprofiles tp58-c6.pdf)
- The elevated concentrations are present in native soil, with no evidence of anthropogenic disturbance. Only soil described as clayey silt or silty clay had metals at concentrations exceeded the MECP Table 3 SCS.
- Vanadium is the most prevalent of the naturally occurring metals, being at a concentration exceeding the MECP Table 3 SCS at most (23) of the noted samples. The ratio of vanadium to the other two metals is generally consistent: the concentration of barium is generally 3 to 5 times higher than the concentration of vanadium and the concentration of cobalt is 20% to 25% of the concentration of vanadium. Overall, the distribution of barium, cobalt and vanadium is consistent between samples, whether concentrations of the individual metals are elevated or within the MECP Table 3 SCS values. This suggests that the metals are naturally occurring, resulting from the marine deposition that occurred in the Ottawa area.
- WSP identified three other reports (Gemtec 2018, Golder 2016, Golder 2017) from public on-line sources with reported elevated concentrations of barium, cobalt and vanadium in clay of marine origin in the Ottawa area. The reported concentrations of barium, cobalt and vanadium in these three reports was within or above the range of concentrations observed at the Site. At each of these locations, the soil with elevated concentrations of barium, cobalt and vanadium were reported to be a silty clay or clayey silt, similar to the Site and there were no identified anthropogenic sources suspected of contributing these metals as contaminants at the sites.

These observations of metal concentrations at the Site and surrounding area support the conclusion that barium, cobalt and vanadium are naturally occurring in the clayey silt and silty clay soils at the Site and that they do not represent contamination.

5.9.9 OFF-SITE MIGRATION OF CONTAMINANTS

ORPs, PAHs and the PHCs in the fill pile were noted to be present in surficial samples and impacts didn't extend to deeper soil. This indicated that contaminants didn't migrate from the initial area of release. For the PHCs, impacts extended to the competent bedrock.

Soil remediation was completed at the Site in July 2019 (see Section 1.10) and groundwater samples were collected in MW19-5 on October 10, 2019 and January 14, 2020. Concentrations of PHCs (BTEX and fractions F1 to F4) for these samples were below method detection limits. The source of groundwater contamination was removed during soil remediation activities.

No off-site groundwater migration is expected to be occurring, based on findings of the ESAs.

5.9.10 VAPOUR INTRUSION

No contaminants were identified at the Site that would result in subsurface conditions that would contribute to vapour concentrations that would result in intrusion to buildings.

6 CONCLUSIONS

6.1 SUMMARY OF PHASE TWO ESA FINDINGS

The Phase Two ESA was carried out between 2013 and 2020 and the RSC was accepted by the MECP on February 17, 2021. In finalizing the RSC, minor changes were made to figures for clarification purposes. These figures, dated February 2021, are included in this report for completeness. The conclusions of the report remain unchanged. The report is referenced in the RSC documents and is issued with the date of December 10, 2020.

Based on the results of the Phase Two ESA, elevated concentrations of ORPs, PAHs and/or PHCs (including BTEX) in soil exceeding the Table 3 SCS were identified within the fill and native soils, extending to at least 2.5 mbgs in Areas 2 through Area 6 at the Site. These areas were remediated in 2019 and the soil and groundwater quality at the Site is suitable for residential land use. In summary:

- The Site is located with an urban area, with full servicing for municipal water and sewer available along Innes Road. An evaluated wetland is present in the southern portion of the Site. There are no Well Head Protection Areas, Provincially Significant Wetlands or Areas of Natural and Scientific Interest on the Site.
- Soil and groundwater sampling results for the Site were compared to MECP Table 3 SCS. A notice for use of non-potable groundwater standards for the Site was sent to the City of Ottawa on November 2, 2018 and a follow-up letter was sent to the City on February 4, 2020 and again on July 20, 2020. Since no response has been received by WSP from the City, WSP interprets that the City has no objections to the non-potable groundwater criteria (i.e., MECP Table 3 SCS) for the Site.
- Review of the chemical analysis of metals and inorganics of the soil submitted within the fill and native materials across the Site identified exceedances of barium, cobalt, and vanadium. Due to the presence of these chemicals in the native silty clay or clayey silt (in both 2013 and 2016 drilling programs), they are considered representative of background in this area and are indicative of any off-Site or on-Site sources of contamination.
- The elevated concentrations of electrical conductivity (EC) and sodium adsorption ratio (SAR) identified in BH16-6 and BH16-8 are interpreted to be attributed to the historical application of road salt on the Site and storage of snow in the area of these sampling points. The salt impacts were identified in the shallow native soils.
- In 2013, elevated concentrations of PHC- F3 and F4 were identified within the fill material at TE-02 (located on the southeast corner of the ‘overstock storage yard’, from ground surface to 0.35 mbgs. The fill material was described as 55% brick, wood, burnt wood, plastic and 45% sandy silt with trace organic material. In 2016, BH16-4, BH/MW16-5 and BH16-6 were advanced around TE-02, to delineate the PHC F3 and F4 contamination. All samples collected from these boreholes met the applicable Table 2 SCS, indicating that impacts are limited to surface soil at TE-02.
- Elevated concentrations of ethylbenzene, toluene, PHC F2 and/or PHC F3 were present in the groundwater of MW16-5, and later in MW17-5 (located in the southeast corner of the ‘overstock storage yard’), when compared to the Table 3 SCS. Delineation of this noted impact was achieved through wells advanced by Paterson Group in 2017 and WSP in November 2020. Impacts did not extend beyond the original sampling locations.
- The results of four soil samples collected in the Study Area for the Toxicity Characteristic Leaching Procedure TCLP analysis indicated that concentrations of most metals, semi-VOCs, PHCs, VOCs and total PCBs were below their MDL. Fluoride, barium and boron in two samples showed concentrations slightly above MDLs but well below O. Reg. 558 Schedule 4 criteria. Based on this, the soil in the Study Area can be classified as non-hazardous waste.

- In the fall of 2016, a remedial program was conducted in the vicinity of TE-02, which saw the removal and off-site disposal of approximately 80 metric tonnes of PHC F3 and F4 impacted soils. Confirmatory samples were found to be in compliance with the site standards chosen for the site at the time (MECP Table 2 conditions, for an industrial/commercial/community site). Since then, site standards have been re-evaluated, and revised to reflect the proposed residential use. As such, certain confirmatory samples (EW8 and SW11) were found to be in exceedance of the MECP Table 3 standards. These areas were addressed in the most recent 2019 remediation activities (see **Appendix B**).
- In the summer of 2019, a second soil remediation program was completed, which saw the excavation of six different areas of the Site, where impacted soil was previously identified. This included the former "cemetery" area, two areas with noted exceedances on the perimeter of the 2016 remediation area, two areas with SAR and EC exceedances on the eastern side of the Site, and finally, an area with PHC impacted soils in the vicinity of MW17-5. Approximately 14,636 metric tonnes of impacted soil were removed from the various APEC areas on the Site and disposed of at a licensed waste disposal facility by an environmental contractor Tomlinson Environmental Services. Confirmatory sampling following the excavation activities confirmed that all remaining soils within the APEC and remediation areas were in compliance with the selected site standards. A replacement well MW19-5 was installed in the area of the recently decommissioned MW17-5 in August 2019.
- Based on presence of residual PHC impacts in the area near MW16-5/MW17-5 and fluctuating groundwater concentrations from samples collected from MW16-5/MW17-5, it is concluded that the source of groundwater contamination was soil at this location. Once the soil contamination had been removed in July 2019, groundwater results met the MECP Table 3 SCS.
- Results of groundwater samples collected in MW19-5 for PHCs (BTEX and fractions F1 to F4) for all three samples on September 5, 2019, October 10, 2019 and January 14, 2020 from well MW19-5 were below method detection limits. This indicated that the source of groundwater contaminant was removed during soil remediation activities. No off-site groundwater migration is expected to be occurring, based on findings of the Phase Two ESA.

6.2 QUALIFIER

WSP Canada Inc. (WSP) prepared this report solely for the use of the intended recipient, Glenview Homes (Innes) Ltd. and Glenview Properties Inc., in accordance with the professional services agreement between the parties. In the event a contract has not been executed, the parties agree that the WSP General Terms for Consultant shall govern their business relationship which was provided to you prior to the preparation of this report.

The report is intended to be used in its entirety. No excerpts may be taken to be representative of the findings in the assessment.

The conclusions presented in this report are based on work performed by trained, professional and technical staff, in accordance with their reasonable interpretation of current and accepted engineering and scientific practices at the time the work was performed.

The content and opinions contained in the present report are based on the observations and/or information available to WSP at the time of preparation, using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by WSP and other engineering/scientific practitioners working under similar conditions, and subject to the same time, financial and physical constraints applicable to this project.

WSP disclaims any obligation to update this report if, after the date of this report, any conditions appear to differ significantly from those presented in this report; however, WSP reserves the right to amend or supplement this report based on additional information, documentation or evidence.

WSP makes no other representations whatsoever concerning the legal significance of its findings.

The intended recipient is solely responsible for the disclosure of any information contained in this report. If a third party makes use of, relies on, or makes decisions in accordance with this report, said third party is solely responsible for such use, reliance or decisions. WSP does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken by said third party based on this report.

WSP has provided services to the intended recipient in accordance with the professional services agreement between the parties and in a manner consistent with that degree of care, skill and diligence normally provided by members of the same profession performing the same or comparable services in respect of projects of a similar nature in similar circumstances. It is understood and agreed by WSP and the recipient of this report that WSP provides no warranty, express or implied, of any kind. Without limiting the generality of the foregoing, it is agreed and understood by WSP and the recipient of this report that WSP makes no representation or warranty whatsoever as to the sufficiency of its scope of work for the purpose sought by the recipient of this report.

In preparing this report, WSP has relied in good faith on information provided by others, as noted in the report. WSP has reasonably assumed that the information provided is correct and WSP is not responsible for the accuracy or completeness of such information.

Benchmark and elevations used in this report are primarily to establish relative elevation differences between the specific testing and/or sampling locations and should not be used for other purposes, such as grading, excavating, construction, planning, development, etc.

WSP disclaims any responsibility for consequential financial effects on transactions or property values, or requirements for follow-up actions /or costs.

Design recommendations given in this report are applicable only to the project and areas as described in the text and then only if constructed in accordance with the details stated in this report. The comments made in this report on potential construction issues and possible methods are intended only for the guidance of the designer. The number of testing and/or sampling locations may not be sufficient to determine all the factors that may affect construction methods and costs. We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

Overall conditions can only be extrapolated to an undefined limited area around these testing and sampling locations. The conditions that WSP interprets to exist between testing and sampling points may differ from those that actually exist. The accuracy of any extrapolation and interpretation beyond the sampling locations will depend on natural conditions, the history of Site development and changes through construction and other activities. In addition, analysis has been carried out for the identified chemical and physical parameters only, and it should not be inferred that other chemical species or physical conditions are not present. WSP cannot warrant against undiscovered environmental liabilities or adverse impacts off-Site.

The original of this digital file will be kept by WSP for a period of not less than 10 years. As the digital file transmitted to the intended recipient is no longer under the control of WSP, its integrity cannot be assured. As such, WSP does not guarantee any modifications made to this digital file subsequent to its transmission to the intended recipient.

This limitations statement is considered an integral part of this report.

6.3 QUALIFICATIONS OF THE ASSESSORS

The Phase Two ESA was managed and reviewed by **Ms. Natalia Codoban, M.Eng., P.Eng., QP_{ESA}**, Senior Hydrogeologist / Environmental Engineer. Ms. Codoban has an academic background in Earth / Environmental Sciences and Geology, and Environmental Engineering. She has over 16 years of experience in managing

environmental and hydrogeological investigations, including Phase One and Two ESAs, Contamination Overview Studies, contaminated site assessments (brownfields), environmental investigations, groundwater assessments and hydrogeological projects.

The Phase Two ESA was also reviewed by **Ms. Carolyn Adams, M.A.Sc., P.Eng., QP$_{ESA}$**, Senior Environmental Engineer. Carolyn is a Senior Chemical Engineer with a Master of Applied Science degree in Environmental Engineering. She has over 30 years of experience in completing environmental investigations and has the knowledge and experience to identify potential sources of contamination and the fate and behaviour of contaminants in the environment.

6.4 SIGNATURES

WSP carried out this Phase Two ESA and confirms the findings and conclusions presented in this report.

WSP Canada Inc.

Prepared by:



Natalia Codoban, M.Eng., P.Eng., QP$_{ESA}$
Senior Hydrogeologist/ Environmental Engineer
Environmental Management

Reviewed by:



Carolyn Adams, M.A.Sc., P.Eng., QP$_{ESA}$
Senior Environmental Engineer
Environmental Management

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TABLES

Table 1: Summary of Analytical Results in Soil
Metals, Inorganics and PAH (2013, 2016)
3610 Innes Road, Ottawa, ON

Sample ID Depth (m) Sampling Date	MECP TABLE 3 STANDARD	UNITS	F-04 0.61-1.22 27-Jun-2013	F-05 1.32-1.83 27-Jun-2013	F-06 0.00-0.61 27-Jun-2013	F-07 0.61-1.22 27-Jun-2013	F-08 0.61-1.22 27-Jun-2013	F-09 0.00-0.61 27-Jun-2013	PO-01 0.61-0.86 27-Jun-2013	TE-01 0.30-0.60 2-Jul-2013	TE-02 0.00-0.35 2-Jul-2013	TE-02 0.35-1.00 2-Jul-2013	TE-02 1.00-1.45 2-Jul-2013	Duplicate Duplicate of TE-02 1.00-1.45 3-Jul-2013	TE-03 0.3-1.0 2-Jul-2013
Metals and Inorganics															
Antimony	7.5	µg/g	NA	<1	NA	NA	NA	NA	<1	<1	<1	<1	<1	<1	NA
Arsenic	18	µg/g	NA	1	NA	NA	NA	NA	2	3	5	6	2	2	NA
Barium	390	µg/g	NA	**421**	NA	NA	NA	NA	111	153	98	150	347	383	NA
Beryllium	4	µg/g	NA	<1	NA	NA	NA	NA	<1	<1	<1	<1	<1	<1	NA
Boron (Hot Water Soluble)	1.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1.2	µg/g	NA	<0.5	NA	NA	NA	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA
Chromium	160	µg/g	NA	112	NA	NA	NA	NA	60	59	41	62	111	122	NA
Chromium VI	8	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	22	µg/g	NA	**27**	NA	NA	NA	NA	11	10	7	10	18	20	NA
Copper	140	µg/g	NA	61	NA	NA	NA	NA	19	21	19	24	50	65	NA
Lead	120	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.27	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	6.9	µg/g	NA	<1	NA	NA	NA	NA	<1	<1	1	<1	<1	<1	NA
Nickel	100	µg/g	NA	70	NA	NA	NA	NA	29	33	25	31	60	65	NA
Selenium	2.4	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	µg/g	NA	<0.2	NA	NA	NA	NA	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	NA
Thallium	1	µg/g	NA	<1	NA	NA	NA	NA	<1	<1	<1	<1	<1	<1	NA
Vanadium	86	µg/g	NA	**105**	NA	NA	NA	NA	53	45	38	52	**98**	**109**	NA
Zinc	340	µg/g	NA	140	NA	NA	NA	NA	57	58	138	80	113	135	NA
pH	5 to 9	pH Units	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Electrical Conductivity	0.7	mS/cm	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium Adsorption Ratio	5	Unitless	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Free	0.051	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Total)	120	µg/g	NA	40	NA	NA	NA	NA	20	10	20	30	40	40	NA
Uranium	23	µg/g	NA	0.6	NA	NA	NA	NA	0.6	<0.5	<0.5	0.6	0.9	0.9	NA
Polycyclic Aromatic Hydrocarbons (PAH)															
Acenaphthene	7.9	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Acenaphthylene	0.15	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Anthracene	0.67	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Benzo(a)anthracene	0.5	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Benzo(a)pyrene	0.3	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Benzo(b/j)fluoranthene	0.78	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Benzo(ghi)perylene	6.6	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Benzo(k)fluoranthene	0.78	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Chrysene	7	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Dibenzo(a,h)anthracene	0.1	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Fluoranthene	0.69	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Fluorene	62	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Indeno(1,2,3-cd)pyrene	0.38	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
1-Methylnaphthalene	NV	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
2-Methylnaphthalene	NV	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
1,2-Methylnaphthalene	0.99	µg/g	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	NA	<0.10
Naphthalene	0.6	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	NA	<0.05
Phenanthrene	6.2	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	NA	<0.05
Pyrene	78	µg/g	0.16	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.17	<0.05	<0.05	NA	<0.05

Notes:
'NV ' : No Standard established
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 1: Summary of Analytical Results in Soil
Metals, Inorganics and PAH (2013, 2016)
3610 Innes Road, Ottawa, ON

Sample ID Depth (m) Sampling Date	MECP TABLE 3 STANDARD	UNITS	TE-04 1.00-2.30 2-Jul-2013	TE-05 0.15-2.30 2-Jul-2013	BH16-1-1B 0.30-1.52 1-Jun-2016	BH16-1-2A 1.52-2.53 1-Jun-2016	BH16-1-2B 2.53-2.89 1-Jun-2016	BH16-2-1B 0.30-1.52 1-Jun-2016	BH16-2-2A 1.52-2.34 1-Jun-2016	BH16-2-2B 2.34-2.44 1-Jun-2016	BH16-3-1B 0.43-1.52 1-Jun-2016	BH16-3-2A 1.52-2.28 1-Jun-2016	BH16-3-3 3.05-3.12 1-Jun-2016	BH16-4-1B 0.43-1.52 1-Jun-2016	BH16-4-2B 2.28-3.05 1-Jun-2016
Metals and Inorganics															
Antimony	7.5	µg/g	<1	NA	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	18	µg/g	3	NA	1	1	1	1	1	2	2	1	5	1	2
Barium	390	µg/g	175	NA	325	347	198	345	355	271	286	**398**	346	254	347
Beryllium	4	µg/g	<1	NA	0.9	1	0.7	1	0.9	0.8	0.9	0.9	<0.5	0.8	1
Boron (Hot Water Soluble)	1.5	µg/g	NA	NA	0.13	NA	NA	0.15	NA	NA	0.24	NA	NA	0.12	NA
Cadmium	1.2	µg/g	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	160	µg/g	82	NA	101	108	45	116	99	65	113	111	26	87	70
Chromium VI	8	µg/g	NA	NA	<0.2	NA	NA	<0.2	NA	NA	<0.2	NA	NA	<0.2	NA
Cobalt	22	µg/g	14	NA	19.7	**23**	10.7	22	20.4	16.7	21.6	**22.6**	6.8	16.3	20.2
Copper	140	µg/g	28	NA	43	48	28	47	47	33	46	48	15	35	35
Lead	120	µg/g	NA	NA	7	7	6	8	7	6	7	7	8	6	7
Mercury	0.27	µg/g	NA	NA	<0.10	NA	NA	<0.10	NA	NA	<0.10	NA	NA	<0.10	NA
Molybdenum	6.9	µg/g	<1	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1	0.5	<0.5
Nickel	100	µg/g	39	NA	58	60	25	64	55	40	65	62	11	47	43
Selenium	2.4	µg/g	NA	NA	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	20	µg/g	<0.2	NA	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	1	µg/g	<1	NA	0.4	0.5	<0.4	0.5	0.4	<0.4	<0.4	0.5	<0.4	<0.4	0.4
Vanadium	86	µg/g	72	NA	**91**	**101**	57	**99**	**98**	76	**88**	**102**	25	**89**	**88**
Zinc	340	µg/g	110	NA	123	137	71	132	129	101	120	146	56	96	127
pH	5 to 9	pH Units	NA	NA	7.23	NA	NA	7.05	NA	NA	7.15	NA	NA	7.07	NA
Electrical Conductivity	0.7	mS/cm	NA	NA	0.458	NA	NA	0.419	NA	NA	0.465	NA	NA	0.363	NA
Sodium Adsorption Ratio	5	Unitless	NA	NA	0.486	NA	NA	0.855	NA	NA	1.11	NA	NA	0.565	NA
Cyanide, Free	0.051	µg/g	NA	NA	<0.040	NA	NA	<0.040	NA	NA	<0.040	NA	NA	<0.040	NA
Boron (Total)	120	µg/g	30	NA	<5	<5	6	<5	<5	8	6	5	9	<5	8
Uranium	23	µg/g	1	NA	0.6	0.6	<0.5	0.7	0.6	0.6	0.6	0.7	0.6	1	0.6
Polycyclic Aromatic Hydrocarbons (PAH)															
Acenaphthene	7.9	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	0.15	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	0.67	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.5	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.3	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b/j)fluoranthene	0.78	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	6.6	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.78	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	7	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.1	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	0.69	µg/g	<0.05	0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	62	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.38	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NV	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NV	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Methylnaphthalene	0.99	µg/g	<0.10	<0.10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.6	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	6.2	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	78	µg/g	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
'NV ' : No Standard established
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 1: Summary of Analytical Results in Soil
Metals, Inorganics and PAH (2013, 2016)
3610 Innes Road, Ottawa, ON

Sample ID Depth (m) Sampling Date	MECP TABLE 3 STANDARD	UNITS	BH16-4-102B Duplicate of BH16-4-2B 2.28-3.05 1-Jun-2016	BH16-5-1B 0.23-1.52 1-Jun-2016	BH16-5-101B Duplicate of BH16-5-1B 0.23-1.52 1-Jun-2016	BH16-5-2B 2.90-3.05 1-Jun-2016	BH16-6-1B 0.23-1.52 1-Jun-2016	BH16-6-2B 2.90-3.05 1-Jun-2016	BH16-7-1 0.20-1.52 1-Jun-2016	BH16-7-2B 2.44-3.05 1-Jun-2016	BH16-8-1 0.20-1.52 1-Jun-2016	TP16-5 SA1 Duplicate of BH16-8-1 0.20-1.52 1-Jun-2016	BH16-8-2B 2.44-3.05 1-Jun-2016	BH16-9-1 0.17-1.52 2-Jun-2016	BH16-9-2B 2.67-3.05 2-Jun-2016
Metals and Inorganics															
Antimony	7.5	µg/g	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	NA	<0.8	<0.8	<0.8
Arsenic	18	µg/g	4	1	2	2	3	3	2	1	2	NA	2	2	1
Barium	390	µg/g	250	129	266	**412**	180	285	302	338	296	NA	**524**	263	304
Beryllium	4	µg/g	0.8	0.6	0.9	1	0.6	0.9	1	0.7	0.9	NA	1	0.9	0.7
Boron (Hot Water Soluble)	1.5	µg/g	NA	0.29	NA	NA	0.55	NA	0.11	NA	<0.10	NA	NA	0.22	NA
Cadmium	1.2	µg/g	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5
Chromium	160	µg/g	57	59	125	72	63	61	118	50	121	NA	77	112	99
Chromium VI	8	µg/g	NA	<0.2	NA	NA	<0.2	NA	<0.2	NA	NA	NA	NA	<0.2	na
Cobalt	22	µg/g	18.2	11.2	**22.2**	19.1	12.4	18.4	**22.4**	15.1	**25.9**	NA	**22.7**	19.3	20
Copper	140	µg/g	35	16	44	39	27	35	50	30	44	NA	47	47	46
Lead	120	µg/g	8	8	8	8	9	8	8	6	9	NA	9	8	6
Mercury	0.27	µg/g	NA	<0.10	NA	NA	<0.10	NA	<0.10	NA	<0.10	NA	NA	<0.10	NA
Molybdenum	6.9	µg/g	<0.5	0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	0.5	NA	0.5	0.6	<0.5
Nickel	100	µg/g	37	27	66	43	34	37	67	32	67	NA	49	60	56
Selenium	2.4	µg/g	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	NA	<0.4	<0.4	<0.4
Silver	20	µg/g	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	NA	<0.2	<0.2	<0.2
Thallium	1	µg/g	<0.4	<0.4	<0.4	0.5	<0.4	<0.4	0.5	<0.4	0.4	NA	0.6	<0.4	0.4
Vanadium	86	µg/g	80	53	**94**	**93**	60	83	**103**	68	**98**	NA	**101**	**99**	**102**
Zinc	340	µg/g	112	80	109	134	85	118	128	94	126	NA	149	114	126
pH	5 to 9	pH Units	NA	7.24	NA	NA	7.42	NA	7.13	NA	7.25	NA	NA	7.15	NA
Electrical Conductivity	0.7	mS/cm	NA	0.325	NA	NA	0.569	NA	0.579	NA	**1.86**	**0.906**	NA	0.394	NA
Sodium Adsorption Ratio	5	Unitless	NA	0.657	NA	NA	**5.41**	NA	1.02	NA	4.79	NA	NA	1.1	NA
Cyanide, Free	0.051	µg/g	NA	<0.040	NA	NA	<0.040	NA	<0.040	NA	<0.040	NA	NA	<0.040	NA
Boron (Total)	120	µg/g	9	<5	6	8	<5	9	<5	6	<5	NA	8	<5	<5
Uranium	23	µg/g	0.6	0.9	1	0.6	0.6	0.6	0.8	0.6	0.9	NA	0.7	1	0.9
Polycyclic Aromatic Hydrocarbons (PAH)															
Acenaphthene	7.9	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Acenaphthylene	0.15	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Anthracene	0.67	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Benzo(a)anthracene	0.5	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Benzo(a)pyrene	0.3	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Benzo(b/j)fluoranthene	0.78	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Benzo(ghi)perylene	6.6	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Benzo(k)fluoranthene	0.78	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Chrysene	7	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.1	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Fluoranthene	0.69	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Fluorene	62	µg/g	NA	NA	NA	0.11	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.38	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
1-Methylnaphthalene	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Methylnaphthalene	0.99	µg/g	NA	NA	NA	0.5	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Naphthalene	0.6	µg/g	NA	NA	NA	0.06	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Phenanthrene	6.2	µg/g	NA	NA	NA	0.17	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA
Pyrene	78	µg/g	NA	NA	NA	<0.05	NA	NA	<0.05	NA	<0.05	NA	NA	NA	NA

Notes:
'NV ' : No Standard established
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 1: Summary of Analytical Results in Soil
Metals, Inorganics and PAH (2013, 2016)
3610 Innes Road, Ottawa, ON

Sample ID Depth (m) Sampling Date	MECP TABLE 3 STANDARD	UNITS	BH16-9-4 4.57-6.10 2-Jun-2016	BH16-10-1 0.23-1.52 2-Jun-2016	BH16-10-2B 2.61-3.05 2-Jun-2016	BH16-10-4A 4.57-6.10 2-Jun-2016	BH16-11-2A 1.52-2.62 2-Jun-2016	BH16-11-3B 4.22-4.57 2-Jun-2016	BH16-12-2A 1.52-2.11 2-Jun-2016	BH16-12-3B 3.81-4.57 2-Jun-2016	BH16-13-2A 1.52-2.75 2-Jun-2016	BH16-13-102A Duplicate of BH16-13-2A 1.52-2.75 2-Jun-2016	BH16-13-3B 3.53-4.57 2-Jun-2016
Metals and Inorganics													
Antimony	7.5	µg/g	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	18	µg/g	1	2	1	2	2	1	2	1	2	2	2
Barium	390	µg/g	84	268	303	294	290	297	288	369	273	272	246
Beryllium	4	µg/g	<0.5	0.8	0.8	0.7	0.8	0.7	0.7	0.7	0.8	0.7	0.7
Boron (Hot Water Soluble)	1.5	µg/g	NA	<0.10	NA	NA	0.25	NA	0.37	NA	0.34	NA	NA
Cadmium	1.2	µg/g	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	160	µg/g	14	103	102	80	107	99	116	99	112	109	84
Chromium VI	8	µg/g	NA	<0.2	na	na	<0.2	NA	<0.2	NA	<0.2	NA	NA
Cobalt	22	µg/g	5.4	18.7	**22.6**	19.6	**23.7**	21.1	**24.2**	**23.2**	**22.2**	**22.4**	18.2
Copper	140	µg/g	11	44	45	40	48	47	51	50	47	46	38
Lead	120	µg/g	4	7	6	7	7	6	8	7	7	7	6
Mercury	0.27	µg/g	NA	<0.10	NA	NA	<0.10	NA	<0.10	NA	<0.10	NA	NA
Molybdenum	6.9	µg/g	0.6	<0.5	<0.5	1	<0.5	0.7	<0.5	1	<0.5	<0.5	0.9
Nickel	100	µg/g	10	58	59	47	62	56	66	58	64	63	48
Selenium	2.4	µg/g	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	20	µg/g	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	1	µg/g	<0.4	<0.4	0.4	<0.4	0.4	<0.4	0.4	0.5	<0.4	<0.4	<0.4
Vanadium	86	µg/g	21	**89**	**96**	**87**	**100**	**94**	**105**	**114**	**94**	**93**	82
Zinc	340	µg/g	21	106	123	117	124	123	129	141	123	120	108
pH	5 to 9	pH Units	NA	6.77	NA	NA	7.05	NA	7.13	NA	7.13	NA	NA
Electrical Conductivity	0.7	mS/cm	NA	0.215	NA	NA	0.176	NA	0.091	NA	0.075	NA	NA
Sodium Adsorption Ratio	5	Unitless	NA	1.04	NA	NA	0.622	NA	0.436	NA	0.416	NA	NA
Cyanide, Free	0.051	µg/g	NA	<0.040	NA	NA	<0.040	NA	<0.040	NA	<0.040	NA	NA
Boron (Total)	120	µg/g	<5	<5	<5	8	<5	5	<5	5	5	<5	7
Uranium	23	µg/g	<0.5	0.8	0.8	1.8	1	1	1.2	0.9	0.9	0.9	1.9
Polycyclic Aromatic Hydrocarbons (PAH)													
Acenaphthene	7.9	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	0.15	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	0.67	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.3	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b/j)fluoranthene	0.78	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	6.6	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.78	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	7	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	0.69	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	62	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.38	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Methylnaphthalene	0.99	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.6	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	6.2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	78	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
'NV ' : No Standard established
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 2: Summary of Analytical Results in Soil
PHC and BTEX (2013, 2016)
3610 Innes Road, Ottawa, ON

Sample ID Depth (m) Lab Job # Sampling Date	MECP TABLE 3 STANDARD	UNITS	F-04 0.61-1.22 27-Jun-2013	F-05 1.32-1.83 27-Jun-2013	F-06 0.00-0.61 27-Jun-2013	F-07 0.61-1.22 27-Jun-2013	F-08 0.61-1.22 27-Jun-2013	F-09 0.00-0.61 27-Jun-2013	PO-01 0.61-0.86 27-Jun-2013	TE-01 0.30-0.60 2-Jul-2013
Petroleum Hydrocarbon Compounds (PHC)										
F1 (C6-C10)	55	µg/g	<10	<10	<10	<10	30	<10	<10	<10
F1 (C6-C10) - BTEX	55	µg/g	<10	<10	<10	<10	30	<10	<10	<10
F2 (C10-C16)	98	µg/g	<10	<10	<10	<10	-10	<10	<10	<10
F3 (C16-C34)	300	µg/g	<20	<20	30	<20	80	60	<20	<20
F4 (C34-C50)	2800	µg/g	20	<20	60	<20	30	240	140	70
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX)										
Benzene	0.21	µg/g	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	2	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	2.3	µg/g	<0.02	<0.02	<0.02	<0.02	<0.2	<0.2	<0.2	<0.2
m-Xylene & p-Xylene	NV	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	NV	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Xylenes	3.1	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1

Notes:
'NV ' : No Standard established
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 2: Summary of Analytical Results in Soil
PHC and BTEX (2013, 2016)
3610 Innes Road, Ottawa, ON

Sample ID Depth (m) Lab Job # Sampling Date	MECP TABLE 3 STANDARD	UNITS	TE-02 0.00-0.35 2-Jul-2013	TE-02 0.35-1.00 2-Jul-2013	TE-02 1.00-1.45 2-Jul-2013	TE-03 0.30-1.00 2-Jul-2013	TE-04 1.00-2.30 2-Jul-2013	TE-05 0.15-2.30 2-Jul-2013	BH16-4-1B 0.43-1.52 1-Jun-2016
Petroleum Hydrocarbon Compounds (PHC)									
F1 (C6-C10)	55	µg/g	<10	<10	<10	<10	<10	<10	NA
F1 (C6-C10) - BTEX	55	µg/g	<10	<10	<10	NA	NA	NA	NA
F2 (C10-C16)	98	µg/g	20	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	µg/g	**31100**	100	110	<20	30	<20	<50
F4 (C34-C50)	2800	µg/g	**10400**	160	60	<20	40	<20	<50
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX)									
Benzene	0.21	µg/g	<0.02	<0.02	<0.02	NA	NA	NA	NA
Ethylbenzene	2	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA
Toluene	2.3	µg/g	<0.2	<0.2	<0.2	NA	NA	NA	NA
m-Xylene & p-Xylene	NV	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA
o-Xylene	NV	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA
Total Xylenes	3.1	µg/g	<1	<0.05	<0.05	NA	NA	NA	NA

Notes:
'NV ' : No Standard established
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 2: Summary of Analytical Results in Soil
PHC and BTEX (2013, 2016)
3610 Innes Road, Ottawa, ON

Sample ID Depth (m) Lab Job # Sampling Date	MECP TABLE 3 STANDARD	UNITS	BH16-5-1B 0.23-1.52 1-Jun-2016	BH16-5-101B Duplicate of BH16-5-1B 0.23-1.52 1-Jun-2016	BH16-5-2B 2.9-3.05 1-Jun-2016	BH16-6-1B 0.23-1.52 1-Jun-2016	BH16-7-1 0.20-1.52 1-Jun-2016	BH16-8-1 0.20-1.53 1-Jun-2016	TP16-6 SA1 0.66-0.68 2-Nov-2016	TP16-6 SA101 Duplicate of TP16-6 SA1 0.66-0.68 2-Nov-2016
Petroleum Hydrocarbon Compounds (PHC)										
F1 (C6-C10)	55	µg/g	NA	NA	11	<5	<5	<5	<5	<5
F1 (C6-C10) - BTEX	55	µg/g	NA	NA	11	<5	<5	<5	<5	<5
F2 (C10-C16)	98	µg/g	<10	<10	34	<10	<10	<10	<10	<10
F3 (C16-C34)	300	µg/g	<50	<50	<50	<50	<50	<50	130	160
F4 (C34-C50)	2800	µg/g	<50	<50	<50	<50	<50	<50	<50	<50
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX)										
Benzene	0.21	µg/g	NA	NA	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	2	µg/g	NA	NA	0.16	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	2.3	µg/g	NA	NA	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
m-Xylene & p-Xylene	NV	µg/g	NA	NA	0.06	<0.05	<0.05	<0.05	NA	NA
o-Xylene	NV	µg/g	NA	NA	NA	<0.05	<0.05	<0.05	NA	NA
Total Xylenes	3.1	µg/g	NA	NA	0.06	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:
'NV ' : No Standard established
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 2: Summary of Analytical Results in Soil
PHC and BTEX (2013, 2016)
3610 Innes Road, Ottawa, ON

Sample ID Depth (m) Lab Job # Sampling Date	MECP TABLE 3 STANDARD	UNITS	FL-01 0.91 2-Nov-2016	FL-101 Duplicate of FL-01 0.91 2-Nov-2016	FL-04 0.91 2-Nov-2016	WW-14 0.15 2-Nov-2016	SW-11 0.3 2-Nov-2016	EW-8 0.3 2-Nov-2016
Petroleum Hydrocarbon Compounds (PHC)								
F1 (C6-C10)	55	µg/g	<5	<5	<5	<5	<5	<5
F1 (C6-C10) - BTEX	55	µg/g	<5	<5	<5	<5	<5	<5
F2 (C10-C16)	98	µg/g	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	µg/g	200	68	<50	160	**380**	**400**
F4 (C34-C50)	2800	µg/g	<50	<50	<50	79	100	130
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX)								
Benzene	0.21	µg/g	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	2	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	2.3	µg/g	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
m-Xylene & p-Xylene	NV	µg/g	NA	NA	NA	NA	NA	NA
o-Xylene	NV	µg/g	NA	NA	NA	NA	NA	NA
Total Xylenes	3.1	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:
'NV ' : No Standard established
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 3: Summary of Analytical Results in Soil
Metals and Inorganics and PAH (Paterson Group)
3610 Innes Road, Ottawa, ON

Sample ID Depth (m) Sampling Date	MECP Table 3 Standards (RPI)	Detection Limits	Units	TP5-G1 0-2.1 1/18/2017	TP6-G1 0-2.0 1/18/2017	TP6-G2 2.0-2.1 1/18/2017	TP9-G2 2.5-4 1/18/2017	TP10-G1 0.3-2.5 1/18/2017	TP11-G1 0-2.8 1/18/2017	TP16-G1 0-0.15 2/1/2017	TP18-G1 0-0.6 2/1/2017	TP19-G1 0-0.6 2/1/2017	TP20-G2 0.6-2.7 2/1/2017	TP21-G1 0-2.4 2/1/2017	TP22-G1 0-0.5 2/1/2017	TP23-G1 0-0.8 2/1/2017
Metals and Inorganics																
Antimony	7.5	1	ug/g	na	nd	na	nd	nd	nd	na	nd	na	na	nd	nd	nd
Arsenic	18	1	ug/g	na	nd	na	nd	nd	nd	na	nd	na	na	nd	nd	nd
Barium	390	1	ug/g	na	106	na	146	160	140	na	172	na	na	141	122	64.4
Beryllium	4	1	ug/g	na	nd	na	nd	nd	nd	na	nd	na	na	nd	nd	nd
Boron	120	1	ug/g	na	8.0	na	3.8	5.7	11.6	na	11.3	na	na	11.1	5.5	14.1
Cadmium	1.2	0.5	ug/g	na	nd	na	nd	nd	nd	na	nd	na	na	nd	nd	nd
Chromium	160	1	ug/g	na	48.1	na	61.2	43.6	32.2	na	17.9	na	na	31.5	47.7	14.0
Cobalt	22	1	ug/g	na	7.7	na	14.3	9.6	7.6	na	4.6	na	na	8.5	8.5	2.9
Copper	140	1	ug/g	na	21.9	na	19.4	20.1	21.4	na	15.6	na	na	30.9	23.9	14.8
Lead	120	1	ug/g	na	18.3	na	13.3	16.5	20	na	11.3	na	na	23.9	13.6	24.9
Molybdenum	6.9	1	ug/g	na	nd	na	nd	nd	nd	na	nd	na	na	nd	nd	1
Nickel	100	1	ug/g	na	20.1	na	29.6	23.9	20	na	11	na	na	20.9	21.5	7.8
Selenium	2.4	1	ug/g	na	nd	na	nd	nd	nd	na	nd	na	na	nd	nd	nd
Silver	20	0.5	ug/g	na	nd	na	nd	nd	nd	na	nd	na	na	nd	nd	nd
Thallium	1	1	ug/g	na	nd	na	nd	nd	nd	na	nd	na	na	nd	nd	nd
Vanadium	86	1	ug/g	na	36.6	na	55.9	43	30.8	na	21.6	na	na	32.4	44.7	12
Zinc	340	1	ug/g	na	68.3	na	67.7	53.4	57.5	na	47.2	na	na	59.2	60.4	170
Uranium	23	1	ug/g	na	nd	na	nd	nd	nd	na	nd	na	na	nd	nd	nd
Polycyclic Aromatic Hydrocarbons (PAH)																
Acenaphthene	7.9	0.02	ug/g	nd	na	nd	nd	na	na	nd	na	**9.7**	0.02	0.3	na	nd
Acenaphthylene	0.15	0.02	ug/g	nd	na	nd	nd	na	na	nd	na	**0.85**	nd	0.03	na	nd
Anthracene	0.67	0.02	ug/g	nd	na	nd	nd	na	na	nd	na	**28.1**	0.04	**0.7**	na	nd
Benzo(a)anthracene	0.5	0.02	ug/g	nd	na	0.02	nd	na	na	nd	na	**40.7**	0.15	**1.69**	na	nd
Benzo(a)pyrene	0.3	0.02	ug/g	nd	na	0.03	nd	na	na	nd	na	**35.8**	0.19	**1.85**	na	nd
Benzo(b/j)fluoranthene	0.78	0.02	ug/g	nd	na	0.04	nd	na	na	nd	na	**39.8**	0.21	**1.95**	na	nd
Benzo(ghi)perylene	6.6	0.02	ug/g	nd	na	0.04	nd	na	na	nd	na	**19.4**	0.19	1.19	na	nd
Benzo(k)fluoranthene	0.78	0.02	ug/g	nd	na	nd	nd	na	na	nd	na	**23.3**	0.11	**1.13**	na	nd
Chrysene	7	0.02	ug/g	nd	na	0.02	nd	na	na	nd	na	**38.8**	0.15	1.83	na	nd
Dibenzo(a,h)anthracene	0.1	0.02	ug/g	nd	na	nd	nd	na	na	nd	na	**6.52**	0.04	**0.37**	na	nd
Fluoranthene	0.69	0.02	ug/g	nd	na	0.04	nd	na	na	nd	na	**116**	0.4	**4.24**	na	nd
Fluorene	62	0.02	ug/g	nd	na	nd	nd	na	na	nd	na	12.1	0.03	0.32	na	nd
Indeno(1,2,3-cd)pyrene	0.38	0.02	ug/g	nd	na	0.02	nd	na	na	nd	na	**19.9**	0.14	**1.19**	na	nd
1-Methylnaphthalene	NC	0.02	ug/g	nd	na	nd	nd	na	na	nd	na	3.95	nd	0.11	na	nd
2-Methylnaphthalene	NC	0.02	ug/g	nd	na	na	na	na	na	nd	na	nd	na	na	na	nd
1,2-Methylnaphthalene	0.99	0.04	ug/g	nd	na	na	na	na	na	nd	na	nd	na	na	na	nd
Naphthalene	0.6	0.01	ug/g	nd	na	nd	nd	na	na	nd	na	**3.49**	0.01	0.07	na	nd
Phenanthrene	6.2	0.02	ug/g	nd	na	nd	nd	na	na	nd	na	**94.2**	0.22	2.79	na	nd
Pyrene	78	0.02	ug/g	nd	na	0.03	nd	na	na	nd	na	**86.9**	0.31	3.31	na	nd

Notes:

'NV ' : No Standard established

na': Not analysed nd: not detected

MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April, 2011. Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

100	Exceeds MECP Table 3 RPI Standard Value
100	Method Detection Limit Exceeds MECP Standard

Table 4: Summary of Analytical Results in Soil
PHC and BTEX (Paterson Group)
3610 Innes Road, Ottawa, ON

Sample ID Approx. Depth (m) Sampling Date	MECP Table 3 Standards (RPI)	REPORTING LIMIT	Units	TP11-G1 0-2.8 Jan 1 2017	TP16-G1 0-0.15 Jan 1 2017	TP17-G2 0.3-0.7 Feb 1 2017	TP18-G1 0-0.6 Feb 1 2017	TP19-G1 0-0.6 Feb 1 2017	TP19-G3 2.5-3.4 Feb 1 2017	TP20-G2 0.6-2.7 Feb 1 2017	TP21-G1 0-2.4 Feb 1 2017	TP22-G1 0-0.5 Feb 1 2017	TP23-G1 0-0.8 Feb 1 2017
Petroleum Hydrocarbon Compounds (PHC)													
F1 (C6-C10)	55	7	ug/g	na	na	na	na	na	nd	na	na	na	na
F2 (C10-C16)	98	4	ug/g	nd	13	nd	nd	**<200**	nd	nd	5	nd	nd
F3 (C16-C34)	300	8	ug/g	63	55	28	51	**1740**	nd	**314**	72	56	133
F4 (C34-C50)	2800	6	ug/g	129	16	11	31	**6330**	nd	591	92	46	106
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX)													
Benzene	0.21	0.02	ug/g	na	na	na	na	na	nd	na	na	na	na
Ethylbenzene	2	0.05	ug/g	na	na	na	na	na	nd	na	na	na	na
Toluene	2.3	0.05	ug/g	na	na	na	na	na	nd	na	na	na	na
m-Xylene & p-Xylene	NV	0.05	ug/g	na	na	na	na	na	nd	na	na	na	na
o-Xylene	NV	0.05	ug/g	na	na	na	na	na	nd	na	na	na	na
Total Xylenes	3.1	0.05	ug/g	na	na	na	na	na	nd	na	na	na	na

Notes:

'NV ' : No Standard established nd: Not detected na': Not analysed

MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for Residential. Parkland, Institutional (RPI) Property Use with coarse textured soils.

100	Exceeds MECP Table 3 RPI Standard Value
100	Method Detection Limit Exceeds MECP Standard

Table 4: Summary of Analytical Results in Soil
PHC and BTEX (Paterson Group)
3610 Innes Road, Ottawa, ON

Sample ID Approx. Depth (m) Sampling Date	MECP Table 3 Standards (RPI)	REPORTING LIMIT	Units	BH1 - SS2 0.05-0.6 Jan 31 2017	BH3-SS5 1.06-3.45 Jan 31 2017	BH5-AU1 0-0.15 Jan 31 2017	BH5-SS4/5 2.54-5.51 Jan 31 2017
Petroleum Hydrocarbon Compounds (PHC)							
F1 (C6-C10)	55	7	ug/g	nd	nd	na	nd
F2 (C10-C16)	98	4	ug/g	nd	nd	nd	nd
F3 (C16-C34)	300	8	ug/g	nd	nd	149	nd
F4 (C34-C50)	2800	6	ug/g	nd	nd	364	nd
Benzene, Toluene, Ethylbenzene and Total Xylenes (BTEX)							
Benzene	0.21	0.02	ug/g	nd	nd	na	nd
Ethylbenzene	2	0.05	ug/g	nd	nd	na	nd
Toluene	2.3	0.05	ug/g	nd	nd	na	nd
m-Xylene & p-Xylene	NV	0.05	ug/g	na	na	na	na
o-Xylene	NV	0.05	ug/g	na	na	na	na
Total Xylenes	3.1	0.05	ug/g	nd	nd	na	nd

Notes:

'NV ' : No Standard established nd: Not detected na': Not analysed

MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards in a Non-potable Ground Water Condition for Residential. Parkland, Institutional (RPI) Property Use with coarse textured soils.

100	Exceeds MECP Table 3 RPI Stan
100	Method Detection Limit Exceeds I

Table 5: Summary of Analytical Results in Soil
Metals, Inorganics and PAH (Remediation and Post-Remediation)
3610 Innes Road, Ottawa, Ontario

Sample ID Depth (m) Lab Job # Sampling Date Remediation Area	MECP TABLE 3 STANDARD	REPORTING LIMIT	UNITS	G1 19Z474075 31-May-2019	G2 19Z474075 31-May-2019	G3 19Z474075 31-May-2019	AREA1-TPA-1 19Z479431 12-Jun-2019 1	AREA1-TPB-1 19Z479431 12-Jun-2019 1	AREA1-TPC-1 19Z479431 12-Jun-2019 1	AREA1-TPD-1 19Z479431 12-Jun-2019 1	AREA1-TPE-1 19Z479431 12-Jun-2019 1	AREA1-TPF-1 19Z479431 12-Jun-2019 1	AREA1-TPF-2 19Z479431 12-Jun-2019 1	AREA1-TPE-G1 19Z479431 12-Jun-2019 1	AREA1-TPE-G2 19Z479431 12-Jun-2019 1	AREA1-TPE-G3 19Z479431 12-Jun-2019 1
Metals and Inorganics																
Antimony	7.5	0.8	µg/g	<0.8	<0.8	<0.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	18	1	µg/g	5	7	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	390	2	µg/g	73	124	90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	4	0.5	µg/g	<0.5	0.6	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Hot Water Soluble)	1.5	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1.2	0.5	µg/g	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	160	2	µg/g	15	23	17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI	8	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	22	0.5	µg/g	8.7	12.4	10.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	140	1	µg/g	18	30	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	120	1	µg/g	12	28	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.27	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	6.9	0.5	µg/g	1.6	1.4	2.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	1	µg/g	19	32	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	2.4	0.4	µg/g	<0.4	0.5	<0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	0.2	µg/g	<0.2	<0.2	<0.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	1	0.4	µg/g	<0.4	<0.4	<0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	86	1	µg/g	21	27	23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	340	5	µg/g	43	99	43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	5 to 9	NV	pH Units	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Electrical Conductivity	0.7	0.005	mS/cm	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium Adsorption Ratio	5	0.1	Unitless	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Free	0.051	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Total)	120	5	µg/g	6	12	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Uranium	23	0.5	µg/g	0.7	0.7	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polycyclic Aromatic Hydrocarbons (PAH)																
Acenaphthene	7.9	0.05	µg/g	NA	NA	NA	<0.05	<0.05	<0.05	0.13	1.7	<0.05	0.08	0.45	<0.05	<0.05
Acenaphthylene	0.15	0.05	µg/g	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	0.67	0.05	µg/g	NA	NA	NA	0.05	0.16	<0.05	0.45	**6.1**	<0.05	0.25	**1.7**	<0.05	<0.05
Benzo(a)anthracene	0.5	0.05	µg/g	NA	NA	NA	0.14	0.28	0.06	**1.3**	**11**	<0.05	**0.62**	**3.5**	<0.05	0.12
Benzo(a)pyrene	0.3	0.05	µg/g	NA	NA	NA	0.09	0.21	<0.05	**0.63**	**5.6**	<0.05	**0.42**	**2.1**	<0.05	0.08
Benzo(b/j)fluoranthene	0.78	0.05	µg/g	NA	NA	NA	0.13	0.27	<0.05	0.67	**7**	<0.05	0.58	**3**	<0.05	0.1
Benzo(ghi)perylene	6.6	0.05	µg/g	NA	NA	NA	0.07	0.12	<0.05	0.33	2.2	<0.05	0.2	1	<0.05	<0.05
Benzo(k)fluoranthene	0.78	0.05	µg/g	NA	NA	NA	0.05	0.13	<0.05	0.38	**3.2**	<0.05	0.26	**1.4**	<0.05	0.05
Chrysene	7	0.05	µg/g	NA	NA	NA	0.15	0.27	0.06	1.3	**11**	<0.05	0.61	3.4	<0.05	0.12
Dibenzo(a,h)anthracene	0.1	0.05	µg/g	NA	NA	NA	<0.05	<0.05	<0.05	0.06	**0.4**	<0.05	<0.05	**0.2**	<0.05	<0.05
Fluoranthene	0.69	0.05	µg/g	NA	NA	NA	0.31	0.63	0.13	**2.3**	**24**	<0.05	**1.4**	**7.1**	<0.05	0.26
Fluorene	62	0.05	µg/g	NA	NA	NA	<0.05	0.06	<0.05	0.18	3.1	<0.05	0.09	0.72	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	0.38	0.05	µg/g	NA	NA	NA	<0.05	0.1	<0.05	0.3	**2**	<0.05	0.2	**0.99**	<0.05	<0.05
1-Methylnaphthalene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Methylnaphthalene	0.99	0.05	µg/g	NA	NA	NA	<0.05	<0.05	<0.05	0.05	0.63	<0.05	<0.05	0.16	<0.05	<0.05
Naphthalene	0.6	0.05	µg/g	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	**0.75**	<0.05	<0.05	0.11	<0.05	<0.05
Phenanthrene	6.2	0.05	µg/g	NA	NA	NA	0.15	0.51	0.07	1.6	**22**	<0.05	0.7	6	<0.05	0.15
Pyrene	78	0.05	µg/g	NA	NA	NA	0.24	0.48	0.1	1.9	19	<0.05	1.1	5.6	<0.05	0.2

Notes:
'NV ' : No Standard established NA: Parameter not analyzed
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 5: Summary of Analytical Results in Soil
Metals, Inorganics and PAH (Remediation and Post-Remediation)
3610 Innes Road, Ottawa, Ontario

Sample ID Depth (m) Lab Job # Sampling Date Remediation Area	MECP TABLE 3 STANDARD	REPORTING LIMIT	UNITS	AREA1-B1 19T483538 21-Jun-2019 1	AREA1-B2 19T483538 21-Jun-2019 1	AREA1-B3 19T483538 21-Jun-2019 1	AREA1-B4 19T483538 21-Jun-2019 1	AREA1-B5 19T483538 21-Jun-2019 1	AREA1-B6 19T483538 21-Jun-2019 1	AREA1-B7 19T483538 21-Jun-2019 1	AREA1-B8 19T483538 21-Jun-2019 1	AREA1-B9 19T483538 21-Jun-2019 1	AREA1-B10 19T483538 21-Jun-2019 1	AREA1-B11 19T483538 21-Jun-2019 1	AREA1-B12 19T483538 21-Jun-2019 1	AREA1-B13 19T483538 21-Jun-2019 1
Metals and Inorganics																
Antimony	7.5	0.8	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	18	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	390	2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	4	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Hot Water Soluble)	1.5	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1.2	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	160	2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI	8	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	22	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	140	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	120	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.27	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	6.9	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	2.4	0.4	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	0.2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	1	0.4	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	86	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	340	5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	5 to 9	NV	pH Units	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Electrical Conductivity	0.7	0.005	mS/cm	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium Adsorption Ratio	5	0.1	Unitless	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Free	0.051	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Total)	120	5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Uranium	23	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polycyclic Aromatic Hydrocarbons (PAH)																
Acenaphthene	7.9	0.05	µg/g	<0.05	0.18	<0.05	<0.05	<0.05	<0.05	0.11	0.07	0.38	0.75	0.09	<0.05	0.1
Acenaphthylene	0.15	0.05	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	0.67	0.05	µg/g	<0.05	0.58	0.19	<0.05	0.12	<0.05	0.38	0.31	**1.1**	**2**	0.41	<0.05	0.39
Benzo(a)anthracene	0.5	0.05	µg/g	<0.05	**3.9**	**1.4**	0.1	0.49	<0.05	**1**	**1**	**3.7**	**8.6**	**1.2**	<0.05	**1.2**
Benzo(a)pyrene	0.3	0.05	µg/g	<0.05	**0.95**	**0.89**	0.05	0.28	<0.05	**0.57**	**0.72**	**1.7**	**3.7**	**0.79**	<0.05	**0.74**
Benzo(b/j)fluoranthene	0.78	0.05	µg/g	<0.05	**1.2**	**1**	0.05	0.33	<0.05	0.69	**0.84**	**1.8**	**3.8**	**0.87**	<0.05	0.77
Benzo(ghi)perylene	6.6	0.05	µg/g	<0.05	0.25	0.21	<0.05	0.06	<0.05	0.16	0.18	0.39	0.24	0.2	<0.05	0.19
Benzo(k)fluoranthene	0.78	0.05	µg/g	<0.05	0.37	0.34	<0.05	0.12	<0.05	0.23	0.3	0.67	**1.1**	0.29	<0.05	0.26
Chrysene	7	0.05	µg/g	<0.05	1.4	0.98	0.07	0.37	<0.05	0.68	0.72	2	6	0.78	<0.05	0.81
Dibenzo(a,h)anthracene	0.1	0.05	µg/g	<0.05	0.07	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**0.15**	**0.23**	0.06	<0.05	0.05
Fluoranthene	0.69	0.05	µg/g	<0.05	**2.6**	**1.5**	0.13	0.63	<0.05	**1.3**	**1.3**	**6**	**10**	**1.5**	<0.05	**1.6**
Fluorene	62	0.05	µg/g	<0.05	0.1	<0.05	<0.05	<0.05	<0.05	0.15	0.08	0.45	0.97	0.13	<0.05	0.14
Indeno(1,2,3-cd)pyrene	0.38	0.05	µg/g	<0.05	0.26	0.22	<0.05	0.07	<0.05	0.16	0.2	**0.48**	**0.81**	0.23	<0.05	0.2
1-Methylnaphthalene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Methylnaphthalene	0.99	0.05	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	0.17	<0.05	<0.05	<0.05
Naphthalene	0.6	0.05	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.12	<0.05	<0.05	<0.05
Phenanthrene	6.2	0.05	µg/g	<0.05	1.1	0.36	0.07	0.24	<0.05	0.94	0.57	4.1	**7.8**	0.99	<0.05	1
Pyrene	78	0.05	µg/g	<0.05	4.1	1.5	0.12	0.64	<0.05	1.2	1.3	5.5	9.3	1.4	<0.05	1.4

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

100	Exceeds MECP Table 3 Standards
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Table 5: Summary of Analytical Results in Soil
Metals, Inorganics and PAH (Remediation and Post-Remediation)
3610 Innes Road, Ottawa, Ontario

Sample ID Depth (m) Lab Job # Sampling Date Remediation Area	MECP TABLE 3 STANDARD	REPORTING LIMIT	UNITS	AREA1-B14 19T483538 21-Jun-2019 1	DUP1-AREA1-B5 19T483538 21-Jun-2019 1	AREA1-B15 19Z487323 2-Jul-2019 1	AREA1-B16 19Z487323 2-Jul-2019 1	AREA1-B16-2 19Z487323 2-Jul-2019 1	AREA1-B17-2 19Z487961 3-Jul-2019 1	AREA1-B22-2 19Z487961 3-Jul-2019 1	AREA1-B17 19Z487961 3-Jul-2019 1	AREA1-B18 19Z487961 3-Jul-2019 1	AREA1-B19 19Z487961 3-Jul-2019 1	AREA1-B20 19Z487961 3-Jul-2019 1	AREA1-B21 19Z487961 3-Jul-2019 1	AREA1-B22 19Z487961 3-Jul-2019 1
Metals and Inorganics																
Antimony	7.5	0.8	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	18	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	390	2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	4	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Hot Water Soluble)	1.5	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1.2	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	160	2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI	8	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	22	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	140	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	120	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.27	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	6.9	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	2.4	0.4	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	0.2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	1	0.4	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	86	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	340	5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	5 to 9	NV	pH Units	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Electrical Conductivity	0.7	0.005	mS/cm	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium Adsorption Ratio	5	0.1	Unitless	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Free	0.051	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Total)	120	5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Uranium	23	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polycyclic Aromatic Hydrocarbons (PAH)																
Acenaphthene	7.9	0.05	µg/g	0.05	<0.05	<0.05	0.19	<0.05	<0.05	<0.05	1.5	<0.05	<0.05	<0.05	0.05	0.22
Acenaphthylene	0.15	0.05	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	0.67	0.05	µg/g	0.2	0.1	<0.05	0.28	<0.05	<0.05	<0.05	**5**	<0.05	<0.05	<0.05	<0.05	0.64
Benzo(a)anthracene	0.5	0.05	µg/g	0.38	0.41	<0.05	**0.83**	<0.05	<0.05	<0.05	**11**	<0.05	<0.05	<0.05	<0.05	**1.7**
Benzo(a)pyrene	0.3	0.05	µg/g	0.22	0.24	<0.05	**0.52**	<0.05	<0.05	<0.05	**7.6**	<0.05	<0.05	<0.05	<0.05	**0.97**
Benzo(b/j)fluoranthene	0.78	0.05	µg/g	0.26	0.34	<0.05	**0.86**	<0.05	<0.05	<0.05	**9.5**	<0.05	<0.05	<0.05	<0.05	**1.1**
Benzo(ghi)perylene	6.6	0.05	µg/g	<0.05	0.05	<0.05	0.23	<0.05	<0.05	<0.05	2	<0.05	<0.05	<0.05	<0.05	0.35
Benzo(k)fluoranthene	0.78	0.05	µg/g	0.09	0.11	<0.05	0.23	<0.05	<0.05	<0.05	**4.2**	<0.05	<0.05	<0.05	<0.05	0.49
Chrysene	7	0.05	µg/g	0.28	0.29	<0.05	0.76	<0.05	<0.05	<0.05	**11**	<0.05	<0.05	<0.05	<0.05	1.6
Dibenzo(a,h)anthracene	0.1	0.05	µg/g	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	**0.55**	<0.05	<0.05	<0.05	<0.05	0.1
Fluoranthene	0.69	0.05	µg/g	0.55	0.54	<0.05	**1.7**	<0.05	<0.05	<0.05	**21**	0.05	<0.05	<0.05	0.05	**3.9**
Fluorene	62	0.05	µg/g	0.09	<0.05	<0.05	0.12	<0.05	<0.05	<0.05	1.9	<0.05	<0.05	<0.05	<0.05	0.32
Indeno(1,2,3-cd)pyrene	0.38	0.05	µg/g	0.05	0.06	<0.05	0.23	<0.05	<0.05	<0.05	**2.1**	<0.05	<0.05	<0.05	<0.05	**0.39**
1-Methylnaphthalene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Methylnaphthalene	0.99	0.05	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.47	<0.05	<0.05	<0.05	<0.05	0.08
Naphthalene	0.6	0.05	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.34	<0.05	<0.05	<0.05	<0.05	0.06
Phenanthrene	6.2	0.05	µg/g	0.46	0.18	<0.05	0.35	<0.05	<0.05	<0.05	**20**	<0.05	<0.05	<0.05	0.06	3
Pyrene	78	0.05	µg/g	0.53	0.51	<0.05	1.4	<0.05	<0.05	<0.05	19	<0.05	<0.05	<0.05	<0.05	3

Notes:

'NV ' : No Standard established NA: Parameter not analyzed

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

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 5: Summary of Analytical Results in Soil
Metals, Inorganics and PAH
3610 Innes Road, Ottawa, Ontario (Remediation and Post-Remediation)

Sample ID Depth (m) Lab Job # Sampling Date Remediation Area	MECP TABLE 3 STANDARD	REPORTING LIMIT	UNITS	AREA5-SW1 19Z479405 12-Jun-2019 5	AREA5-SW2 19Z479405 12-Jun-2019 5	AREA5-B1 19Z479405 12-Jun-2019 5	AREA5-B2 19Z479405 12-Jun-2019 5	AREA5-B02 19Z479405 12-Jun-2019 5	AREA6-E8 19T483538 21-Jun-2019 6	TP20-1 0.9-1.2 20Z624271 10-Jul-2020	TP20-2 1.7-2.0 20Z624271 10-Jul-2020	TP20-2 DUP (SAR- DUP) 1.7-2.0 20Z624271 10-Jul-2020	TP20-3 0.8-1.1 20Z624271 10-Jul-2020	TP20-4 0.9-1.2 20Z624271 10-Jul-2020	TP20-5 2.0-2.2 20Z624271 10-Jul-2020	Sidewall - E (TP20-3) 0.9-1.2 20Z630055 24-Jul-2020
Metals and Inorganics																
Antimony	7.5	0.8	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	18	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	390	2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	4	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Hot Water Soluble)	1.5	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1.2	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	160	2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI	8	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	22	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	140	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	120	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.27	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	6.9	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	2.4	0.4	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	0.2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	1	0.4	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	86	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	340	5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	5 to 9	NV	pH Units	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Electrical Conductivity	0.7	0.005	mS/cm	0.286	0.338	0.298	0.324	0.328	NA	NA	NA	NA	**0.718**	0.065	0.405	**0.767**
Sodium Adsorption Ratio	5	0.1	Unitless	NA	NA	NA	NA	NA	1.26	**0.984**	0.483	**0.262**	NA	NA	NA	NA
Cyanide, Free	0.051	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Total)	120	5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Uranium	23	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polycyclic Aromatic Hydrocarbons (PAH)																
Acenaphthene	7.9	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	0.15	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	0.67	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.5	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.3	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b/j)fluoranthene	0.78	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(ghi)perylene	6.6	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	0.78	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	7	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.1	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	0.69	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	62	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.38	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Methylnaphthalene	0.99	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.6	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	6.2	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	78	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
'NV ' : No Standard established NA: Parameter not analyzed
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 5: Summary of Analytical Results in Soil
Metals, Inorganics and PAH (Remediation and Post-Remediation)
3610 Innes Road, Ottawa, Ontario

Sample ID Depth (m) Lab Job # Sampling Date Remediation Area	MECP TABLE 3 STANDARD	REPORTING LIMIT	UNITS	Sidewall - W (TP20-3) 0.9-1.2 20Z630055 24-Jul-2020	Base - N (TP20-3) 1.5 20Z630055 24-Jul-2020	Base - S (TP20-3) 1.5 20Z630055 24-Jul-2020	Stockpile (TP20-3) 20Z630055 24-Jul-2020	GS20-1 0-0.2 20Z683403 26-Nov-2020	GS20-2 0-0.2 20Z683403 26-Nov-2020	GS20-3 0-0.2 20Z683403 26-Nov-2020	GS20-4 0-0.2 20Z683403 26-Nov-2020	GS20-5 0-0.2 20Z683403 26-Nov-2020	GS-DUP2 Duplicate of GS20-3 0-0.2 20Z683403 26-Nov-2020
Metals and Inorganics													
Antimony	7.5	0.8	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	18	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	390	2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	4	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Hot Water Soluble)	1.5	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	1.2	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	160	2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium VI	8	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	22	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	140	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	120	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.27	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Molybdenum	6.9	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	2.4	0.4	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	0.2	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	1	0.4	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	86	1	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	340	5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	5 to 9	NV	pH Units	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Electrical Conductivity	0.7	0.005	mS/cm	0.489	0.556	0.533	0.562	NA	NA	NA	NA	NA	NA
Sodium Adsorption Ratio	5	0.1	Unitless	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide, Free	0.051	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Boron (Total)	120	5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Uranium	23	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polycyclic Aromatic Hydrocarbons (PAH)													
Acenaphthene	7.9	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	0.15	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	0.67	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	0.11	<0.05	<0.05	<0.05
Benzo(a)anthracene	0.5	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	0.12	<0.05	<0.05	<0.05
Benzo(a)pyrene	0.3	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	0.07	<0.05	<0.05	<0.05
Benzo(b/j)fluoranthene	0.78	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	0.13	<0.05	<0.05	<0.05
Benzo(ghi)perylene	6.6	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	0.78	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	0.06	<0.05	<0.05	<0.05
Chrysene	7	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	0.15	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	0.1	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.69	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	0.31	<0.05	0.08	<0.05
Fluorene	62	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	0.38	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Methylnaphthalene	0.99	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Naphthalene	0.6	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	6.2	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	0.21	<0.05	0.05	<0.05
Pyrene	78	0.05	µg/g	NA	NA	NA	NA	<0.05	<0.05	0.21	<0.05	0.06	<0.05

Notes:
'NV ' : No Standard established NA: Parameter not analyzed
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 6: Summary of Analytical Results in Soil
PHC and VOC (Remediation and Post-Remediation)
3610 Innes Road, Ottawa, Ontario

Sample ID Depth (m) Lab Job # Sampling Date Remediation Area	MECP TABLE 3 STANDARD	REPORTING LIMIT	UNITS	G1 19Z474075 31-May-2019	G2 19Z474075 31-May-2019	G3 19Z474075 31-May-2019	G1 19Z479431 12-Jun-2019	G3 19Z479431 12-Jun-2019	AREA1-TPA-1 19Z479431 12-Jun-2019 1	AREA1-TPB-1 19Z479431 12-Jun-2019 1	AREA1-TPC-1 19Z479431 12-Jun-2019 1	AREA1-TPD-1 19Z479431 12-Jun-2019 1	AREA1-TPE-1 19Z479431 12-Jun-2019 1	AREA1-TPF-1 19Z479431 12-Jun-2019 1	AREA1-TPF-2 19Z479431 12-Jun-2019 1	AREA1-TPE-G1 19Z479431 12-Jun-2019 1	AREA1-TPE-G2 19Z479431 12-Jun-2019 1	AREA1-TPE-G3 19Z479431 12-Jun-2019 1
Petroleum Hydrocarbon Compounds (PHC)																		
F1 (C6-C10)	55	5	µg/g	5	26	7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
F1 (C6-C10) - BTEX	55	5	µg/g	NA	NA	NA	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
F2 (C10-C16)	98	10	µg/g	<10	20	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	50	µg/g	<50	<50	<50	<50	65	180	74	<50	61	**470**	<50	**310**	290	120	62
F4 (C34-C50)	2800	50	µg/g	<50	<50	<50	<50	<50	270	53	<50	<50	120	<50	190	160	<50	<50
F4 Gravimetric	2800		µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds (VOC)																		
Acetone	16	0.5	µg/g	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.21	0.02	µg/g	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	13	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	0.27	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	0.05	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.05	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	2.4	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.05	0.04	µg/g	<0.04	<0.04	<0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	9.4	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	3.4	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	4.8	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	0.083	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	3.5	0.02	µg/g	<0.02	<0.02	<0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.05	0.03	µg/g	<0.03	<0.03	<0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethylene	0.05	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethylene	3.4	0.02	µg/g	<0.02	<0.02	<0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trans-1,2-Dichloroethylene	0.084	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.05	0.03	µg/g	<0.03	<0.03	<0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cis-1,3-Dichloropropylene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trans-1,3-Dichloropropylene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichloropropylene	0.05	0.04	µg/g	<0.04	<0.04	<0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	2	0.05	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide (1,2-Dibromoethane	0.05	0.04	µg/g	<0.04	<0.04	<0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone	16	0.5	µg/g	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.1	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Isobutyl Ketone	1.7	0.5	µg/g	<0.50	<0.50	<0.50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl-t-Butyl Ether	0.75	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.7	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	0.058	0.04	µg/g	<0.04	<0.04	<0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.05	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	2.3	0.05	µg/g	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.28	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	0.38	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	0.05	0.04	µg/g	<0.04	<0.04	<0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethylene	0.061	0.03	µg/g	<0.03	<0.03	<0.03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.02	0.02	µg/g	<0.02	<0.02	<0.02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-Xylene & p-Xylene	NV	0.05	µg/g	<0.05	0.17	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	NV	0.05	µg/g	<0.05	0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	3.1	0.05	µg/g	<0.05	0.22	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	16	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexane(n)	2.8	0.05	µg/g	<0.05	1.2	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	4	0.05	µg/g	<0.05	<0.05	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
'NV ' : No Standard established NA: Parameter not analyzed
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 6: Summary of Analytical Results in Soil
PHC and VOC (Remediation and Post-Remediation)
3610 Innes Road, Ottawa, Ontario

Sample ID Depth (m) Lab Job # Sampling Date Remediation Area	MECP TABLE 3 STANDARD	REPORTING LIMIT	UNITS	AREA1-B1 19T483538 21-Jun-2019 1	AREA1-B2 19T483538 21-Jun-2019 1	AREA1-B3 19T483538 21-Jun-2019 1	AREA1-B4 19T483538 21-Jun-2019 1	AREA1-B5 19T483538 21-Jun-2019 1	DUP1-AREA1-B5 Duplicate of 19T483538 21-Jun-2019 1	AREA1-B6 19T483538 21-Jun-2019 1	AREA1-B7 19T483538 21-Jun-2019 1	AREA1-B8 19T483538 21-Jun-2019 1	AREA1-B9 19T483538 21-Jun-2019 1	AREA1-B10 19T483538 21-Jun-2019 1	AREA1-B11 19T483538 21-Jun-2019 1	AREA1-B12 19T483538 21-Jun-2019 1	AREA1-B13 19T483538 21-Jun-2019 1	AREA1-B14 19T483538 21-Jun-2019 1
Petroleum Hydrocarbon Compounds (PHC)																		
F1 (C6-C10)	55	5	µg/g	6	7	6	6	7	8	7	<5	12	<5	6	<5	<5	<5	31
F1 (C6-C10) - BTEX	55	5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
F2 (C10-C16)	98	10	µg/g	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	50	µg/g	<50	**590**	**320**	84	250	190	<50	110	81	98	54	150	<50	82	210
F4 (C34-C50)	2800	50	µg/g	<50	270	500	120	340	250	<50	57	84	<50	<50	<50	<50	<50	280
F4 Gravimetric	2800		µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds (VOC)																		
Acetone	16	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.21	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	13	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	0.27	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	2.4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	9.4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	3.4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	4.8	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	0.083	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	3.5	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.05	0.03	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethylene	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethylene	3.4	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trans-1,2-Dichloroethylene	0.084	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.05	0.03	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cis-1,3-Dichloropropylene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trans-1,3-Dichloropropylene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichloropropylene	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	2	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylene Dibromide (1,2-Dibromoethane	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone	16	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.1	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Isobutyl Ketone	1.7	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl-t-Butyl Ether	0.75	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.7	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	0.058	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	2.3	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethylene	0.28	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	0.38	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethylene	0.061	0.03	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.02	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-Xylene & p-Xylene	NV	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	NV	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	3.1	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	16	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexane(n)	2.8	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

'NV ' : No Standard established NA: Parameter not analyzed

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

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 6: Summary of Analytical Results in Soil
PHC and VOC
3610 Innes Road, Ottawa, Ontario (Remediation and Post-Remediation)

Sample ID Depth (m) Lab Job # Sampling Date Remediation Area	MECP TABLE 3 STANDARD	REPORTING LIMIT	UNITS	AREA1-B15 19Z487323 2-Jul-2019 1	AREA1-B16 19Z487323 2-Jul-2019 1	AREA1-B16-2 19Z487323 2-Jul-2019 1	AREA1-B17-2 19Z487961 3-Jul-2019 1	AREA1-B22-2 19Z487961 3-Jul-2019 1	AREA1-B17 19Z487961 3-Jul-2019 1	AREA1-B18 19Z487961 3-Jul-2019 1	AREA1-B19 19Z487961 3-Jul-2019 1	AREA1-B20 19Z487961 3-Jul-2019 1	AREA1-B21 19Z487961 3-Jul-2019 1	AREA1-B22 19Z487961 3-Jul-2019 1	AREA2-EW1 19Z479412 12-Jun-2019 2	AREA2-EW2 19Z479412 12-Jun-2019 2	AREA2-EB1 19Z479412 12-Jun-2019 2	AREA2-EB2 19Z479412 12-Jun-2019 2
Petroleum Hydrocarbon Compounds (PHC)																		
F1 (C6-C10)	55	5	µg/g	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
F1 (C6-C10) - BTEX	55	5	µg/g	NA	NA	NA	<5	<5	NA	NA	NA	NA	NA	NA	<5	<5	<5	<5
F2 (C10-C16)	98	10	µg/g	<10	<10	<10	<10	<10	15	<10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	50	µg/g	<50	110	85	<50	<50	**390**	<50	<50	<50	81	63	180	85	120	**630**
F4 (C34-C50)	2800	50	µg/g	<50	81	<50	<50	<50	<50	<50	<50	<50	72	<50	98	<50	110	340
F4 Gravimetric	2800		µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds (VOC)																		
Acetone	16	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.21	0.02	µg/g	NA	NA	NA	<0.02	<0.02	NA	NA	NA	NA	NA	NA	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	13	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	0.27	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	2.4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	9.4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	3.4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	4.8	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	0.083	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	3.5	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.05	0.03	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethylene	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethylene	3.4	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trans-1,2-Dichloroethylene	0.084	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.05	0.03	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cis-1,3-Dichloropropylene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trans-1,3-Dichloropropylene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichloropropylene	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	2	0.05	µg/g	NA	NA	NA	<0.05	<0.05	NA	NA	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide (1,2-Dibromoethane	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone	16	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.1	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Isobutyl Ketone	1.7	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl-t-Butyl Ether	0.75	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.7	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	0.058	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	2.3	0.05	µg/g	NA	NA	NA	<0.05	<0.05	NA	NA	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.28	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	0.38	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethylene	0.061	0.03	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.02	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-Xylene & p-Xylene	NV	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	NV	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	3.1	0.05	µg/g	NA	NA	NA	<0.05	<0.05	NA	NA	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	16	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexane(n)	2.8	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

'NV ' : No Standard established NA: Parameter not analyzed

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

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 6: Summary of Analytical Results in Soil (Remediation and Post-Remediation)
PHC and VOC
3610 Innes Road, Ottawa, Ontario

Sample ID Depth (m) Lab Job # Sampling Date Remediation Area	MECP TABLE 3 STANDARD	REPORTING LIMIT	UNITS	AREA2-EW02 19Z479412 12-Jun-2019 2	AREA2-B3 19T483538 21-Jun-2019 2	AREA2-B4 19T483538 21-Jun-2019 2	AREA3-WW1 19Z479422 12-Jun-2019 3	AREA3-WW2 19Z479422 12-Jun-2019 3	AREA3-WB1 19Z479422 12-Jun-2019 3	AREA3-WB2 19Z479422 12-Jun-2019 3	AREA3-WW1 19Z479422 12-Jun-2019 3	AREA3-WW2 19Z479422 12-Jun-2019 3	AREA3-WB1 19Z479422 12-Jun-2019 3	AREA3-WB2 19Z479422 12-Jun-2019 3	AREA6-E4 19Z481685 18-Jun-2019 6	AREA6-E7 19T483538 21-Jun-2019 6	DUP1-AREA6-E7 Duplicate of 19T483538 21-Jun-2019 6	AREA6-N1 19T483538 21-Jun-2019 6
Petroleum Hydrocarbon Compounds (PHC)																		
F1 (C6-C10)	55	5	µg/g	<5	20	6	<5	<5	<5	<5	<5	<5	<5	<5	<5	9	10	<5
F1 (C6-C10) - BTEX	55	5	µg/g	<5	NA	NA	<5	<5	<5	<5	<5	<5	<5	<5	<5	9	10	<5
F2 (C10-C16)	98	10	µg/g	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	50	µg/g	98	<50	<50	79	97	<50	62	79	97	<50	62	<50	<50	<50	<50
F4 (C34-C50)	2800	50	µg/g	<50	<50	<50	<50	69	<50	<50	<50	69	<50	<50	<50	<50	<50	<50
F4 Gravimetric	2800		µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds (VOC)																		
Acetone	16	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.21	0.02	µg/g	<0.02	NA	NA	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	13	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	0.27	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	2.4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	9.4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	3.4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	4.8	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	0.083	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	3.5	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.05	0.03	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethylene	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethylene	3.4	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trans-1,2-Dichloroethylene	0.084	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.05	0.03	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cis-1,3-Dichloropropylene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trans-1,3-Dichloropropylene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichloropropylene	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	2	0.05	µg/g	<0.05	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide (1,2-Dibromoethane	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone	16	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.1	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Isobutyl Ketone	1.7	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl-t-Butyl Ether	0.75	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.7	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	0.058	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	2.3	0.05	µg/g	<0.05	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.28	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	0.38	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethylene	0.061	0.03	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.02	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-Xylene & p-Xylene	NV	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	NV	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	3.1	0.05	µg/g	<0.05	NA	NA	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	16	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexane(n)	2.8	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

'NV ' : No Standard established NA: Parameter not analyzed

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

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 6: Summary of Analytical Results in Soil
PHC and VOC (Remediation and Post-Remediation)
3610 Innes Road, Ottawa, Ontario

Sample ID Depth (m) Lab Job # Sampling Date Remediation Area	MECP TABLE 3 STANDARD	REPORTING LIMIT	UNITS	AREA6-SW2 19T483538 21-Jun-2019 6	AREA6-W4 19T483538 21-Jun-2019 6	TP20-6 0.8-1.1 20Z624271 10-Jul-2020	TP20-6 DUP (PHC/BTEX-DUP) 0.8-1.1 20Z624271 10-Jul-2020	TP20-7 0.5-0.7 20Z624271 10-Jul-2020	TP20-8 1.7-2.0 20Z624271 10-Jul-2020	MW20-5D-ST2B 2.3-2.8 20Z683403 26-Nov-2020	GS20-6 0-0.2 20Z683403 26-Nov-2020	GS20-7 0-0.2 20Z683403 26-Nov-2020	GS-DUP1 Duplicate of GS20-7 0-0.2 20Z683403 26-Nov-2020
Petroleum Hydrocarbon Compounds (PHC)													
F1 (C6-C10)	55	5	µg/g	9	9	<5	<5	<5	<5	<5	<5	<5	<5
F1 (C6-C10) - BTEX	55	5	µg/g	9	9	<5	<5	<5	<5	<5	<5	<5	<5
F2 (C10-C16)	98	10	µg/g	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	50	µg/g	<50	<50	<50	<50	<50	<50	<50	<50	51	<50
F4 (C34-C50)	2800	50	µg/g	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
F4 Gravimetric	2800		µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds (VOC)													
Acetone	16	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.21	0.02	µg/g	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	13	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	0.27	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	2.4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	9.4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	3.4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	4.8	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	0.083	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	3.5	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.05	0.03	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethylene	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cis-1,2-Dichloroethylene	3.4	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trans-1,2-Dichloroethylene	0.084	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.05	0.03	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cis-1,3-Dichloropropylene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trans-1,3-Dichloropropylene	NV	NV	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichloropropylene	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	2	0.05	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide (1,2-Dibromoethane)	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Ethyl Ketone	16	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.1	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl Isobutyl Ketone	1.7	0.5	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl-t-Butyl Ether	0.75	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.7	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	0.058	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.05	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	2.3	0.05	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.28	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	0.38	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	0.05	0.04	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethylene	0.061	0.03	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.02	0.02	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m-Xylene & p-Xylene	NV	0.05	µg/g	NA	NA	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05
o-Xylene	NV	0.05	µg/g	NA	NA	NA	NA	NA	NA	<0.05	<0.05	<0.05	<0.05
Total Xylenes	3.1	0.05	µg/g	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	16	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexane(n)	2.8	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	4	0.05	µg/g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
'NV ' : No Standard established NA: Parameter not analyzed
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " April 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 7: Summary of Analytical Results in Groundwater
Metals, Inorganics and PAH (2013, 2016)
3610 Innes Road, Ottawa, Ontario

Sample ID Screen Interval (mbgs) Lab Job # Sampling Date	MECP TABLE 3 STANDARD	UNITS	REPORTING LIMIT	BH3-GW1 4.3-5.8 1706064 6-Feb-2017	BH4-GW1 3.7-5.2 1706064 6-Feb-2017	BH6-GW1 3.7-5.2 1706064 6-Feb-2017	REPORTING LIMIT	MW16-3 1.52-4.57 7-Jun-2016	MW16-5 1.52-4.57 7-Jun-2016	MW16-8 1.01-4.11 7-Jun-2016	MW16-108 Duplicate of MW16-8 1.01-4.11 7-Jun-2016
Metals and Inorganics											
Antimony	20000	µg/L	NV	NA	NA	NA	1	<1.0	<1.0	<1.0	<1.0
Arsenic	1900	µg/L	NV	NA	NA	NA	1	<1.0	1.9	<1.0	<1.0
Barium	29000	µg/L	NV	NA	NA	NA	2	89.7	166	224	187
Beryllium	67	µg/L	NV	NA	NA	NA	0.5	<0.5	<0.5	<0.5	<0.5
Boron (Total)	45000	µg/L	NV	NA	NA	NA	10	48.5	41.9	21.5	16.3
Cadmium	2.7	µg/L	NV	NA	NA	NA	0.2	<0.2	<0.2	<0.2	<0.2
Chromium	810	µg/L	NV	NA	NA	NA	2	2.4	4.9	2.6	5
Chromium VI	140	µg/L	NV	NA	NA	NA	5	<5	<5	<5	<5
Cobalt	66	µg/L	NV	NA	NA	NA	0.5	<0.5	3.3	0.9	0.8
Copper	87	µg/L	NV	NA	NA	NA	1	2	<1.0	1.1	<1.0
Lead	25	µg/L	NV	NA	NA	NA	0.5	<0.5	<0.5	<0.5	<0.5
Mercury	0.29	µg/L	NV	NA	NA	NA	0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	9200	µg/L	NV	NA	NA	NA	0.5	0.6	1.2	<0.5	<0.5
Nickel	490	µg/L	NV	NA	NA	NA	1	1.3	<1.0	1.4	<1.0
Selenium	63	µg/L	NV	NA	NA	NA	1	1.6	<1.0	<1.0	<1.0
Silver	1.5	µg/L	NV	NA	NA	NA	0.2	<0.2	<0.2	<0.2	<0.2
Thallium	510	µg/L	NV	NA	NA	NA	0.3	<0.3	<0.3	<0.3	<0.3
Vanadium	250	µg/L	NV	NA	NA	NA	0.4	2.4	1.5	4.8	4.8
Zinc	1100	µg/L	NV	NA	NA	NA	5	<5.0	<5.0	<5.0	<5.0
Cyanide, Free	66	µg/L	NV	NA	NA	NA	2	<2	<2	<2	<2
Sodium	2300000	µg/L	NV	NA	NA	NA	2500	63200	65600	66900	65200
Chloride	2300000	µg/L	NV	NA	NA	NA	1000	133000	286000	341000	358000
Uranium	420	µg/L	NV	NA	NA	NA	0.5	1.3	5	4.4	3.7
Polycyclic Aromatic Hydrocarbons (PAH)											
Acenaphthene	600	µg/L	0.05	<0.05	<0.05	<0.05	0.2	<0.20	<0.20	<0.20	<0.20
Acenaphthylene	1.8	µg/L	0.05	<0.05	<0.05	<0.05	0.2	<0.20	<0.20	<0.20	<0.20
Anthracene	2.4	µg/L	0.01	<0.01	<0.01	<0.01	0.1	<0.10	<0.10	<0.10	<0.10
Benzo(a)anthracene	4.7	µg/L	0.01	<0.01	<0.01	<0.01	0.2	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	0.81	µg/L	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b/j)fluoranthene	0.75	µg/L	0.05	<0.05	<0.05	<0.05	0.1	<0.10	<0.10	<0.10	<0.10
Benzo(ghi)perylene	0.2	µg/L	0.05	<0.05	<0.05	<0.05	0.2	<0.20	<0.20	<0.20	<0.20
Benzo(k)fluoranthene	0.4	µg/L	0.05	<0.05	<0.05	<0.05	0.1	<0.10	<0.10	<0.10	<0.10
Chrysene	1	µg/L	0.05	<0.05	<0.05	<0.05	0.1	<0.10	<0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	0.52	µg/L	0.05	<0.05	<0.05	<0.05	0.2	<0.20	<0.20	<0.20	<0.20
Fluoranthene	130	µg/L	0.01	<0.01	<0.01	<0.01	0.2	<0.20	<0.20	<0.20	<0.20
Fluorene	400	µg/L	0.05	<0.05	<0.05	<0.05	0.2	<0.20	<0.20	<0.20	<0.20
Indeno(1,2,3-cd)pyrene	0.2	µg/L	0.05	<0.05	<0.05	<0.05	0.2	<0.20	<0.20	<0.20	<0.20
1-Methylnaphthalene	NV	µg/L	0.05	<0.05	<0.05	<0.05	NV	NA	NA	NA	NA
2-Methylnaphthalene	NV	µg/L	0.05	<0.05	<0.05	<0.05	NV	NA	NA	NA	NA
1,2-Methylnaphthalene	1800	µg/L	0.10	<0.10	<0.10	<0.10	0.2	<0.20	<0.20	<0.20	<0.20
Naphthalene	1400	µg/L	0.05	<0.05	<0.05	<0.05	0.2	<0.20	<0.20	<0.20	<0.20
Phenanthrene	580	µg/L	0.05	<0.05	<0.05	<0.05	0.1	<0.10	<0.10	<0.10	<0.10
Pyrene	68	µg/L	0.01	<0.01	<0.01	<0.01	0.2	<0.20	<0.20	<0.20	<0.20

Notes:
'NV ' : No Standard established NA: Parameter not analyzed
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards in a Non-Potable Ground Water for All Types of Property Use with coarse textured soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 8: Summary of Analytical Results in Groundwater
PHC and BTEX (2016 to 2020)
3610 Innes Road, Ottawa, Ontario

Sample ID Screen Interval (mbgs) Lab Job # Sampling Date	MECP TABLE 3 STANDARD	UNITS	REPORTING LIMIT	BH2-GW1 3.8-5.4 1706064 6-Feb-2017	BH3-GW1 4.3-5.8 1706064 6-Feb-2017	BH4-GW1 3.7-5.2 1706064 6-Feb-2017	BH5-GW1 3.8-5.3 1706064 6-Feb-2017	BH6-GW1 3.7-5.2 1706064 6-Feb-2017	MW16-3 1.52-4.57 7-Jun-2016	MW16-5 1.52-4.57 7-Jun-2016	MW16-5 1.52-4.57 2-Nov-2016
Petroleum Hydrocarbon Compounds (PHC)											
F1 (C6-C10)	750	µg/L	25	<25	<25	<25	<25	<25	<25	360	**1000**
F1 (C6-C10) - BTEX	750	µg/L	NV	NA	NA	NA	NA	NA	<25	360	**960**
F2 (C10-C16)	150	µg/L	100	<100	<100	<100	<100	<100	<100	**530**	**4000**
F3 (C16-C34)	500	µg/L	100	<100	<100	<100	<100	<100	<100	390	**3300**
F4 (C34-C50)	500	µg/L	100	<100	<100	<100	<100	<100	<100	<100	<100
Reached Baseline at C50	NV	NV	NV	NA	NA	NA	NA	NA	NA	NA	NA
BTEX											
Benzene	44	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	1.1	1.9
Ethylbenzene	2300	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.10	15	31
Toluene	18000	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	0.39	0.32
m-Xylene & p-Xylene	NV	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	NV	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	4200	µg/L	0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	4.2	9.5

Notes:
'NV ' : No Standard established NA: Parameter not analyzed
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards in a Non-Potable Ground Water for All Types of Property Use with coarse textured soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 8: Summary of Analytical Results in Groundwater
PHC and BTEX (2016 to 2020)
3610 Innes Road, Ottawa, Ontario

Sample ID Screen Interval (mbgs) Lab Job # Sampling Date	MECP TABLE 3 STANDARD	UNITS	REPORTING LIMIT	MW16-8 1.01-4.11 7-Jun-2016	MW16-108 Duplicate of MW16-8 1.01-4.11 7-Jun-2016	MW17-5 1.72-4.77 18Z305132 23-Jan-2018	MW17-105 Duplicate of MW17-5 1.72-4.77 18Z305132 23-Jan-2018	MW17-5 1.72-4.77 18Z310954 13-Feb-2018	MW17-105-2 Duplicate of MW17-5 1.72-4.77 18Z310954 13-Feb-2018	MW17-5 1.72-4.77 18Z315552 27-Feb-2018	MW17-105-3 Duplicate of MW17-5 1.72-4.77 18Z315552 27-Feb-2018	MW17-5 1.72-4.77 18Z319613 13-Mar-2018
Petroleum Hydrocarbon Compounds (PHC)												
F1 (C6-C10)	750	µg/L	25	<25	<25	150	160	120	120	120	120	270
F1 (C6-C10) - BTEX	750	µg/L	NV	<25	<25	140	140	110	110	97	100	230
F2 (C10-C16)	150	µg/L	100	<100	<100	130	130	130	130	110	130	**190**
F3 (C16-C34)	500	µg/L	100	<100	<100	110	120	<100	<100	<100	<100	<100
F4 (C34-C50)	500	µg/L	100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Reached Baseline at C50	NV	NV	NV	NA	NA	YES	YES	YES	YES	YES	YES	YES
BTEX												
Benzene	44	µg/L	0.5	<0.20	<0.20	3.7	4.2	2.3	2.4	5	5.6	10
Ethylbenzene	2300	µg/L	0.5	<0.10	<0.10	7.5	9.2	5.6	5.8	14	15	24
Toluene	18000	µg/L	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.23	0.22	0.89
m-Xylene & p-Xylene	NV	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	NV	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	4200	µg/L	0.5	<0.20	<0.20	1.6	2.1	1.8	1.9	3.7	3.6	8.4

Notes:

'NV ' : No Standard established NA: Parameter not analyzed

MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards in a Non-Potable Ground Water for All Types of Property Use with coarse textured soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 8: Summary of Analytical Results in Groundwater
PHC and BTEX (2016 to 2020)
3610 Innes Road, Ottawa, Ontario

Sample ID Screen Interval (mbgs) Lab Job # Sampling Date	MECP TABLE 3 STANDARD	UNITS	REPORTING LIMIT	MW17-105-4 Duplicate of MW17-5 1.72-4.77 18Z319613 13-Mar-2018	MW17-5 1.72-4.77 18Z324250 28-Mar-2018	MW17-105-5 Duplicate of MW17-5 1.72-4.77 18Z324250 28-Mar-2018	MW17-5 1.72-4.77 18Z338813 14-May-2018	MW17-5 1.72-4.77 18Z422689 19-Dec-2018	MW17-5 1.72-4.77 200533 16-May-2019	MW17-105 Duplicate of MW17-5 1.72-4.77 200531 16-May-2019	MW19-5 1.32 - 2.84 498855 5-Sep-2019	MW19-105 Duplicate of MW19-5 1.32 - 2.84 498857 5-Sep-2019
Petroleum Hydrocarbon Compounds (PHC)												
F1 (C6-C10)	750	µg/L	25	270	200	180	150	250	500	470	<25	<25
F1 (C6-C10) - BTEX	750	µg/L	NV	230	150	140	130	200	420	370	<25	<25
F2 (C10-C16)	150	µg/L	100	**200**	120	120	150	**830**	150	**160**	<100	<100
F3 (C16-C34)	500	µg/L	100	<100	<100	<100	<100	**1000**	<100	<100	<100	<100
F4 (C34-C50)	500	µg/L	100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Reached Baseline at C50	NV	NV	NV	YES	YES	YES	YES	YES	YES	YES	YES	YES
BTEX												
Benzene	44	µg/L	0.5	11	14	13	5	17	18	19	<0.20	<0.20
Ethylbenzene	2300	µg/L	0.5	24	24	23	10	21	0.88	1.1	<0.10	<0.10
Toluene	18000	µg/L	0.5	0.89	0.82	0.92	0.43	1.7	45	56	<0.20	<0.20
m-Xylene & p-Xylene	NV	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	NV	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylenes	4200	µg/L	0.5	8.4	8	8	4	13	16	21	<0.20	<0.20

Notes:

'NV ' : No Standard established NA: Parameter not analyzed

MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards in a Non-Potable Ground Water for All Types of Property Use with coarse textured soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 8: Summary of Analytical Results in Groundwater
PHC and BTEX (2016 to 2020)
3610 Innes Road, Ottawa, Ontario

Sample ID Screen Interval (mbgs) Lab Job # Sampling Date	MECP TABLE 3 STANDARD	UNITS	REPORTING LIMIT	MW19-5 1.32 - 2.84 609674 10-Oct-2019	MW19-105 Duplicate of MW19-5 1.32 - 2.84 609676 10-Oct-2019	MW19-5 1.32 - 2.84 862373 14-Jan-2020	MW19-105 Duplicate of MW19-5 1.32 - 2.84 862375 14-Jan-2020	MW20-5D-GW1 20Z684070 27-Nov-2020	MW20-5S-GW1 20Z684070 27-Nov-2020	MW-DUP-GW1 Duplicate of MW20-5S 20Z684070 27-Nov-2020
Petroleum Hydrocarbon Compounds (PHC)										
F1 (C6-C10)	750	µg/L	25	<25	<25	<25	<25	<25	<25	<25
F1 (C6-C10) - BTEX	750	µg/L	NV	<25	<25	<25	<25	<25	<25	<25
F2 (C10-C16)	150	µg/L	100	<100	<100	<100	<100	<100	<100	<100
F3 (C16-C34)	500	µg/L	100	<100	<100	<100	<100	<100	<100	<100
F4 (C34-C50)	500	µg/L	100	<100	<100	<100	<100	<100	<100	<100
Reached Baseline at C50	NV	NV	NV	YES	YES	YES	YES	NA	NA	NA
BTEX										
Benzene	44	µg/L	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	2300	µg/L	0.5	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene	18000	µg/L	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
m-Xylene & p-Xylene	NV	µg/L	NV	NA	NA	NA	NA	<0.20	<0.20	<0.20
o-Xylene	NV	µg/L	NV	NA	NA	NA	NA	<0.10	<0.10	<0.10
Total Xylenes	4200	µg/L	0.5	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Notes:
'NV ' : No Standard established NA: Parameter not analyzed
MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards in a Non-Potable Ground Water for All Types of Property Use with coarse textured soils.

100	Exceeds MECP Table 3 Standards
100	Detection Limit Exceeds Applicable Standard

Table 9: Summary of TCLP Analytical Results in Soil (Remediation 2019)
3610 Innes Road, Ottawa, Ontario

Sample ID Lab Job # Date Sampled	MECP O.Reg. 558 SCH. 4	REPORTING LIMIT	Units	TCLP 19Z469678 22-May-2019	TCLP 19Z474070 31-May-2019
TCLP Metals and Inorganics					
Leachable Fluoride (F-)	150	0.05	mg/L	0.11	0.14
Leachable Free Cyanide	20	0.05	mg/L	<0.05	<0.05
Leachable Nitrite (N)	NV	NV	mg/L	NA	NA
Leachable Nitrate (N)	NV	NV	mg/L	NA	NA
Leachable Nitrate + Nitrite	1000	0.7	mg/L	<0.70	<0.70
Leachable Mercury (Hg)	0.1	0.01	mg/L	<0.01	<0.01
Leachable Arsenic (As)	2.5	0.01	mg/L	<0.01	<0.010
Leachable Barium (Ba)	100	0.1	mg/L	0.77	0.723
Leachable Boron (B)	500	0.05	mg/L	0.101	0.1
Leachable Cadmium (Cd)	0.5	0.01	mg/L	<0.01	<0.010
Leachable Chromium (Cr)	5	0.01	mg/L	<0.01	<0.010
Leachable Lead (Pb)	5	0.01	mg/L	<0.01	0.037
Leachable Selenium (Se)	1	0.01	mg/L	<0.01	<0.010
Leachable Silver (Ag)	5	0.01	mg/L	<0.01	<0.010
Leachable Uranium (U)	10	0.05	mg/L	<0.05	<0.050
Final pH	NV	NV	pH	NA	NA
Initial pH	NV	NV	pH	NA	NA
TCLP SVOCs					
2,3,4,6-Tetrachlorophenol	NV	0.004	mg/L	<0.004	NA
2,4,5-Trichlorophenol	NV	0.004	mg/L	<0.004	NA
2,4,6-Trichlorophenol	NV	0.05	mg/L	<0.05	NA
2,4-Dinitrotoluene	NV	0.004	mg/L	<0.004	NA
Benzo(a)pyrene	0.001	0.001	mg/L	<0.001	<0.001
Cresols	NV	0.012	mg/L	<0.012	NA
Dinoseb	NV	0.004	mg/L	<0.004	NA
Hexachlorobenzene	NV	0.004	mg/L	<0.004	NA
Hexachlorobutadiene	NV	0.004	mg/L	<0.004	NA
Hexachloroethane	NV	0.004	mg/L	<0.004	NA
Meta & Para-Cresol	NV	0.008	mg/L	<0.008	NA
Nitrobenzene	NV	0.004	mg/L	<0.004	NA
Ortho-Cresol	NV	0.004	mg/L	<0.004	NA
Pyridine	NV	0.010	mg/L	<0.010	NA
TCLP PHCs					
C6 - C10 (F1)	NV	1	mg/L	<1	NA
C6 - C10 (F1 minus BTEX)	NV	1	mg/L	<1	NA
C>10 - C16 (F2)	NV	0.1	mg/L	<0.1	NA
C>16 - C34 (F3)	NV	0.5	mg/L	<0.5	NA
C>34 - C50 (F4)	NV	0.5	mg/L	<0.5	NA
TCLP VOCs					
1,1-Dichloroethylene	1.4	0.020	mg/L	NA	<0.020
1,2-Dichlorobenzene	20	0.010	mg/L	NA	<0.010
1,2-Dichloroethane	0.5	0.020	mg/L	NA	<0.020
1,4-Dichlorobenzene	0.5	0.010	mg/L	NA	<0.010
Benzene	0.5	0.02	mg/L	<0.02	<0.020
Carbon tetrachloride	0.5	0.02	mg/L	NA	<0.020
Chlorobenzene	8	0.01	mg/L	NA	<0.010
Chloroform	10	0.02	mg/L	NA	<0.020
Dichloromethane	5	0.03	mg/L	NA	<0.030
Ethylbenzene	NV	0.01	mg/L	<0.01	NA
Methyl Ethyl Ketone	200	0.09	mg/L	NA	<0.090
Toluene	NV	0.02	mg/L	<0.02	NA
Tetrachloroethylene	3	0.05	mg/L	NA	<0.050
Trichloroethylene	5	0.02	mg/L	NA	<0.020
Xylenes, Total	NV	0.014	mg/L	<0.014	NA
Vinyl chloride	0.2	0.03	mg/L	NA	<0.030
TCLP PCBs					
Total polychlorinated biphenyls	0.3	0.005	mg/L	<0.005	<0.005

Notes:
'NV ' : No Standard established NA: Parameter not analyzed
MECP O.Reg. 558 Sch. 4: Ontario Ministry of Environment - Leachate Quality Criteria
100 Exceeds MECP Leachate Quality Criteria

Table 10 - Groundwater Elevations in On-Site Wells
3610 Innes Road, Ottawa

Well ID	Installation Date	Location[1] Easting	Location[1] Northing	Ground Elevation [2]	Stick-up	Top of Well Elevation	Screen Bottom	Screen Top	Screen Length	Water Level 06-Jul-16		Water Level 02-Nov-16		Water Level 24-Jan-18		Water Level 13-Feb-18		Water Level 27-Feb-18		Water Level 13-Mar-18		Water Level 28-Mar-18		Water Level 12-May-18	
		m	m	masl	mag	masl	mbg	mbg	m	mbtop	masl	mbtop	masl	mbtop	masl	mbtop	masl	mbtop	masl	mbtop	masl	mbtop	masl	mbtop	masl
MW2	30-Jan-17	5,032,618	459,420	89.25	0.80	90.05	5.34	3.84	1.5																
MW16-3	02-Jun-16	5,011,286	472,354	88.92	0.78	89.68	4.57	1.52	3.1	2.91	86.77														
MW16-5	02-Jun-16	5,032,607	459,421	87.47	0.83	88.30	4.57	1.52	3.1	3.10	85.20	1.64	86.66												
MW16-8	02-Jun-16	5,032,569	459,449	88.61	0.84	89.45	4.11	1.01	3.1	2.29	87.16														
MW17-5	12-Aug-17	5,032,607	459,421	88.92	0.84	89.76	4.77	1.67	3.1	-	-	-	-	2.04	87.72	2.63	87.13	1.58	88.18	1.60	88.16	1.48	88.28	1.81	87.95
MW19-5	28-Aug-19	5,032,607	459,421	88.92	0.82	89.74	2.84	1.34	1.5	Not installed yet															
MW20-5S	23-Nov-20	5,032,599	459,418	88.85	0.70	89.55	2.57	0.44	2.1	Not installed yet															
MW20-5D	23-Nov-20	5,032,602	459,416	88.92	0.71	89.63	8.84	5.79	3.1	Not installed yet															

Notes:

1 - Coordinates in UTM NAD 83

2 - Ground Surface Elevations are relative to a BM located at the SW corner of the most southern building (#4) on top of formed concrete piers, except for MW19-5. This well was surveyed using a geodetic benchmark (sewer manhole) present at site entrance at Innes Road.

mbg - metres below grade

mag - metres above grade

mbtop - metres below top of pipe

Table 10 - Groundwater Elevations in On-Site Wells
3610 Innes Road, Ottawa

Well ID	Installation Date	Location[1] Easting	Location[1] Northing	Ground Elevation [2]	Stick-up	Top of Well Elevation	Screen Bottom	Screen Top	Screen Length	Water Level 19-Dec-18		Water Level 16-May-19		Water Level 28-Aug-19		Water Level 05-Sep-19		Water Level 09-Oct-19		Water Level 14-Jan-20		Water Level 11-Mar-20		Water Level 26-Nov-20	
		m	m	masl	mag	masl	mbg	mbg	m	mbtop	masl	mbtop	masl	mbtop	masl	mbtop	masl	mbtop	masl	mbtop	masl	mbtop	masl	mbtop	masl
MW2	30-Jan-17	5,032,618	459,420	89.25	0.80	90.05	5.34	3.84	1.5											1.87	88.18	1.41	88.64	1.82	88.23
MW16-3	02-Jun-16	5,011,286	472,354	88.92	0.78	89.68	4.57	1.52	3.1			1.20	88.48	3.54	86.14	2.75	86.93	-		2.50	87.18	1.79	87.89	2.07	87.61
MW16-5	02-Jun-16	5,032,607	459,421	87.47	0.83	88.30	4.57	1.52	3.1	Decommissioned															
MW16-8	02-Jun-16	5,032,569	459,449	88.61	0.84	89.45	4.11	1.01	3.1			1.48	87.97	3.72	85.73	3.32	86.13	3.49	85.96	-	-	4.71	84.744	1.76	87.694
MW17-5	12-Aug-17	5,032,607	459,421	88.92	0.84	89.76	4.77	1.67	3.1	2.33	87.43	1.46	88.30					Decommissioned							
MW19-5	28-Aug-19	5,032,607	459,421	88.92	0.82	89.74	2.84	1.34	1.5					-	-	1.54	88.20	2.48	87.26	1.69	88.05	1.32	88.42	1.99	87.75
MW20-5S	23-Nov-20	5,032,599	459,418	88.85	0.70	89.55	2.57	0.44	2.1															1.78	87.07
MW20-5D	23-Nov-20	5,032,602	459,416	88.92	0.71	89.63	8.84	5.79	3.1															2.31	86.61

Notes:

1 - Coordinates in UTM NAD 83

2 - Ground Surface Elevations are relative to a BM located at the SW corner of the most southern building (#4) on top of formed concrete piers, except for MW19-5. This well was surveyed using a geodetic benchmark (sewer manhole) present at site entrance at Innes Road.

mbg - metres below grade

mag - metres above grade

mbtop - metres below top of pipe

Table 11: Summary of Relative Percent Differences (RPDs) in Soil
3610 Innes Road, Ottawa, ON

Parameter	MECP Alert Criteria	Sample[(1)]	Duplicate	% Difference
		TE-02	Duplicate	
Barium	30%	347	383	9.9%
Chromium	30%	111	122	9.4%
Cobalt	30%	18	20	10.5%
Copper	30%	50	65	26.1%
Lead	30%	NA	NA	-
Nickel	30%	60	65	8.0%
Vanadium	30%	98	109	10.6%
Zinc	30%	113	135	17.7%

Parameter	MECP Alert Criteria	Sample[(1)]	Duplicate	% Difference	Sample[(1)]	Duplicate	% Difference	Sample[(1)]	Duplicate	% Difference
		BH16-4-2B	BH16-4-102B		BH16-5-1B	BH16-5-101B		BH16-13-2A	BH16-13-102A	
Barium	30%	347	250	**32.5%**	129	266	**69.4%**	273	272	0.4%
Chromium	30%	70	57	20.5%	59	125	**71.7%**	112	109	2.7%
Cobalt	30%	20.2	18.2	10.4%	11.2	22.2	**65.9%**	22.2	22.4	0.9%
Copper	30%	35	35	0.0%	16	44	**93.3%**	47	46	2.2%
Lead	30%	7	8	13.3%	8	8	0.0%	7	7	0.0%
Nickel	30%	43	37	15.0%	27	66	**83.9%**	64	63	1.6%
Vanadium	30%	88	80	9.5%	53	94	**55.8%**	94	93	1.1%
Zinc	30%	127	112	12.6%	80	109	**30.7%**	123	120	2.5%

Parameter	MECP Alert Criteria	Sample[(1)]	Duplicate	% Difference
		AREA1-B5	DUP1-AREA1-B5	
Benzo(a)anthracene	30%	0.49	0.41	17.8%
Benzo(b/j)fluoranthene	30%	0.33	0.34	3.0%
Chrysene	30%	0.37	0.29	24.2%
Fluoranthene	30%	0.63	0.54	15.4%
Pyrene	30%	0.64	0.51	22.6%
F4 (C34-C50)	30%	340	250	**30.5%**

Notes:

(1)	All results reported in micrograms per gram (µg/g) unless otherwise noted.
<	Parameter not detected above value specified
% Difference	Relative Percent Difference = |(X-Y)/Average(X,Y)| x 100% where X is the sample and Y is the duplicate
-	RPD could not be calculated as either one or both of the results are less than the detection limit or the results are less than 5 times the detection limit.
50.2%	RPD exceeds MECP Alert Criteria

Table 12: Summary of Relative Percent Differences (RPDs) in Groundwater
3610 Innes Road, Orleans

Parameter	MOECC Alert Criteria	RDL	Sample[1]	Duplicate	% Difference
			MW16-8	MW16-108	
Barium	20%	2	224	187	18.0%
Vanadium	20%	0.4	4.8	4.8	0.0%
Sodium	20%	2500	66900	65200	2.6%
Chloride	20%	1000	341000	358000	4.9%
Uranium	20%	0.5	4.4	3.7	17.3%

Parameter	MOECC Alert Criteria	RDL	Sample[1]	Duplicate	% Difference	Sample[1]	Duplicate	% Difference
			MW17-5 23-Jan-18	MW17-105 23-Jan-18		MW17-5 13-Feb-18	MW17-105-2 13-Feb-18	
F1 (C6-C10)	30%	25	150	160	6.5%	120	120	-
F1 (C6-C10) - BTEX	30%	25	140	140	0.0%	110	110	-
Benzene	30%	0.2	3.7	4.2	12.7%	2.3	2.4	4.3%
Ethylbenzene	30%	0.1	7.5	9.2	20.4%	5.6	5.8	3.5%
Toluene	30%	0.2	<0.20	<0.20	-	<0.20	<0.20	-
Total Xylenes	30%	0.2	1.6	2.1	27.0%	1.8	1.9	5.4%

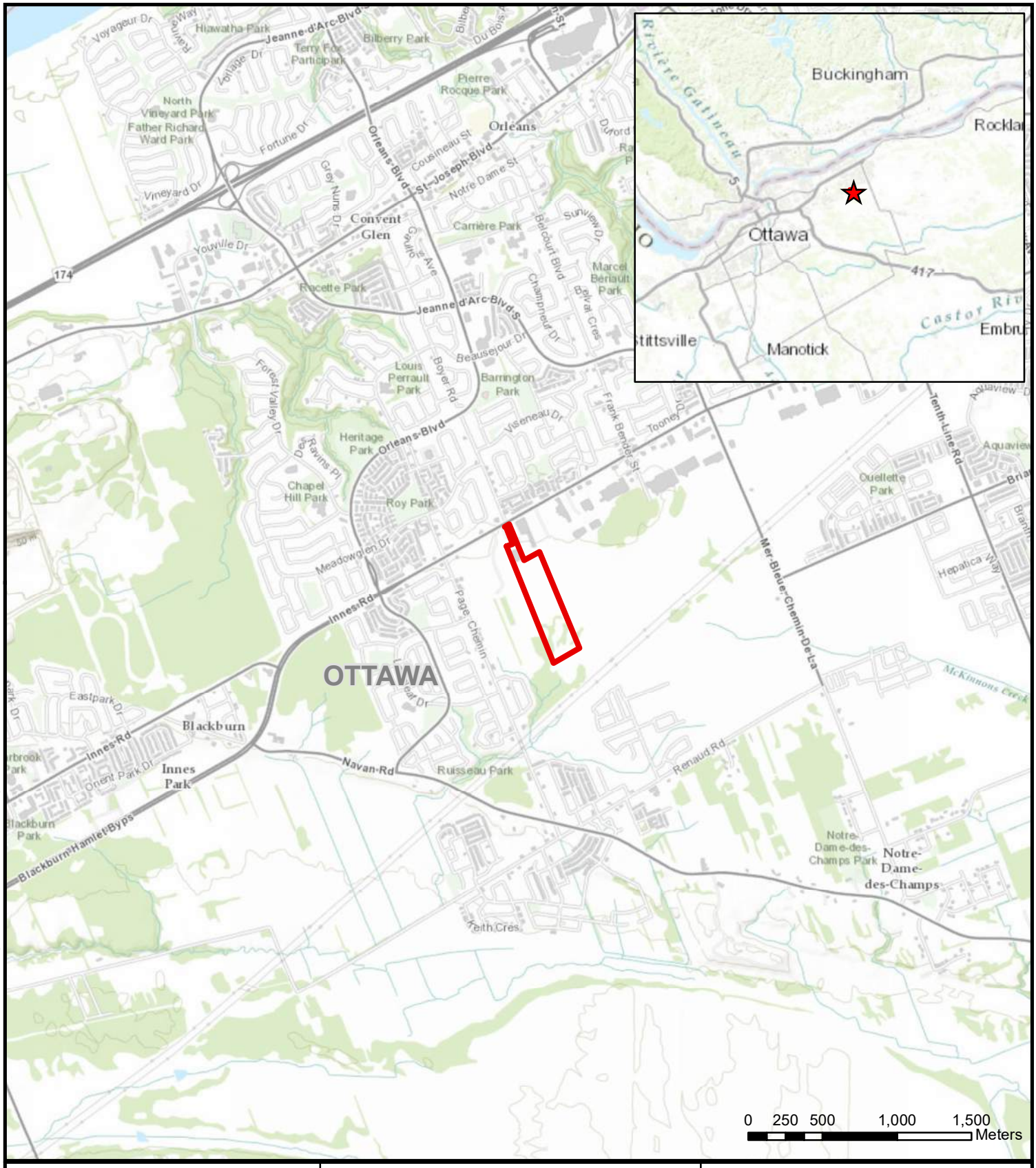
Parameter	MOECC Alert Criteria	RDL	Sample[1]	Duplicate	% Difference	Sample[1]	Duplicate	% Difference
			MW17-5 27-Feb-18	MW17-105-3 27-Feb-18		MW17-5 13-Mar-18	MW17-105-4 13-Mar-18	
F1 (C6-C10)	30%	25	120	120	-	270	270	0.0%
F1 (C6-C10) - BTEX	30%	25	97	100	-	230	230	0.0%
Benzene	30%	0.2	5	5.6	11.3%	10	11	9.5%
Ethylbenzene	30%	0.1	14	15	6.9%	24	24	0.0%
Toluene	30%	0.2	0.23	0.22	-	0.89	0.89	-
Total Xylenes	30%	0.2	3.7	3.6	2.7%	8.4	8.4	0.0%

Parameter	MOECC Alert Criteria	RDL	Sample[1]	Duplicate	% Difference	Sample[1]	Duplicate	% Difference
			MW17-5 28-Mar-18	MW17-105-5 28-Mar-18		MW17-5 16-May-2019	of MW17-5 16-May-2019	
F1 (C6-C10)	30%	25	200	180	10.5%	500	470	6.2%
F1 (C6-C10) - BTEX	30%	25	150	140	6.9%	420	370	12.7%
Benzene	30%	0.2	14	13	7.4%	18	19	5.4%
Ethylbenzene	30%	0.1	24	23	4.3%	0.88	1.1	22.2%
Toluene	30%	0.2	0.82	0.92	-	45	56	21.8%
Total Xylenes	30%	0.2	8	8	0.0%	16	21	27.0%

Notes:

(1)	All results reported in micrograms per gram (µg/L) unless otherwise noted.
<	Parameter not detected above value specified
% Difference	Relative Percent Difference = |(X-Y)/Average(X,Y)| x 100% where X is the sample and Y is the duplicate
-	RPD could not be calculated as either one or both of the results are less than the detection limit or the results are less than 5 times the detection limit.
40.5%	RPD exceeds MOECC Alert Criteria

FIGURES



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PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

SITE LOCATION PLAN

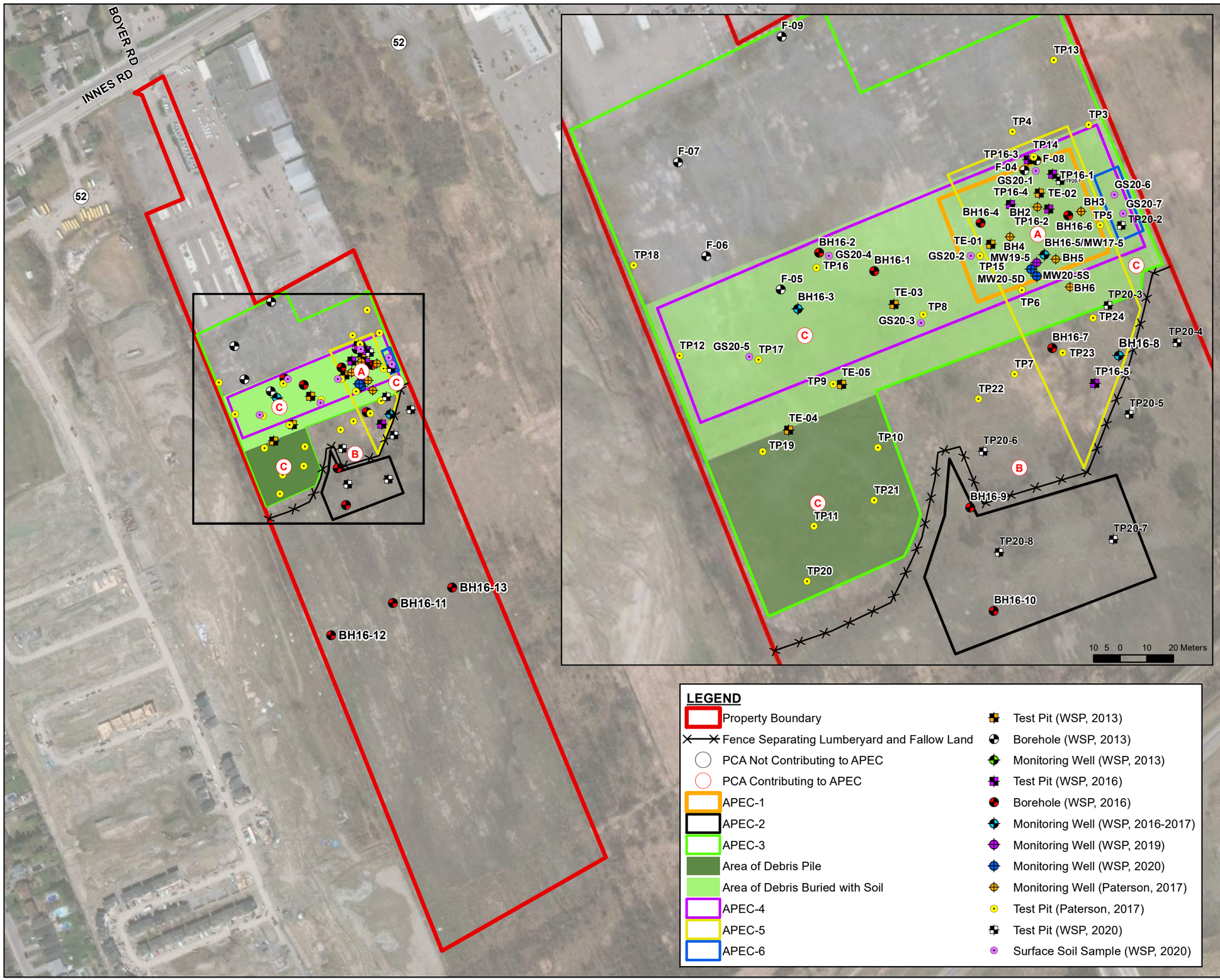
LEGEND

PROPERTY BOUNDARY

Scale	1:35,000
Date	FEBRUARY 2021
Drawn By	NN
Job No.	17M-01348-00

FIGURE 1

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 1 Site Location Plan.mxd



LEGEND

- Property Boundary
- Fence Separating Lumberyard and Fallow Land
- PCA Not Contributing to APEC
- PCA Contributing to APEC
- APEC-1
- APEC-2
- APEC-3
- Area of Debris Pile
- Area of Debris Buried with Soil
- APEC-4
- APEC-5
- APEC-6
- Test Pit (WSP, 2013)
- Borehole (WSP, 2013)
- Monitoring Well (WSP, 2013)
- Test Pit (WSP, 2016)
- Borehole (WSP, 2016)
- Monitoring Well (WSP, 2016-2017)
- Monitoring Well (WSP, 2019)
- Monitoring Well (WSP, 2020)
- Monitoring Well (Paterson, 2017)
- Test Pit (Paterson, 2017)
- Test Pit (WSP, 2020)
- Surface Soil Sample (WSP, 2020)

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PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: JS/NN	
CHECKED BY: NC	
SCALE: 1:4,000	

50 25 0 50 100 150 Meters

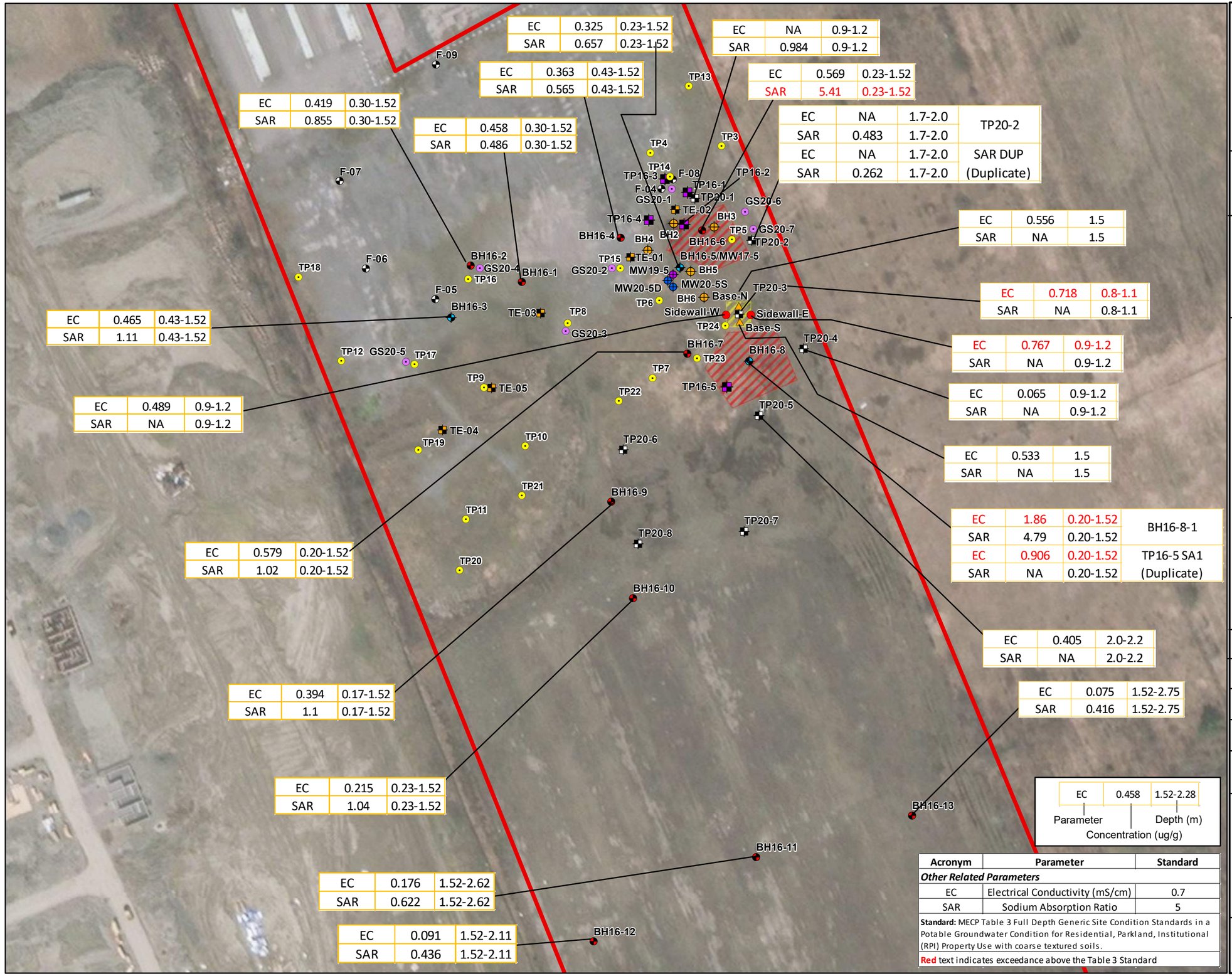
NAD1983 ZONE 18

TITLE

SITE PLAN

FIGURE 2

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 2 Site Plan.mxd



Acronym	Parameter	Standard
Other Related Parameters		
EC	Electrical Conductivity (mS/cm)	0.7
SAR	Sodium Absorption Ratio	5

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

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PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Approximate Area of ORP Impacted Soil
- EC Impacted Area - Excavated in 2020
- Floor Verification Sample (WSP, 2020)
- Wall Verification Sample (WSP, 2020)
- Test Pit (WSP, 2020)
- Test Pit (WSP, 2016)
- Test Pit (WSP, 2013)
- Borehole (WSP, 2013)
- Monitoring Well (WSP, 2013)
- Borehole (WSP, 2016)
- Monitoring Well (WSP, 2016-2017)
- Monitoring Well (WSP, 2019)
- Monitoring Well (WSP, 2020)
- Monitoring Well (Paterson, 2017)
- Test Pit (Paterson, 2017)
- Surface Soil Sample (WSP, 2020)

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: JS/NN	
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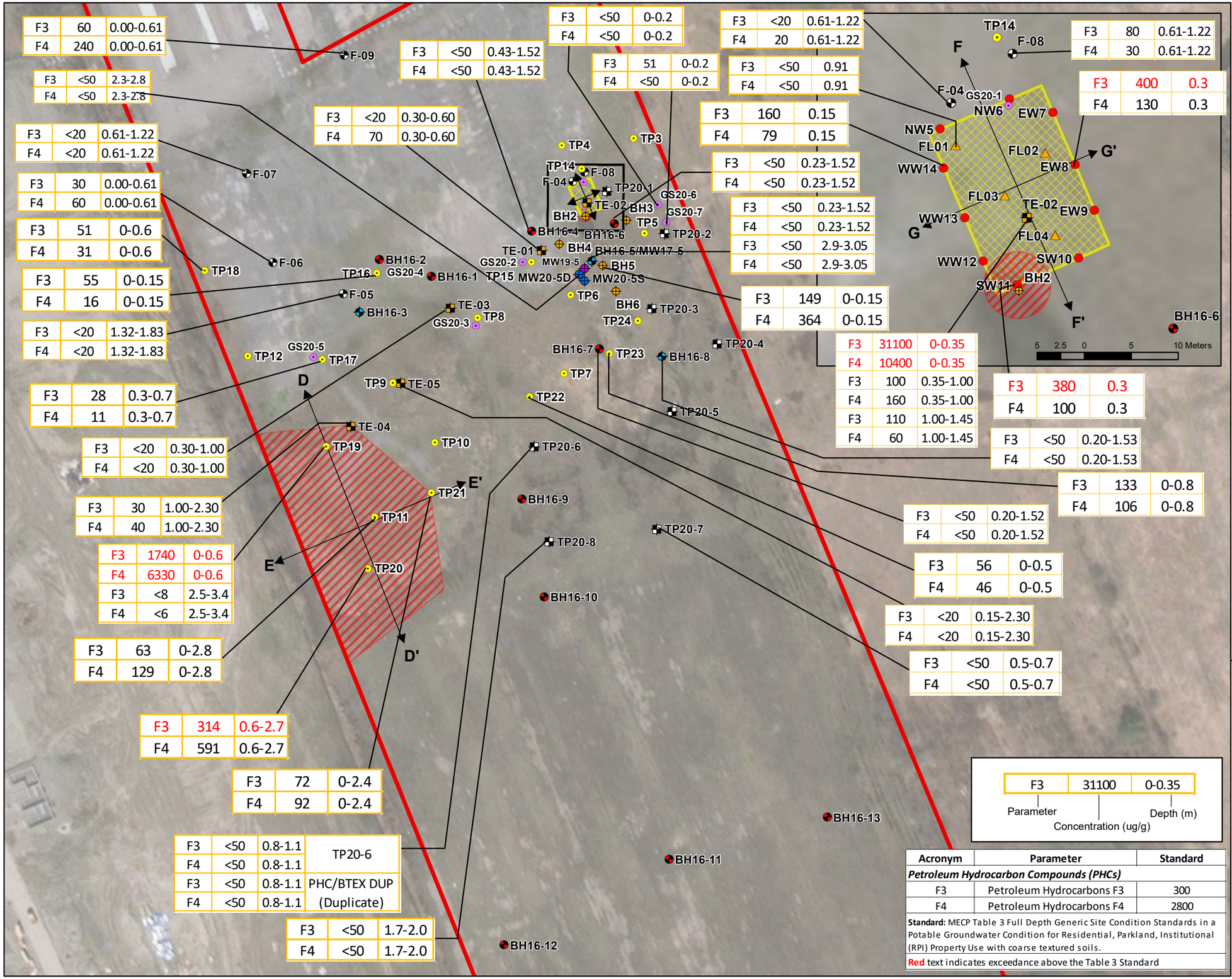
20 10 0 20 40 Meters
NAD1983 ZONE 18

TITLE

CONTAMINANT DISTRIBUTION OF
OTHER REGULATED PARAMETERS IN SOIL

FIGURE 3

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 3 Other Regulated Parameters in Soil.mxd



Acronym	Parameter	Standard
Petroleum Hydrocarbon Compounds (PHCs)		
F3	Petroleum Hydrocarbons F3	300
F4	Petroleum Hydrocarbons F4	2800

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

wsp

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PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Cross Sections
- Area Remediated in 2016
- Approximate Area of PHC Impacted Soil
- Test Pit (WSP, 2020)
- Test Pit (WSP, 2013)
- Borehole (WSP, 2013)
- Monitoring Well (WSP, 2013)
- Borehole (WSP, 2016)
- Monitoring Well (WSP, 2016-2017)
- Monitoring Well (WSP, 2019)
- Monitoring Well (WSP, 2020)
- Monitoring Well (Paterson, 2017)
- Test Pit (Paterson, 2017)
- Floor Verification Samples
- Wall Verification Samples
- Surface Soil Sample (WSP, 2020)

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
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CHECKED BY: NC	
SCALE: 1:1,500	

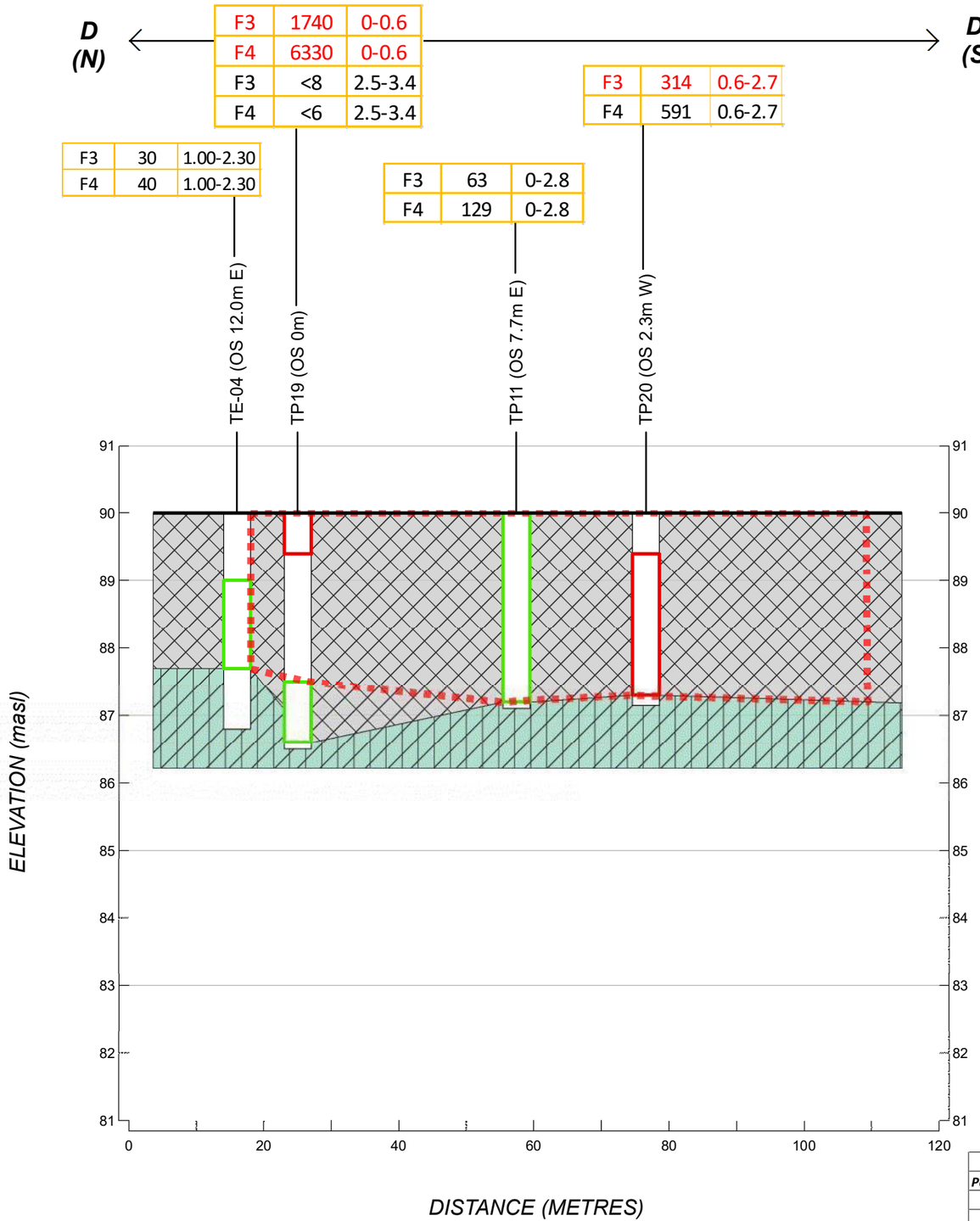
20 10 0 20 40 Meters
NAD1983 ZONE 18

TITLE

CONTAMINANT DISTRIBUTION OF PHCS IN SOIL

FIGURE 4

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 4 PHCs in Soil.mxd



F3 | 31100 | 0-0.35

Parameter | Concentration (ug/g) | Depth (m)

Acronym	Parameter	Standard
Petroleum Hydrocarbon Compounds (PHCs)		
F3	Petroleum Hydrocarbons F3	300
F4	Petroleum Hydrocarbons F4	2800

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

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PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Boreholes
- Topsoil
- Fill (Within APEC)
- Gravel
- Sandy Gravel
- Clayey Silt
- Silty Clay
- Clay
- Bedrock
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS
- Approximate Area of PHC Impacted Soil

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: NN	
CHECKED BY: NC	
SCALE: 1:750 10X HORIZONTAL EXAG.	

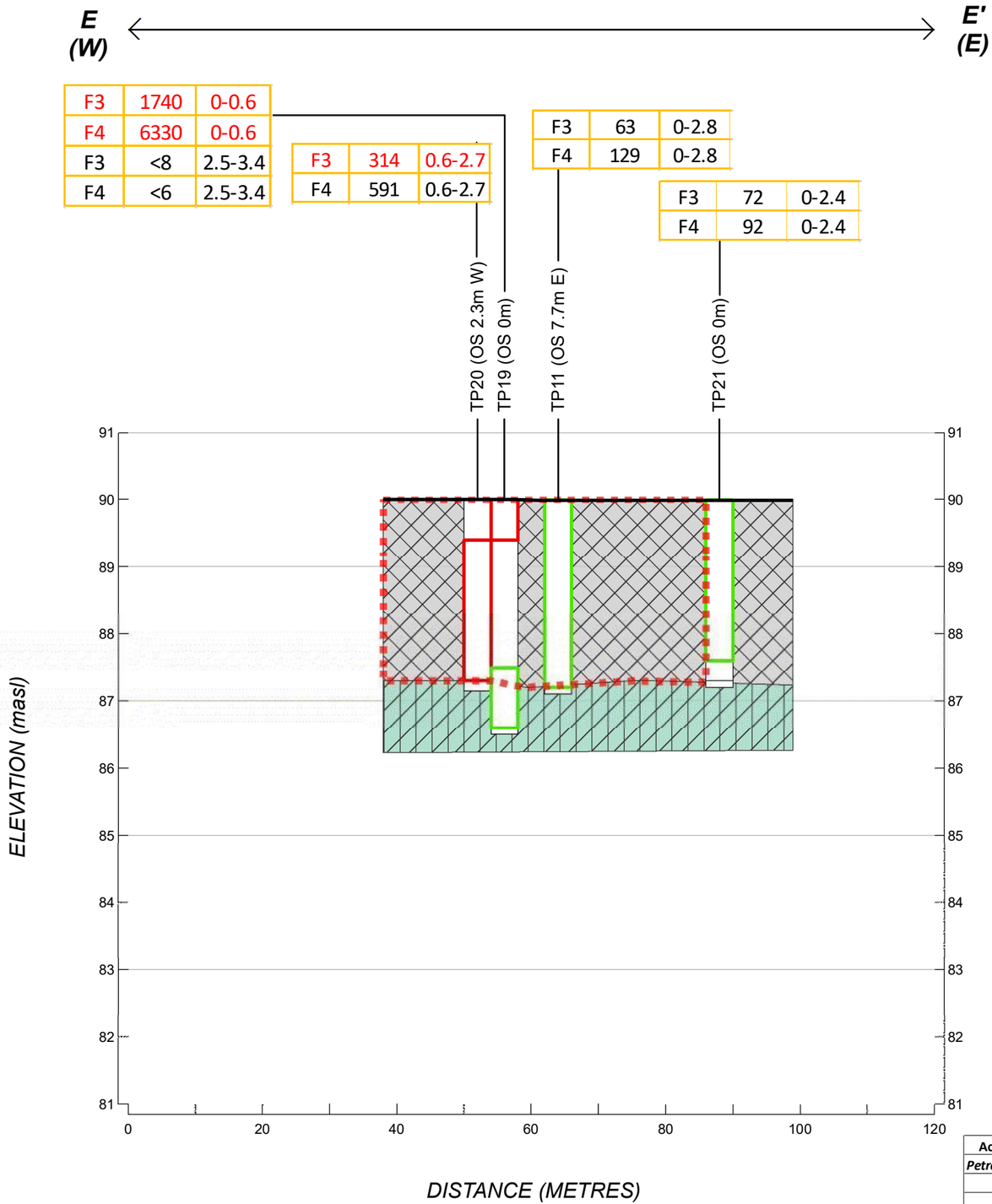
0 5 10 20 30 40 Meters

TITLE

CROSS SECTION D - D'
PHCS IN SOIL

FIGURE 4-1

Path: J:\1442 Projects by Job Number\2016\33164428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 4-1 Cross Section D-D' PHCs in Soil.mxd



F3 | 31100 | 0-0.35

Parameter | Concentration (ug/g) | Depth (m)

Acronym	Parameter	Standard
Petroleum Hydrocarbon Compounds (PHCs)		
F3	Petroleum Hydrocarbons F3	300
F4	Petroleum Hydrocarbons F4	2800

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

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PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Boreholes
- Topsoil
- Fill (Within APEC)
- Gravel
- Sandy Gravel
- Clayey Silt
- Silty Clay
- Clay
- Bedrock
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS
- Approximate Area of PHC Impacted Soil

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
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SCALE: 1:750 10X HORIZONTAL EXAG.	

0 5 10 20 30 40 Meters

TITLE

CROSS SECTION E - E'
PHCS IN SOIL

FIGURE 4-2

Path: J:\1442 Projects by Job Number\2016\33164428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 4-2 Cross Section E-E' PHCs in Soil.mxd

F (N)

E' (S)

F3	160	0.15
F4	79	0.15

F3	31100	0-0.35
F4	10400	0-0.35

Contamination removed during 2016 remediation.

F3	100	0.35-1.00
F4	160	0.35-1.00
F3	110	1.00-1.45
F4	60	1.00-1.45

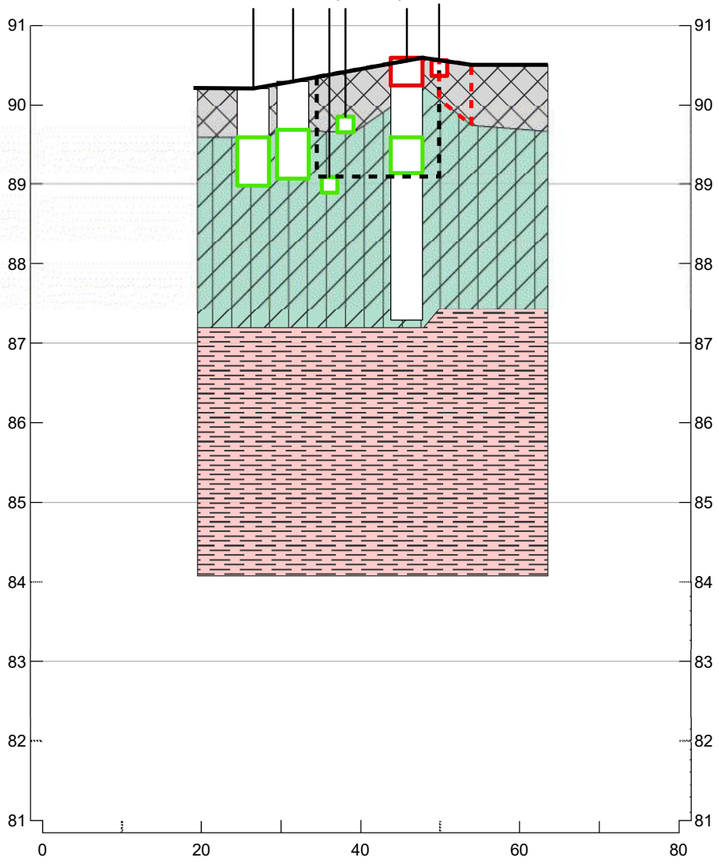
F3	<50	0.91
F4	<50	0.91

F3	<20	0.61-1.22
F4	20	0.61-1.22

F3	80	0.61-1.22
F4	30	0.61-1.22

F3	380	0.3
F4	100	0.3

F-08 (OS 5.1m E)
F-04 (OS 2.8m W)
FL01 (OS 4.2m W)
WW14 (OS 6.4m W)
TE-02 (OS 0m)
SW11 (OS 4.2m W)



ELEVATION (masl)

ELEVATION (masl)

DISTANCE (METRES)

F3 | 31100 | 0-0.35

Parameter | Concentration (ug/g) | Depth (m)

Acronym	Parameter	Standard
Petroleum Hydrocarbon Compounds (PHCs)		
F3	Petroleum Hydrocarbons F3	300
F4	Petroleum Hydrocarbons F4	2800

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

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PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Boreholes
- Topsoil
- Fill (Within APEC)
- Gravel
- Sandy Gravel
- Clayey Silt
- Silty Clay
- Clay
- Bedrock
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS
- Approximate Area of PHC Impacted Soil
- Area Remediated in 2016

PROJECT NUMBER: 17M-01348-00 | DATE: FEBRUARY 2021

DRAWN BY: NN

CHECKED BY: NC

SCALE: 1:750
10X HORIZONTAL EXAG.

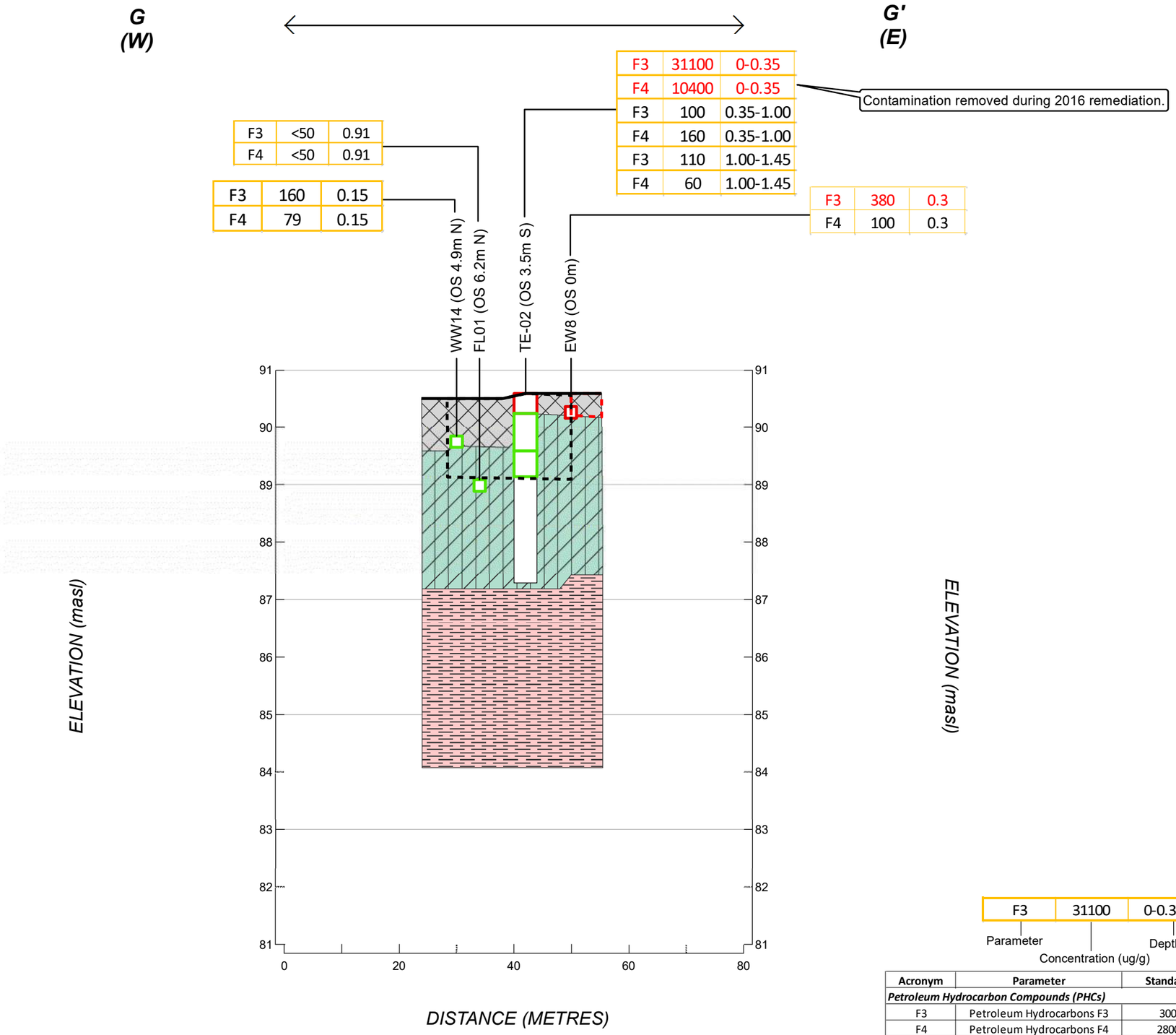
0 5 10 20 30 40 Meters

TITLE

CROSS SECTION F - F'
PHCS IN SOIL

FIGURE 4-3

Path: J:\17442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 4-3 Cross Section F-F' PHCs in Soil.mxd



F3 | 31100 | 0-0.35

Parameter | Concentration (ug/g) | Depth (m)

Acronym	Parameter	Standard
Petroleum Hydrocarbon Compounds (PHCs)		
F3	Petroleum Hydrocarbons F3	300
F4	Petroleum Hydrocarbons F4	2800

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

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PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Boreholes
- Topsoil
- Fill (Within APEC)
- Gravel
- Sandy Gravel
- Clayey Silt
- Silty Clay
- Clay
- Bedrock
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS
- Approximate Area of PHC Impacted Soil
- Area Remediated in 2016

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: NN	
CHECKED BY: NC	
SCALE: 1:750 10X HORIZONTAL EXAG.	

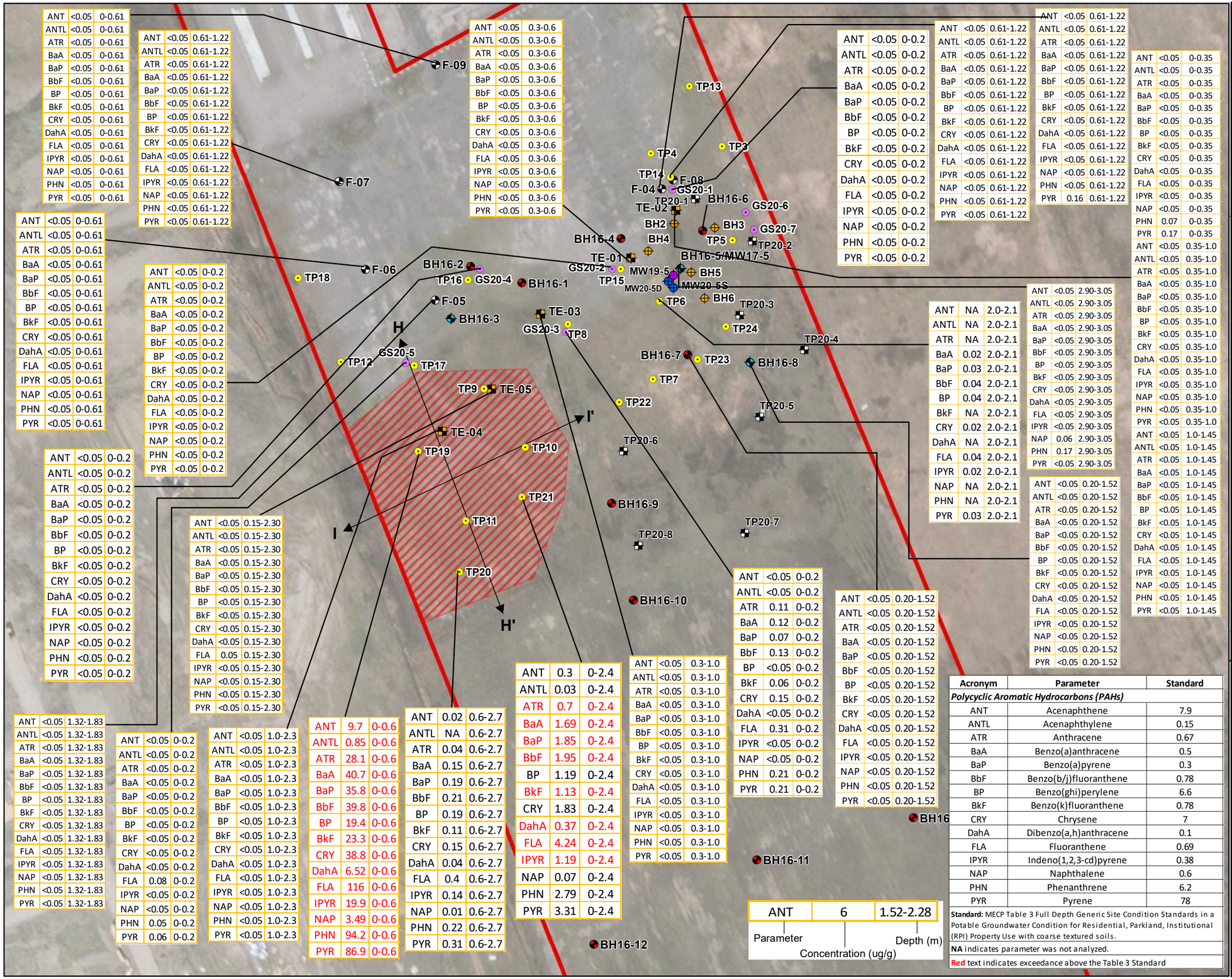
0 5 10 20 30 40 Meters

TITLE

CROSS SECTION G - G'
PHCS IN SOIL

FIGURE 4-4

Path: J:\1442 Projects by Job Number\2016\33164428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 4-4 Cross Section G-G' PHCs in Soil.mxd



ANT	<0.05	0-0.61
ANTL	<0.05	0-0.61
ATR	<0.05	0-0.61
BaA	<0.05	0-0.61
BaP	<0.05	0-0.61
BbF	<0.05	0-0.61
BP	<0.05	0-0.61
BkF	<0.05	0-0.61
CRY	<0.05	0-0.61
DahA	<0.05	0-0.61
FLA	<0.05	0-0.61
IPYR	<0.05	0-0.61
NAP	<0.05	0-0.61
PHN	<0.05	0-0.61
PYR	<0.05	0-0.61

ANT	<0.05	0.61-1.22
ANTL	<0.05	0.61-1.22
ATR	<0.05	0.61-1.22
BaA	<0.05	0.61-1.22
BaP	<0.05	0.61-1.22
BbF	<0.05	0.61-1.22
BP	<0.05	0.61-1.22
BkF	<0.05	0.61-1.22
CRY	<0.05	0.61-1.22
DahA	<0.05	0.61-1.22
FLA	<0.05	0.61-1.22
IPYR	<0.05	0.61-1.22
NAP	<0.05	0.61-1.22
PHN	<0.05	0.61-1.22
PYR	<0.05	0.61-1.22

ANT	<0.05	0.3-0.6
ANTL	<0.05	0.3-0.6
ATR	<0.05	0.3-0.6
BaA	<0.05	0.3-0.6
BaP	<0.05	0.3-0.6
BbF	<0.05	0.3-0.6
BP	<0.05	0.3-0.6
BkF	<0.05	0.3-0.6
CRY	<0.05	0.3-0.6
DahA	<0.05	0.3-0.6
FLA	<0.05	0.3-0.6
IPYR	<0.05	0.3-0.6
NAP	<0.05	0.3-0.6
PHN	<0.05	0.3-0.6
PYR	<0.05	0.3-0.6

ANT	<0.05	0-0.2
ANTL	<0.05	0-0.2
ATR	<0.05	0-0.2
BaA	<0.05	0-0.2
BaP	<0.05	0-0.2
BbF	<0.05	0-0.2
BP	<0.05	0-0.2
BkF	<0.05	0-0.2
CRY	<0.05	0-0.2
DahA	<0.05	0-0.2
FLA	<0.05	0-0.2
IPYR	<0.05	0-0.2
NAP	<0.05	0-0.2
PHN	<0.05	0-0.2
PYR	<0.05	0-0.2

ANT	<0.05	0.61-1.22
ANTL	<0.05	0.61-1.22
ATR	<0.05	0.61-1.22
BaA	<0.05	0.61-1.22
BaP	<0.05	0.61-1.22
BbF	<0.05	0.61-1.22
BP	<0.05	0.61-1.22
BkF	<0.05	0.61-1.22
CRY	<0.05	0.61-1.22
DahA	<0.05	0.61-1.22
FLA	<0.05	0.61-1.22
IPYR	<0.05	0.61-1.22
NAP	<0.05	0.61-1.22
PHN	<0.05	0.61-1.22
PYR	0.16	0.61-1.22

ANT	<0.05	0-0.35
ANTL	<0.05	0-0.35
ATR	<0.05	0-0.35
BaA	<0.05	0-0.35
BaP	<0.05	0-0.35
BbF	<0.05	0-0.35
BP	<0.05	0-0.35
BkF	<0.05	0-0.35
CRY	<0.05	0-0.35
DahA	<0.05	0-0.35
FLA	<0.05	0-0.35
IPYR	<0.05	0-0.35
NAP	<0.05	0-0.35
PHN	0.07	0-0.35
PYR	0.17	0-0.35
ANT	<0.05	0.35-1.0
ANTL	<0.05	0.35-1.0
ATR	<0.05	0.35-1.0
BaA	<0.05	0.35-1.0
BaP	<0.05	0.35-1.0
BbF	<0.05	0.35-1.0
BP	<0.05	0.35-1.0
BkF	<0.05	0.35-1.0
CRY	<0.05	0.35-1.0
DahA	<0.05	0.35-1.0
FLA	<0.05	0.35-1.0
IPYR	<0.05	0.35-1.0
NAP	<0.05	0.35-1.0
PHN	<0.05	0.35-1.0
PYR	<0.05	0.35-1.0
ANT	<0.05	1.0-1.45
ANTL	<0.05	1.0-1.45
ATR	<0.05	1.0-1.45
BaA	<0.05	1.0-1.45
BaP	<0.05	1.0-1.45
BbF	<0.05	1.0-1.45
BP	<0.05	1.0-1.45
BkF	<0.05	1.0-1.45
CRY	<0.05	1.0-1.45
DahA	<0.05	1.0-1.45
FLA	<0.05	1.0-1.45
IPYR	<0.05	1.0-1.45
NAP	<0.05	1.0-1.45
PHN	<0.05	1.0-1.45
PYR	<0.05	1.0-1.45

ANT	<0.05	0-0.2
ANTL	<0.05	0-0.2
ATR	<0.05	0-0.2
BaA	<0.05	0-0.2
BaP	<0.05	0-0.2
BbF	<0.05	0-0.2
BP	<0.05	0-0.2
BkF	<0.05	0-0.2
CRY	<0.05	0-0.2
DahA	<0.05	0-0.2
FLA	<0.05	0-0.2
IPYR	<0.05	0-0.2
NAP	<0.05	0-0.2
PHN	<0.05	0-0.2
PYR	<0.05	0-0.2

ANT	<0.05	0.61-1.22
ANTL	<0.05	0.61-1.22
ATR	<0.05	0.61-1.22
BaA	<0.05	0.61-1.22
BaP	<0.05	0.61-1.22
BbF	<0.05	0.61-1.22
BP	<0.05	0.61-1.22
BkF	<0.05	0.61-1.22
CRY	<0.05	0.61-1.22
DahA	<0.05	0.61-1.22
FLA	<0.05	0.61-1.22
IPYR	<0.05	0.61-1.22
NAP	<0.05	0.61-1.22
PHN	<0.05	0.61-1.22
PYR	<0.05	0.61-1.22

ANT	<0.05	2.90-3.05
ANTL	<0.05	2.90-3.05
ATR	<0.05	2.90-3.05
BaA	<0.05	2.90-3.05
BaP	<0.05	2.90-3.05
BbF	<0.05	2.90-3.05
BP	<0.05	2.90-3.05
BkF	<0.05	2.90-3.05
CRY	<0.05	2.90-3.05
DahA	<0.05	2.90-3.05
FLA	<0.05	2.90-3.05
IPYR	<0.05	2.90-3.05
NAP	0.06	2.90-3.05
PHN	0.17	2.90-3.05
PYR	<0.05	2.90-3.05

ANT	NA	2.0-2.1
ANTL	NA	2.0-2.1
ATR	NA	2.0-2.1
BaA	0.02	2.0-2.1
BaP	0.03	2.0-2.1
BbF	0.04	2.0-2.1
BP	0.04	2.0-2.1
BkF	NA	2.0-2.1
CRY	0.02	2.0-2.1
DahA	NA	2.0-2.1
FLA	0.04	2.0-2.1
IPYR	0.02	2.0-2.1
NAP	NA	2.0-2.1
PHN	NA	2.0-2.1
PYR	0.03	2.0-2.1

ANT	<0.05	0.20-1.52
ANTL	<0.05	0.20-1.52
ATR	<0.05	0.20-1.52
BaA	<0.05	0.20-1.52
BaP	<0.05	0.20-1.52
BbF	<0.05	0.20-1.52
BP	<0.05	0.20-1.52
BkF	<0.05	0.20-1.52
CRY	<0.05	0.20-1.52
DahA	<0.05	0.20-1.52
FLA	<0.05	0.20-1.52
IPYR	<0.05	0.20-1.52
NAP	<0.05	0.20-1.52
PHN	<0.05	0.20-1.52
PYR	<0.05	0.20-1.52

ANT	<0.05	0.15-2.30
ANTL	<0.05	0.15-2.30
ATR	<0.05	0.15-2.30
BaA	<0.05	0.15-2.30
BaP	<0.05	0.15-2.30
BbF	<0.05	0.15-2.30
BP	<0.05	0.15-2.30
BkF	<0.05	0.15-2.30
CRY	<0.05	0.15-2.30
DahA	<0.05	0.15-2.30
FLA	0.05	0.15-2.30
IPYR	<0.05	0.15-2.30
NAP	<0.05	0.15-2.30
PHN	<0.05	0.15-2.30
PYR	<0.05	0.15-2.30

ANT	<0.05	0-0.2
ANTL	<0.05	0-0.2
ATR	0.11	0-0.2
BaA	0.12	0-0.2
BaP	0.07	0-0.2
BbF	0.13	0-0.2
BP	<0.05	0-0.2
BkF	0.06	0-0.2
CRY	0.15	0-0.2
DahA	<0.05	0-0.2
FLA	0.31	0-0.2
IPYR	<0.05	0-0.2
NAP	<0.05	0-0.2
PHN	0.21	0-0.2
PYR	0.21	0-0.2

ANT	<0.05	0.20-1.52
ANTL	<0.05	0.20-1.52
ATR	<0.05	0.20-1.52
BaA	<0.05	0.20-1.52
BaP	<0.05	0.20-1.52
BbF	<0.05	0.20-1.52
BP	<0.05	0.20-1.52
BkF	<0.05	0.20-1.52
CRY	<0.05	0.20-1.52
DahA	<0.05	0.20-1.52
FLA	<0.05	0.20-1.52
IPYR	<0.05	0.20-1.52
NAP	<0.05	0.20-1.52
PHN	<0.05	0.20-1.52
PYR	<0.05	0.20-1.52

ANT	<0.05	1.32-1.83
ANTL	<0.05	1.32-1.83
ATR	<0.05	1.32-1.83
BaA	<0.05	1.32-1.83
BaP	<0.05	1.32-1.83
BbF	<0.05	1.32-1.83
BP	<0.05	1.32-1.83
BkF	<0.05	1.32-1.83
CRY	<0.05	1.32-1.83
DahA	<0.05	1.32-1.83
FLA	<0.05	1.32-1.83
IPYR	<0.05	1.32-1.83
NAP	<0.05	1.32-1.83
PHN	<0.05	1.32-1.83
PYR	<0.05	1.32-1.83

ANT	<0.05	0-0.2
ANTL	<0.05	0-0.2
ATR	<0.05	0-0.2
BaA	<0.05	0-0.2
BaP	<0.05	0-0.2
BbF	<0.05	0-0.2
BP	<0.05	0-0.2
BkF	<0.05	0-0.2
CRY	<0.05	0-0.2
DahA	<0.05	0-0.2
FLA	0.08	0-0.2
IPYR	<0.05	0-0.2
NAP	<0.05	0-0.2
PHN	0.05	0-0.2
PYR	0.06	0-0.2

ANT	<0.05	1.0-2.3
ANTL	<0.05	1.0-2.3
ATR	<0.05	1.0-2.3
BaA	<0.05	1.0-2.3
BaP	<0.05	1.0-2.3
BbF	<0.05	1.0-2.3
BP	<0.05	1.0-2.3
BkF	<0.05	1.0-2.3
CRY	<0.05	1.0-2.3
DahA	<0.05	1.0-2.3
FLA	<0.05	1.0-2.3
IPYR	<0.05	1.0-2.3
NAP	<0.05	1.0-2.3
PHN	<0.05	1.0-2.3
PYR	<0.05	1.0-2.3

ANT	9.7	0-0.6
ANTL	0.85	0-0.6
ATR	28.1	0-0.6
BaA	40.7	0-0.6
BaP	35.8	0-0.6
BbF	39.8	0-0.6
BP	19.4	0-0.6
BkF	23.3	0-0.6
CRY	38.8	0-0.6
DahA	6.52	0-0.6
FLA	116	0-0.6
IPYR	19.9	0-0.6
NAP	3.49	0-0.6
PHN	94.2	0-0.6
PYR	86.9	0-0.6

ANT	0.02	0.6-2.7
ANTL	NA	0.6-2.7
ATR	0.04	0.6-2.7
BaA	0.15	0.6-2.7
BaP	0.19	0.6-2.7
BbF	0.21	0.6-2.7
BP	0.19	0.6-2.7
BkF	0.11	0.6-2.7
CRY	0.15	0.6-2.7
DahA	0.04	0.6-2.7
FLA	0.4	0.6-2.7
IPYR	0.14	0.6-2.7
NAP	0.01	0.6-2.7
PHN	0.22	0.6-2.7
PYR	0.31	0.6-2.7

ANT	0.3	0-2.4
ANTL	0.03	0-2.4
ATR	0.7	0-2.4
BaA	1.69	0-2.4
BaP	1.85	0-2.4
BbF	1.95	0-2.4
BP	1.19	0-2.4
BkF	1.13	0-2.4
CRY	1.83	0-2.4
DahA	0.37	0-2.4
FLA	4.24	0-2.4
IPYR	1.19	0-2.4
NAP	0.07	0-2.4
PHN	2.79	0-2.4
PYR	3.31	0-2.4

ANT	<0.05	0.3-1.0
ANTL	<0.05	0.3-1.0
ATR	<0.05	0.3-1.0
BaA	<0.05	0.3-1.0
BaP	<0.05	0.3-1.0
BbF	<0.05	0.3-1.0
BP	<0.05	0.3-1.0
BkF	<0.05	0.3-1.0
CRY	<0.05	0.3-1.0
DahA	<0.05	0.3-1.0
FLA	<0.05	0.3-1.0
IPYR	<0.05	0.3-1.0
NAP	<0.05	0.3-1.0
PHN	<0.05	0.3-1.0
PYR	<0.05	0.3-1.0

ANT	6	1.52-2.28
Parameter	Concentration (ug/g)	Depth (m)

Acronym	Parameter	Standard
Polycyclic Aromatic Hydrocarbons (PAHs)		
ANT	Acenaphthene	7.9
ANTL	Acenaphthylene	0.15
ATR	Anthracene	0.67
BaA	Benzo(a)anthracene	0.5
BaP	Benzo(a)pyrene	0.3
BbF	Benzo(b/j)fluoranthene	0.78
BP	Benzo(ghi)perylene	6.6
BkF	Benzo(k)fluoranthene	0.78
CRY	Chrysene	7
DahA	Dibenzo(a,h)anthracene	0.1
FLA	Fluoranthene	0.69
IPYR	Indeno(1,2,3-cd)pyrene	0.38
NAP	Naphthalene	0.6
PHN	Phenanthrene	6.2
PYR	Pyrene	78

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

NA indicates parameter was not analyzed.

Red text indicates exceedance above the Table 3 Standard

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PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Approximate Area of PAH Impacted Soil
- Cross Sections
- Test Pit (WSP, 2013)
- Borehole (WSP, 2013)
- Monitoring Well (WSP, 2013)
- Borehole (WSP, 2016)
- Monitoring Well (WSP, 2016-2017)
- Monitoring Well (WSP, 2019)
- Monitoring Well (WSP, 2020)
- Monitoring Well (Paterson, 2017)
- Test Pit (Paterson, 2017)
- Test Pit (WSP, 2020)
- Surface Soil Sample (WSP, 2020)

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: JS/NN	
CHECKED BY: NC	
SCALE: 1:1,516	

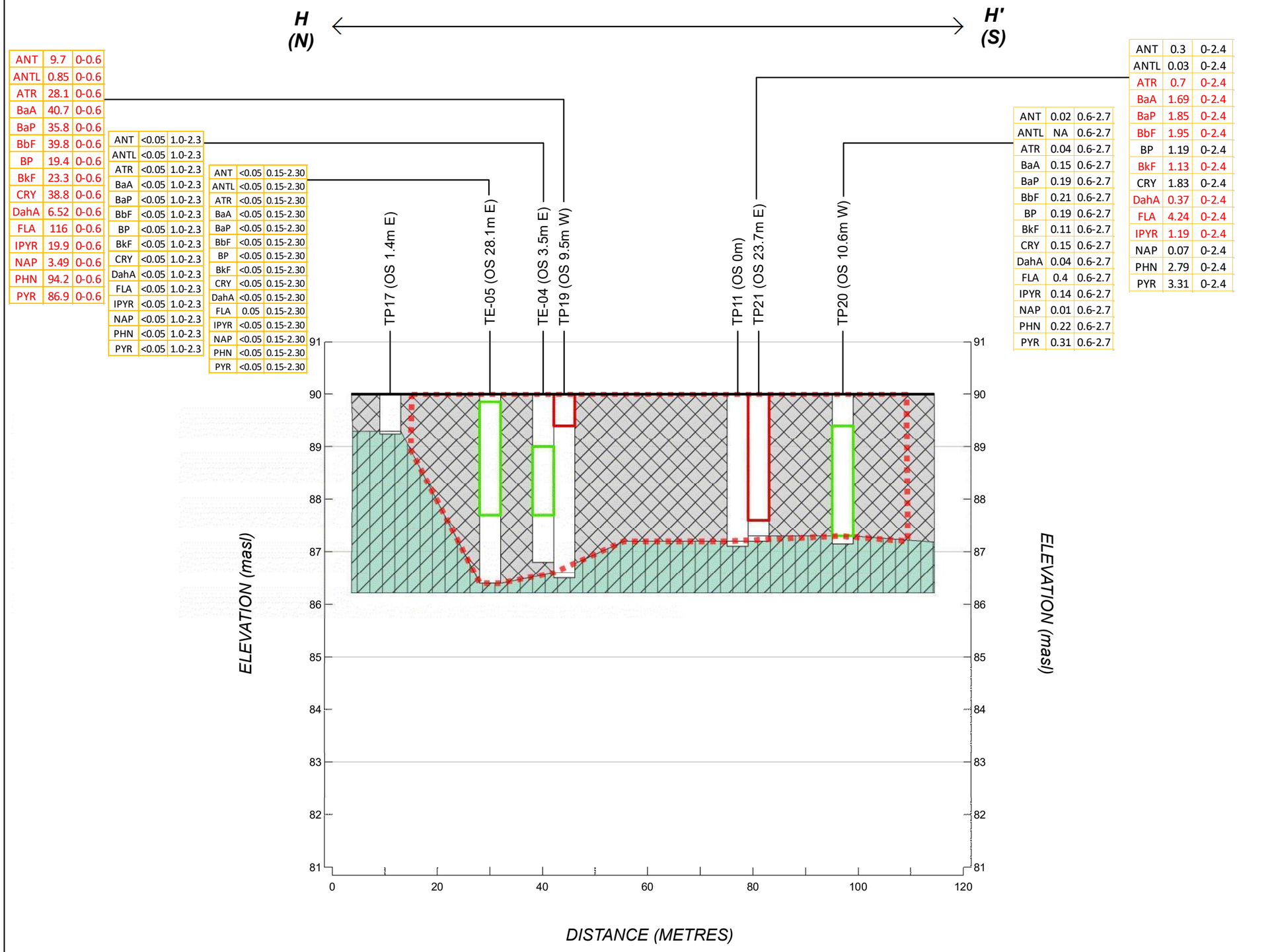
20 10 0 20 40 Meters
NAD1983 ZONE 18

TITLE

CONTAMINANT DISTRIBUTION OF PAHS IN SOIL

FIGURE 5

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 5 PAHs in Soil.mxd



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PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Boreholes
- Topsoil
- Fill (Within APEC)
- Gravel
- Sandy Gravel
- Clayey Silt
- Silty Clay
- Clay
- Bedrock
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS
- Approximate Area of PAH Impacted Soil

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: NN	
CHECKED BY: NC	
SCALE: 1:750 10X HORIZONTAL EXAG.	

0 5 10 20 30 40 Meters

TITLE

CROSS SECTION H - H'
PAHS IN SOIL

FIGURE 5-1

Path: J:\1442 Projects by Job Number\2016\33116428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 5-1 Cross Section H-H' PAHs in Soil.mxd

I (W) ⟷ I' (E)

ANT	9.7	0-0.6
ANTL	0.85	0-0.6
ATR	28.1	0-0.6
BaA	40.7	0-0.6
BaP	35.8	0-0.6
BbF	39.8	0-0.6
BP	19.4	0-0.6
BkF	23.3	0-0.6
CRY	38.8	0-0.6
DahA	6.52	0-0.6
FLA	116	0-0.6
IPYR	19.9	0-0.6
NAP	3.49	0-0.6
PHN	94.2	0-0.6
PYR	86.9	0-0.6

ANT	0.02	0.6-2.7
ANTL	NA	0.6-2.7
ATR	0.04	0.6-2.7
BaA	0.15	0.6-2.7
BaP	0.19	0.6-2.7
BbF	0.21	0.6-2.7
BP	0.19	0.6-2.7
BkF	0.11	0.6-2.7
CRY	0.15	0.6-2.7
DahA	0.04	0.6-2.7
FLA	0.4	0.6-2.7
IPYR	0.14	0.6-2.7
NAP	0.01	0.6-2.7
PHN	0.22	0.6-2.7
PYR	0.31	0.6-2.7

ANT	<0.05	0.15-2.30
ANTL	<0.05	0.15-2.30
ATR	<0.05	0.15-2.30
BaA	<0.05	0.15-2.30
BaP	<0.05	0.15-2.30
BbF	<0.05	0.15-2.30
BP	<0.05	0.15-2.30
BkF	<0.05	0.15-2.30
CRY	<0.05	0.15-2.30
DahA	<0.05	0.15-2.30
FLA	0.05	0.15-2.30
IPYR	<0.05	0.15-2.30
NAP	<0.05	0.15-2.30
PHN	<0.05	0.15-2.30
PYR	<0.05	0.15-2.30

ANT	0.3	0-2.4
ANTL	0.03	0-2.4
ATR	0.7	0-2.4
BaA	1.69	0-2.4
BaP	1.85	0-2.4
BbF	1.95	0-2.4
BP	1.19	0-2.4
BkF	1.13	0-2.4
CRY	1.83	0-2.4
DahA	0.37	0-2.4
FLA	4.24	0-2.4
IPYR	1.19	0-2.4
NAP	0.07	0-2.4
PHN	2.79	0-2.4
PYR	3.31	0-2.4

ANT	<0.05	1.0-2.3
ANTL	<0.05	1.0-2.3
ATR	<0.05	1.0-2.3
BaA	<0.05	1.0-2.3
BaP	<0.05	1.0-2.3
BbF	<0.05	1.0-2.3
BP	<0.05	1.0-2.3
BkF	<0.05	1.0-2.3
CRY	<0.05	1.0-2.3
DahA	<0.05	1.0-2.3
FLA	<0.05	1.0-2.3
IPYR	<0.05	1.0-2.3
NAP	<0.05	1.0-2.3
PHN	<0.05	1.0-2.3
PYR	<0.05	1.0-2.3



wsp

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PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Boreholes
- Topsoil
- Fill (Within APEC)
- Gravel
- Sandy Gravel
- Clayey Silt
- Silty Clay
- Clay
- Bedrock
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS
- Approximate Area of PAH Impacted Soil

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: NN	
CHECKED BY: NC	
SCALE: 1:750 10X HORIZONTAL EXAG.	

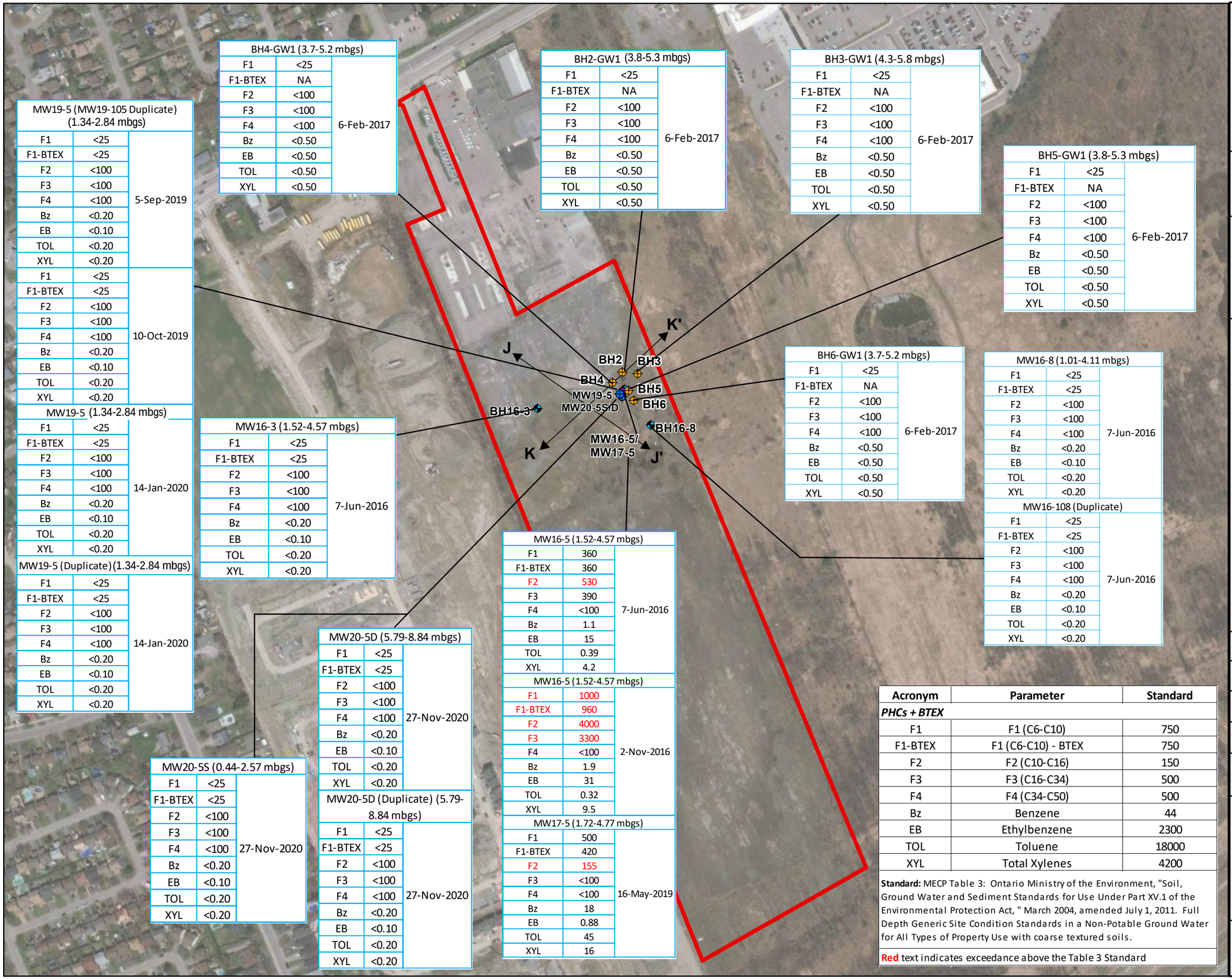
0 5 10 20 30 40 Meters

TITLE

CROSS SECTION I - I'
PAHS IN SOIL

FIGURE 5-2

Path: J:\1442 Projects by Job Number\2016\33164428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 5-2 Cross Section I-I' PAHs in Soil.mxd



MW19-5 (MW19-105 Duplicate) (1.34-2.84 mbgs)		
F1	<25	5-Sep-2019
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	
F1	<25	10-Oct-2019
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	
MW19-5 (1.34-2.84 mbgs)		
F1	<25	14-Jan-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	
MW19-5 (Duplicate) (1.34-2.84 mbgs)		
F1	<25	14-Jan-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

BH4-GW1 (3.7-5.2 mbgs)		
F1	<25	6-Feb-2017
F1-BTEX	NA	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.50	
EB	<0.50	
TOL	<0.50	
XYL	<0.50	

BH2-GW1 (3.8-5.3 mbgs)		
F1	<25	6-Feb-2017
F1-BTEX	NA	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.50	
EB	<0.50	
TOL	<0.50	
XYL	<0.50	

BH3-GW1 (4.3-5.8 mbgs)		
F1	<25	6-Feb-2017
F1-BTEX	NA	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.50	
EB	<0.50	
TOL	<0.50	
XYL	<0.50	

BH5-GW1 (3.8-5.3 mbgs)		
F1	<25	6-Feb-2017
F1-BTEX	NA	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.50	
EB	<0.50	
TOL	<0.50	
XYL	<0.50	

BH6-GW1 (3.7-5.2 mbgs)		
F1	<25	6-Feb-2017
F1-BTEX	NA	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.50	
EB	<0.50	
TOL	<0.50	
XYL	<0.50	

MW16-8 (1.01-4.11 mbgs)		
F1	<25	7-Jun-2016
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	
MW16-108 (Duplicate)		
F1	<25	7-Jun-2016
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

MW16-3 (1.52-4.57 mbgs)		
F1	<25	7-Jun-2016
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

MW16-5 (1.52-4.57 mbgs)		
F1	360	7-Jun-2016
F1-BTEX	360	
F2	530	
F3	390	
F4	<100	
Bz	1.1	
EB	15	
TOL	0.39	
XYL	4.2	
MW16-5 (1.52-4.57 mbgs)		
F1	1000	2-Nov-2016
F1-BTEX	960	
F2	4000	
F3	3300	
F4	<100	
Bz	1.9	
EB	31	
TOL	0.32	
XYL	9.5	
MW17-5 (1.72-4.77 mbgs)		
F1	500	16-May-2019
F1-BTEX	420	
F2	155	
F3	<100	
F4	<100	
Bz	18	
EB	0.88	
TOL	45	
XYL	16	

MW20-5D (5.79-8.84 mbgs)		
F1	<25	27-Nov-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	
MW20-5D (Duplicate) (5.79-8.84 mbgs)		
F1	<25	27-Nov-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

MW20-5S (0.44-2.57 mbgs)		
F1	<25	27-Nov-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

Acronym	Parameter	Standard
PHCs + BTEX		
F1	F1 (C6-C10)	750
F1-BTEX	F1 (C6-C10) - BTEX	750
F2	F2 (C10-C16)	150
F3	F3 (C16-C34)	500
F4	F4 (C34-C50)	500
Bz	Benzene	44
EB	Ethylbenzene	2300
TOL	Toluene	18000
XYL	Total Xylenes	4200

Standard: MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards in a Non-Potable Ground Water for All Types of Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

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CANADA, L3T 0A1
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CLIENT:

GLENVIEW HOMES (INNES) LTD.

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Cross Sections
- Monitoring Well (Paterson, 2017)
- Monitoring Well (WSP, 2013)
- Monitoring Well (WSP, 2016-2017)
- Monitoring Well (WSP, 2019)
- Monitoring Well (WSP, 2020)

ID (Screened Interval mbgs)		
Parameter	Concentration	Date

PROJECT NUMBER: 17M-01348-00 | DATE: FEBRUARY 2021

DRAWN BY: JS/NN

CHECKED BY: NC

SCALE: 1:4,000

50 25 0 50 100 150 Meters

NAD1983 ZONE 18

TITLE

CONTAMINANT DISTRIBUTION OF PHCS IN GROUNDWATER

FIGURE 6

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 6 PHCs in GW.mxd

MW16-5 (1.52-4.57 mbgs)		
F1	360	7-Jun-2016
F1-BTEX	360	
F2	530	
F3	390	
F4	<100	
Bz	1.1	
EB	15	
TOL	0.39	
XYL	4.2	
MW16-5 (1.52-4.57 mbgs)		
F1	1000	2-Nov-2016
F1-BTEX	960	
F2	4000	
F3	3300	
F4	<100	
Bz	1.9	
EB	31	
TOL	0.32	
XYL	9.5	
MW17-5 (1.72-4.77 mbgs)		
F1	500	16-May-2019
F1-BTEX	420	
F2	155	
F3	<100	
F4	<100	
Bz	18	
EB	0.88	
TOL	45	
XYL	16	

MW19-5 (MW19-105 Duplicate) (1.32-2.84 mbgs)		
F1	<25	5-Sep-2019
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	
F1	<25	10-Oct-2019
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	
MW19-5 (1.32-2.84 mbgs)		
F1	<25	14-Jan-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	
MW19-5 (Duplicate) (1.32-2.84 mbgs)		
F1	<25	14-Jan-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

MW16-3 (1.52-4.57 mbgs)		
F1	<25	7-Jun-2016
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

MW20-5D (5.79-8.84 mbgs)		
F1	<25	27-Nov-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

MW20-5D (Duplicate) (5.79-8.84 mbgs)		
F1	<25	27-Nov-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

MW20-5S (0.44-2.57 mbgs)		
F1	<25	27-Nov-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

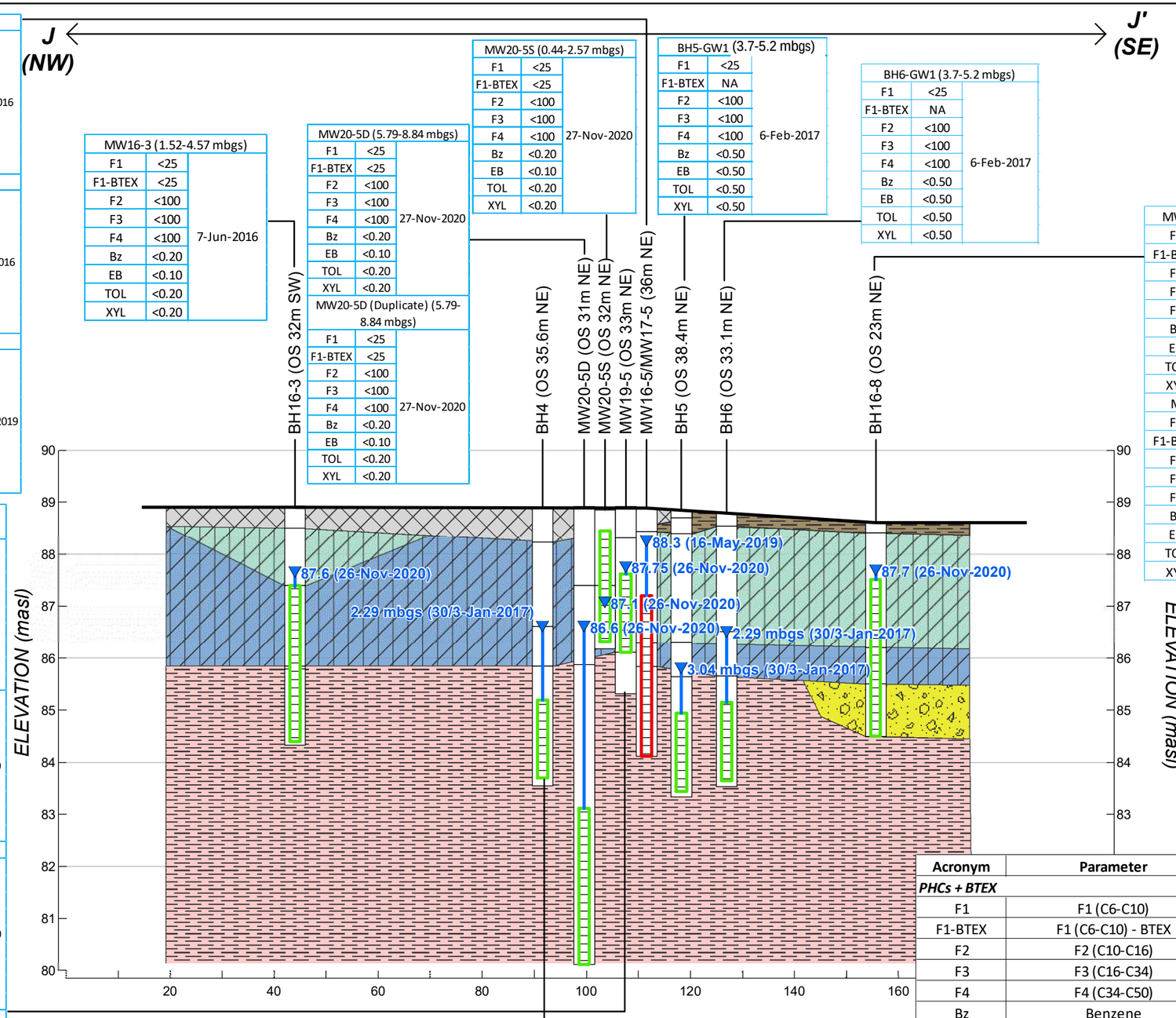
BH5-GW1 (3.7-5.2 mbgs)		
F1	<25	6-Feb-2017
F1-BTEX	NA	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.50	
EB	<0.50	
TOL	<0.50	
XYL	<0.50	

BH6-GW1 (3.7-5.2 mbgs)		
F1	<25	6-Feb-2017
F1-BTEX	NA	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.50	
EB	<0.50	
TOL	<0.50	
XYL	<0.50	

MW16-8 (1.01-4.11 mbgs)		
F1	<25	7-Jun-2016
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

MW16-108 (Duplicate)		
F1	<25	7-Jun-2016
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

BH4-GW1 (3.7-5.2 mbgs)		
F1	<25	6-Feb-2017
F1-BTEX	NA	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.50	
EB	<0.50	
TOL	<0.50	
XYL	<0.50	



ID (Screened Interval mbgs)		
Parameter	Concentration	Date

Acronym	Parameter	Standard
PHCs + BTEX		
F1	F1 (C6-C10)	750
F1-BTEX	F1 (C6-C10) - BTEX	750
F2	F2 (C10-C16)	150
F3	F3 (C16-C34)	500
F4	F4 (C34-C50)	500
Bz	Benzene	44
EB	Ethylbenzene	2300
TOL	Toluene	18000
XYL	Total Xylenes	4200

Standard: MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards in a Non-Potable Ground Water for All Types of Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

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CLIENT:

GLENVIEW HOMES (INNES) LTD.

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Monitoring Well Screens
- Groundwater Elevation (masl)
- Boreholes
- Topsoil
- Fill
- Gravel
- Sandy Gravel
- Clayey Silt
- Silty Clay
- Clay
- Bedrock
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
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CHECKED BY: NC	
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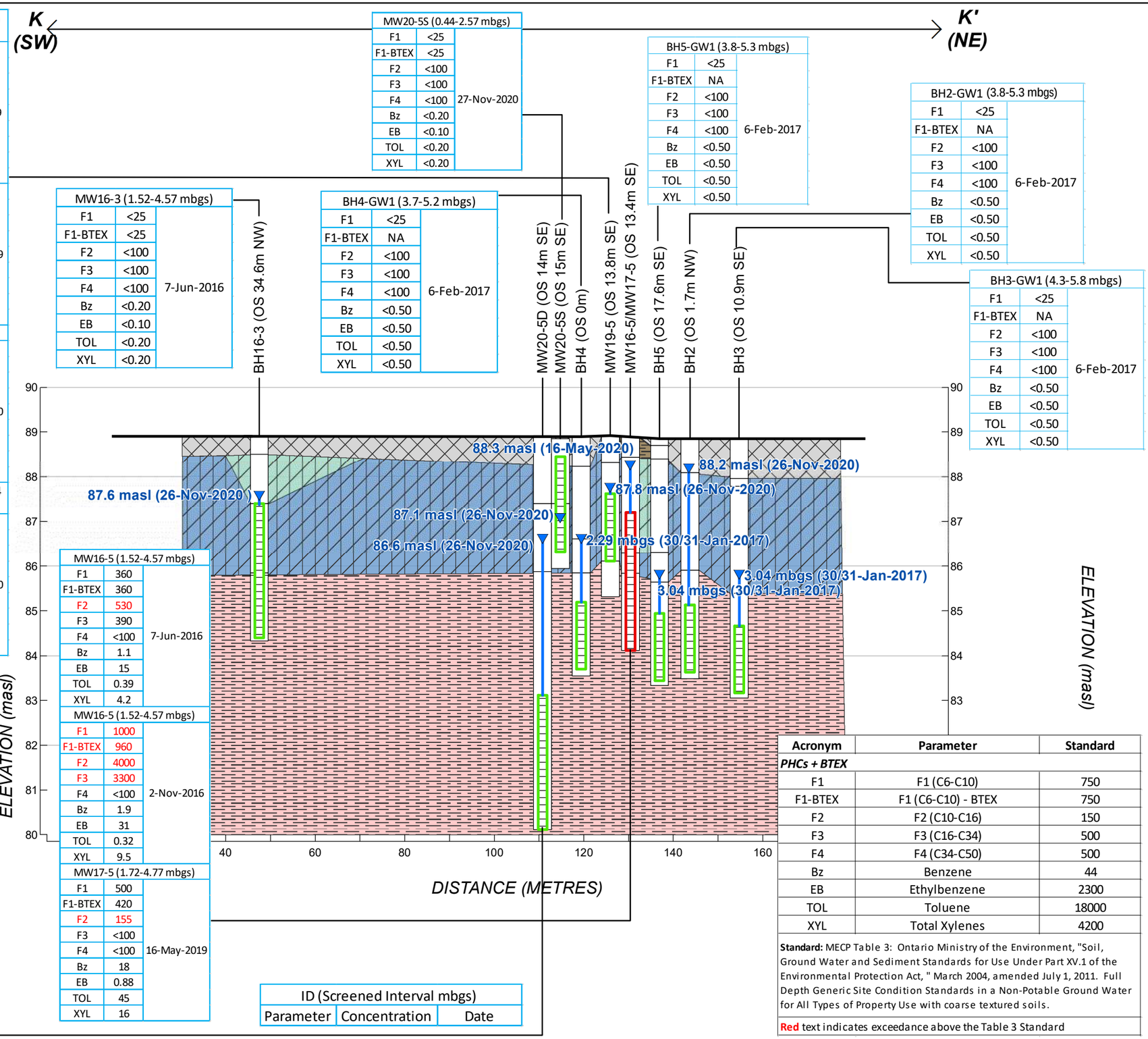
0 5 10 20 30 40 Meters

TITLE

CONTAMINANT DISTRIBUTION OF PHCS IN GROUNDWATER CROSS SECTION J - J'

FIGURE 6-1

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 6-1 Cross Section J-J' PHCs in GW.mxd



MW19-5 (MW19-105 Duplicate) (1.34-2.84 mbgs)		
F1	<25	5-Sep-2019
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	
F1	<25	10-Oct-2019
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	
MW19-5 (1.34-2.84 mbgs)		
F1	<25	14-Jan-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	
MW19-5 (Duplicate) (1.34-2.84 mbgs)		
F1	<25	14-Jan-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

MW20-5D (5.79-8.84 mbgs)		
F1	<25	27-Nov-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	
MW20-5D (Duplicate) (5.79-8.84 mbgs)		
F1	<25	27-Nov-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

MW16-3 (1.52-4.57 mbgs)		
F1	<25	7-Jun-2016
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

MW20-5S (0.44-2.57 mbgs)		
F1	<25	27-Nov-2020
F1-BTEX	<25	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.20	
EB	<0.10	
TOL	<0.20	
XYL	<0.20	

BH4-GW1 (3.7-5.2 mbgs)		
F1	<25	6-Feb-2017
F1-BTEX	NA	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.50	
EB	<0.50	
TOL	<0.50	
XYL	<0.50	

BH5-GW1 (3.8-5.3 mbgs)		
F1	<25	6-Feb-2017
F1-BTEX	NA	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.50	
EB	<0.50	
TOL	<0.50	
XYL	<0.50	

BH2-GW1 (3.8-5.3 mbgs)		
F1	<25	6-Feb-2017
F1-BTEX	NA	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.50	
EB	<0.50	
TOL	<0.50	
XYL	<0.50	

BH3-GW1 (4.3-5.8 mbgs)		
F1	<25	6-Feb-2017
F1-BTEX	NA	
F2	<100	
F3	<100	
F4	<100	
Bz	<0.50	
EB	<0.50	
TOL	<0.50	
XYL	<0.50	

MW16-5 (1.52-4.57 mbgs)		
F1	360	7-Jun-2016
F1-BTEX	360	
F2	530	
F3	390	
F4	<100	
Bz	1.1	
EB	15	
TOL	0.39	
XYL	4.2	
MW16-5 (1.52-4.57 mbgs)		
F1	1000	2-Nov-2016
F1-BTEX	960	
F2	4000	
F3	3300	
F4	<100	
Bz	1.9	
EB	31	
TOL	0.32	
XYL	9.5	
MW17-5 (1.72-4.77 mbgs)		
F1	500	16-May-2019
F1-BTEX	420	
F2	155	
F3	<100	
F4	<100	
Bz	18	
EB	0.88	
TOL	45	
XYL	16	

ID (Screened Interval mbgs)		
Parameter	Concentration	Date

Acronym	Parameter	Standard
PHCs + BTEX		
F1	F1 (C6-C10)	750
F1-BTEX	F1 (C6-C10) - BTEX	750
F2	F2 (C10-C16)	150
F3	F3 (C16-C34)	500
F4	F4 (C34-C50)	500
Bz	Benzene	44
EB	Ethylbenzene	2300
TOL	Toluene	18000
XYL	Total Xylenes	4200

Standard: MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards in a Non-Potable Ground Water for All Types of Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

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CANADA, L3T 0A1
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CLIENT:

GLENVIEW HOMES (INNES) LTD.

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Monitoring Well Screens
- Groundwater Elevation (masl)
- Boreholes
- Topsoil
- Fill
- Gravel
- Sandy Gravel
- Clayey Silt
- Silty Clay
- Clay
- Bedrock
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: NN	
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SCALE: 1:900 10X HORIZONTAL EXAG.	

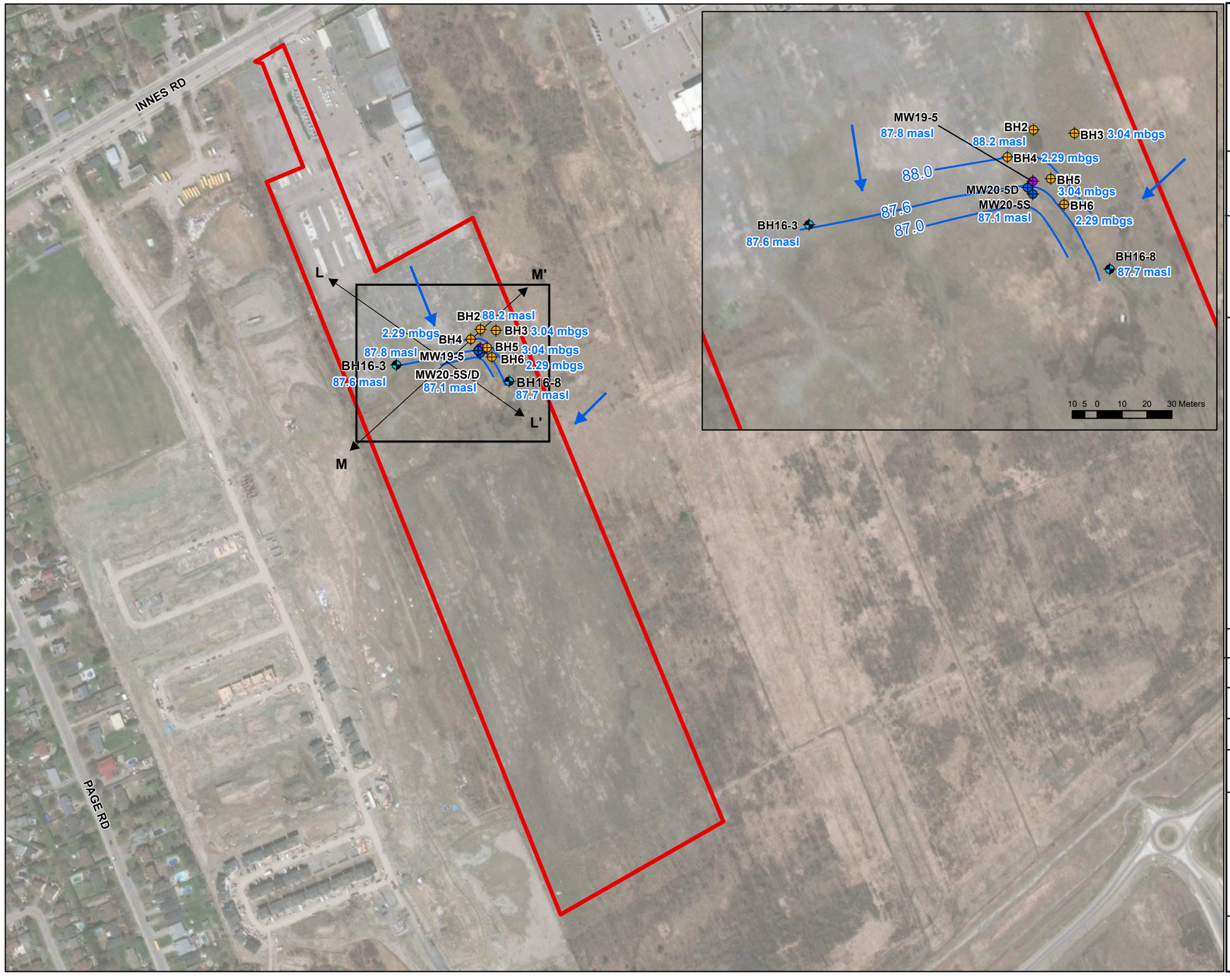
0 5 10 20 30 40 Meters

TITLE

CONTAMINANT DISTRIBUTION OF PHCS IN GROUNDWATER CROSS SECTION K - K'

FIGURE 6-2

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 6-2 Cross Section K-K' PHCs in GW.mxd



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PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Hydrogeological Cross Section
- Interpreted Groundwater Contours
- Monitoring Well (WSP 2016)
- Monitoring Well (Patterson 2017)
- Monitoring Well (WSP 2019)
- Monitoring Well (WSP 2020)
- 88.44 Groundwater Elevation Measured November 26, 2020 / Patterson Locations BH3 to BH6 Measured January 30-31, 2017
- Interpreted Direction of Shallow Groundwater Flow

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
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CHECKED BY: NC	
SCALE: 1:4,000	

50 25 0 50 100 150 Meters

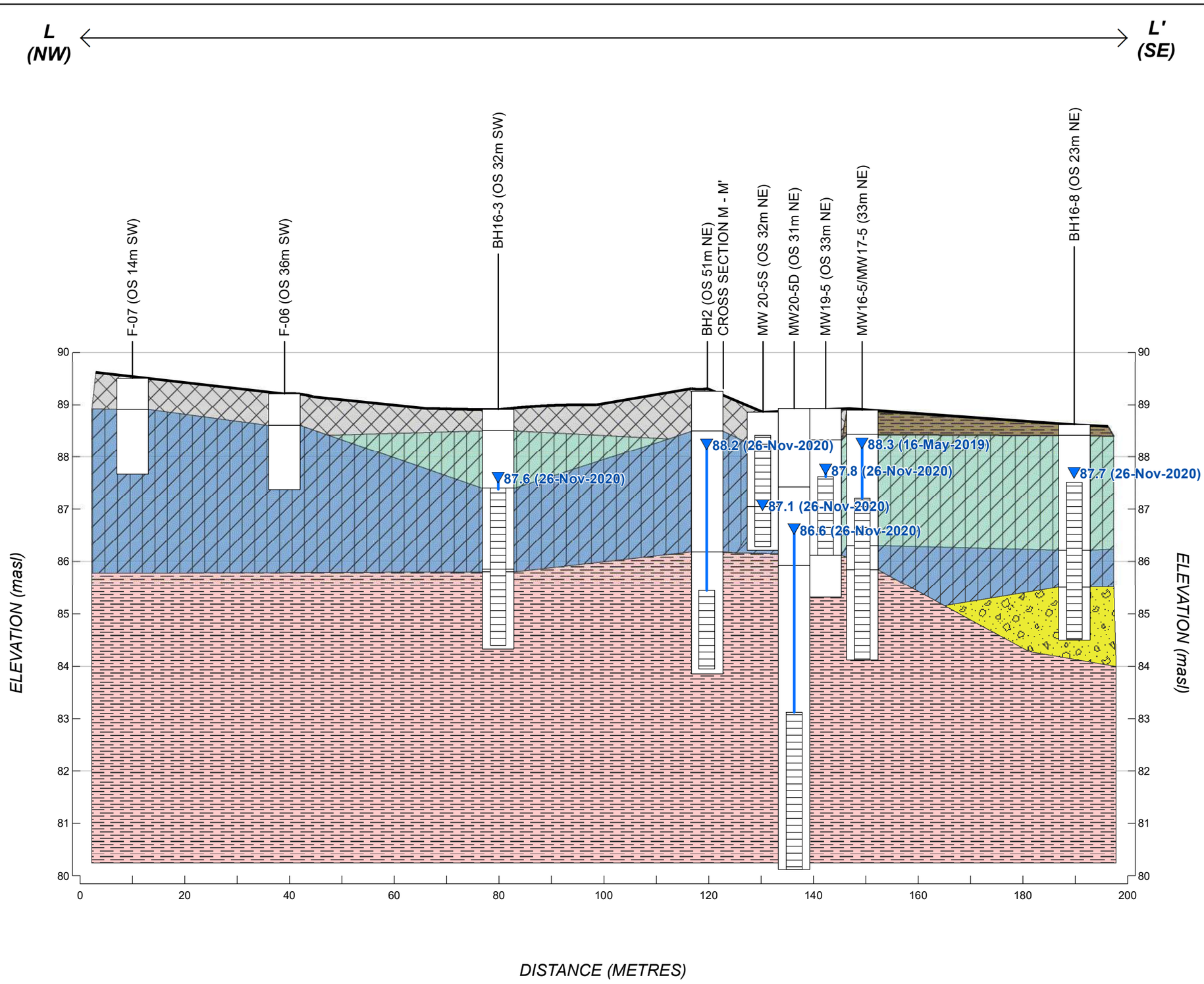
NAD1983 ZONE 18

TITLE

GROUNDWATER CONTOUR PLAN

FIGURE 7

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 7 Groundwater Contour Plan.mxd



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PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Monitoring Well Screens
- Groundwater Elevation (masl)
- Boreholes
- Topsoil
- Fill
- Gravel
- Sandy Gravel
- Clayey Silt
- Silty Clay
- Clay
- Bedrock

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: NN	
CHECKED BY: NC	
SCALE: 1:750 10X HORIZONTAL EXAG.	

0 5 10 20 30 40 Meters

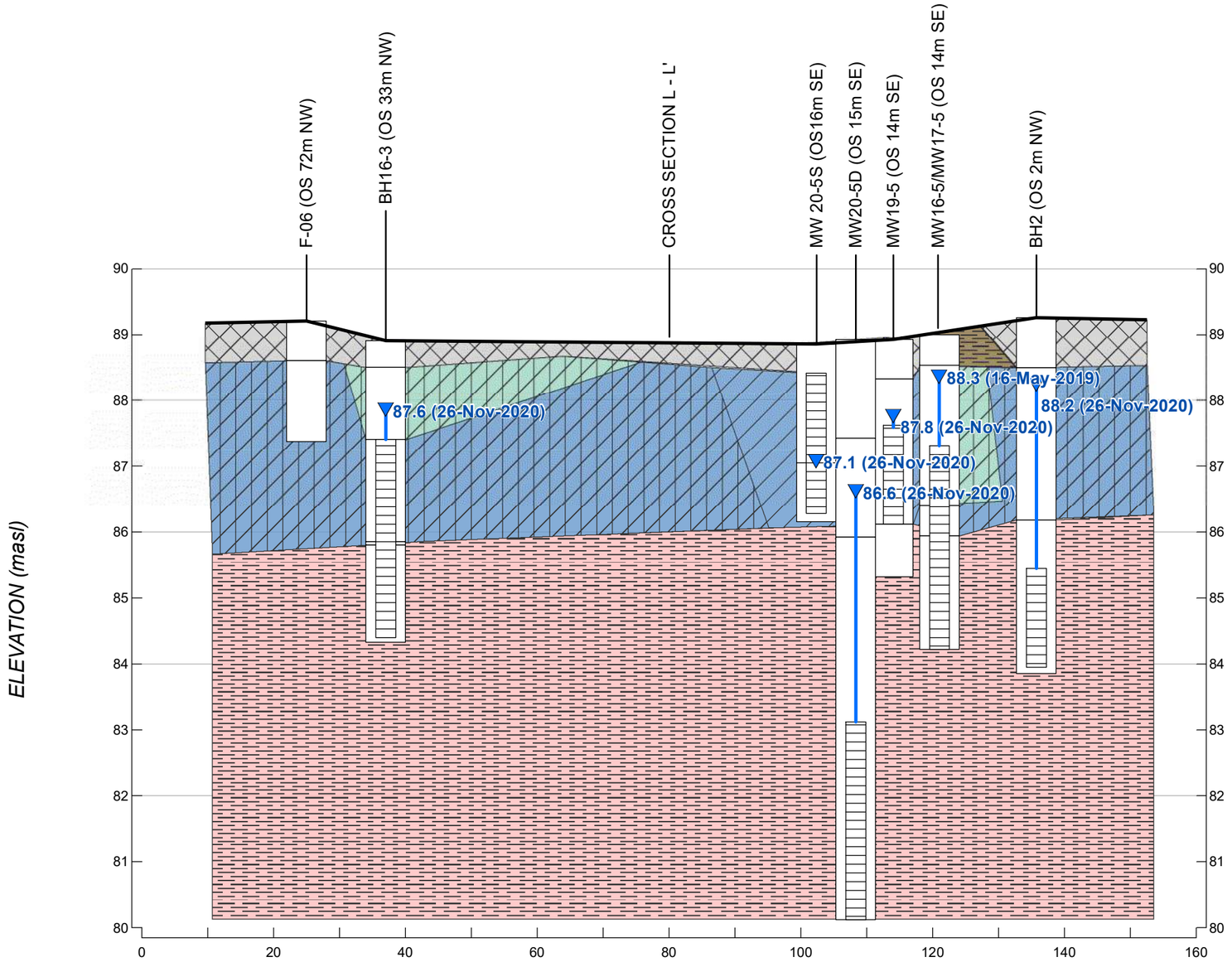
TITLE

HYDROGEOLOGICAL
CROSS SECTION L - L'

FIGURE 7-1

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 7-1 Hydrogeological Cross Section L-L'.mxd

M (SW) ⟷ **M' (NE)**



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GLENVIEW HOMES (INNES) LTD.

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Monitoring Well Screens
- Groundwater Elevation (masl)
- Boreholes
- Topsoil
- Fill
- Clayey Silt
- Silty Clay
- Clay
- Bedrock

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: NN	
CHECKED BY: NC	
SCALE: 1:750 10X HORIZONTAL EXAG.	

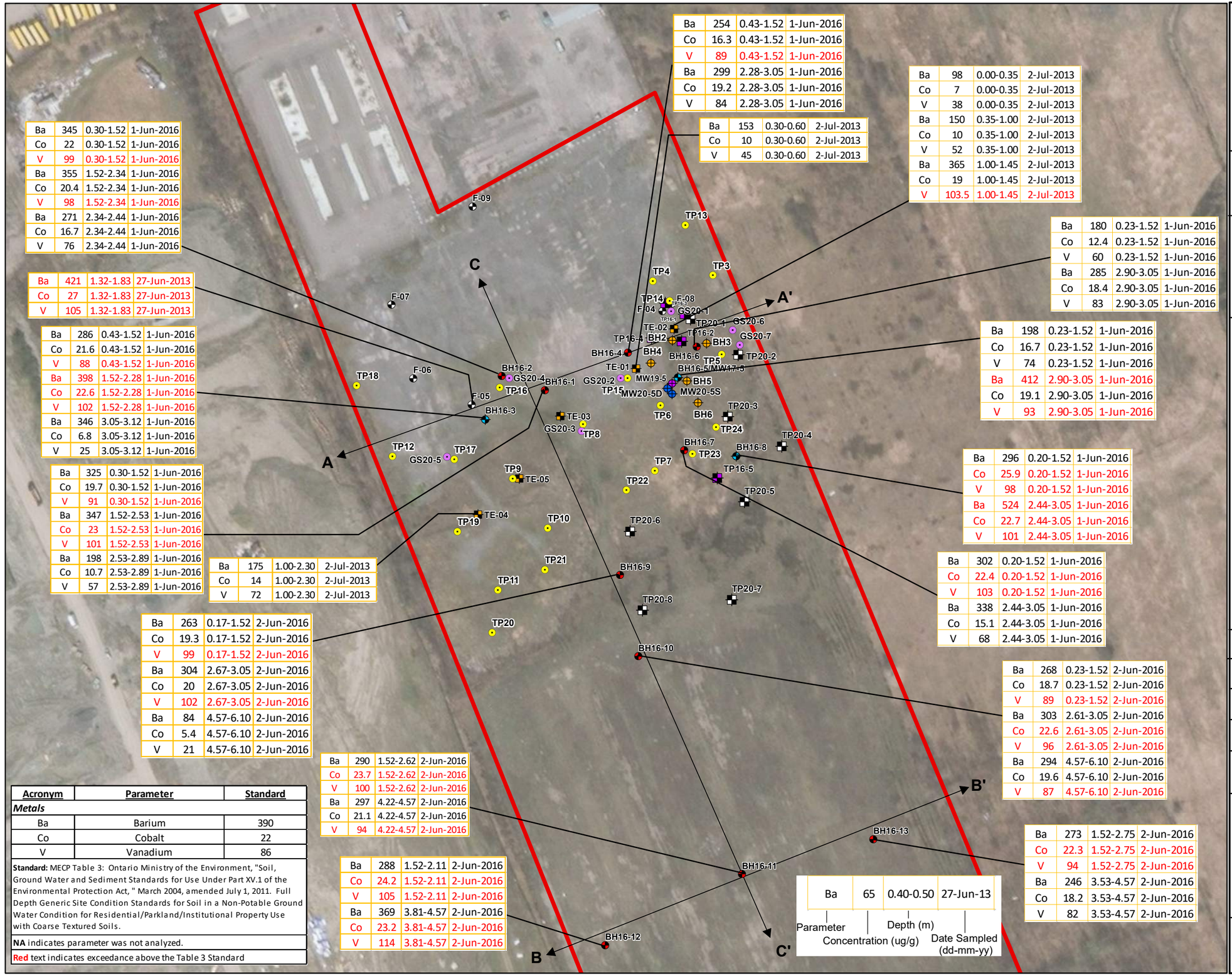
0 5 10 20 30 40 Meters

TITLE

HYDROGEOLOGICAL CROSS SECTION M - M'

FIGURE 7-2

Path: J:\1442 Projects by Job Number\2016\33164428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 7-2 Hydrogeological Cross Section M-M'.mxd



Ba	254	0.43-1.52	1-Jun-2016
Co	16.3	0.43-1.52	1-Jun-2016
V	89	0.43-1.52	1-Jun-2016
Ba	299	2.28-3.05	1-Jun-2016
Co	19.2	2.28-3.05	1-Jun-2016
V	84	2.28-3.05	1-Jun-2016

Ba	153	0.30-0.60	2-Jul-2013
Co	10	0.30-0.60	2-Jul-2013
V	45	0.30-0.60	2-Jul-2013

Ba	98	0.00-0.35	2-Jul-2013
Co	7	0.00-0.35	2-Jul-2013
V	38	0.00-0.35	2-Jul-2013
Ba	150	0.35-1.00	2-Jul-2013
Co	10	0.35-1.00	2-Jul-2013
V	52	0.35-1.00	2-Jul-2013
Ba	365	1.00-1.45	2-Jul-2013
Co	19	1.00-1.45	2-Jul-2013
V	103.5	1.00-1.45	2-Jul-2013

Ba	345	0.30-1.52	1-Jun-2016
Co	22	0.30-1.52	1-Jun-2016
V	99	0.30-1.52	1-Jun-2016
Ba	355	1.52-2.34	1-Jun-2016
Co	20.4	1.52-2.34	1-Jun-2016
V	98	1.52-2.34	1-Jun-2016
Ba	271	2.34-2.44	1-Jun-2016
Co	16.7	2.34-2.44	1-Jun-2016
V	76	2.34-2.44	1-Jun-2016

Ba	180	0.23-1.52	1-Jun-2016
Co	12.4	0.23-1.52	1-Jun-2016
V	60	0.23-1.52	1-Jun-2016
Ba	285	2.90-3.05	1-Jun-2016
Co	18.4	2.90-3.05	1-Jun-2016
V	83	2.90-3.05	1-Jun-2016

Ba	421	1.32-1.83	27-Jun-2013
Co	27	1.32-1.83	27-Jun-2013
V	105	1.32-1.83	27-Jun-2013

Ba	198	0.23-1.52	1-Jun-2016
Co	16.7	0.23-1.52	1-Jun-2016
V	74	0.23-1.52	1-Jun-2016
Ba	412	2.90-3.05	1-Jun-2016
Co	19.1	2.90-3.05	1-Jun-2016
V	93	2.90-3.05	1-Jun-2016

Ba	286	0.43-1.52	1-Jun-2016
Co	21.6	0.43-1.52	1-Jun-2016
V	88	0.43-1.52	1-Jun-2016
Ba	398	1.52-2.28	1-Jun-2016
Co	22.6	1.52-2.28	1-Jun-2016
V	102	1.52-2.28	1-Jun-2016
Ba	346	3.05-3.12	1-Jun-2016
Co	6.8	3.05-3.12	1-Jun-2016
V	25	3.05-3.12	1-Jun-2016

Ba	296	0.20-1.52	1-Jun-2016
Co	25.9	0.20-1.52	1-Jun-2016
V	98	0.20-1.52	1-Jun-2016
Ba	524	2.44-3.05	1-Jun-2016
Co	22.7	2.44-3.05	1-Jun-2016
V	101	2.44-3.05	1-Jun-2016

Ba	325	0.30-1.52	1-Jun-2016
Co	19.7	0.30-1.52	1-Jun-2016
V	91	0.30-1.52	1-Jun-2016
Ba	347	1.52-2.53	1-Jun-2016
Co	23	1.52-2.53	1-Jun-2016
V	101	1.52-2.53	1-Jun-2016
Ba	198	2.53-2.89	1-Jun-2016
Co	10.7	2.53-2.89	1-Jun-2016
V	57	2.53-2.89	1-Jun-2016

Ba	175	1.00-2.30	2-Jul-2013
Co	14	1.00-2.30	2-Jul-2013
V	72	1.00-2.30	2-Jul-2013

Ba	302	0.20-1.52	1-Jun-2016
Co	22.4	0.20-1.52	1-Jun-2016
V	103	0.20-1.52	1-Jun-2016
Ba	338	2.44-3.05	1-Jun-2016
Co	15.1	2.44-3.05	1-Jun-2016
V	68	2.44-3.05	1-Jun-2016

Ba	263	0.17-1.52	2-Jun-2016
Co	19.3	0.17-1.52	2-Jun-2016
V	99	0.17-1.52	2-Jun-2016
Ba	304	2.67-3.05	2-Jun-2016
Co	20	2.67-3.05	2-Jun-2016
V	102	2.67-3.05	2-Jun-2016
Ba	84	4.57-6.10	2-Jun-2016
Co	5.4	4.57-6.10	2-Jun-2016
V	21	4.57-6.10	2-Jun-2016

Ba	268	0.23-1.52	2-Jun-2016
Co	18.7	0.23-1.52	2-Jun-2016
V	89	0.23-1.52	2-Jun-2016
Ba	303	2.61-3.05	2-Jun-2016
Co	22.6	2.61-3.05	2-Jun-2016
V	96	2.61-3.05	2-Jun-2016
Ba	294	4.57-6.10	2-Jun-2016
Co	19.6	4.57-6.10	2-Jun-2016
V	87	4.57-6.10	2-Jun-2016

Ba	290	1.52-2.62	2-Jun-2016
Co	23.7	1.52-2.62	2-Jun-2016
V	100	1.52-2.62	2-Jun-2016
Ba	297	4.22-4.57	2-Jun-2016
Co	21.1	4.22-4.57	2-Jun-2016
V	94	4.22-4.57	2-Jun-2016

Ba	273	1.52-2.75	2-Jun-2016
Co	22.3	1.52-2.75	2-Jun-2016
V	94	1.52-2.75	2-Jun-2016
Ba	246	3.53-4.57	2-Jun-2016
Co	18.2	3.53-4.57	2-Jun-2016
V	82	3.53-4.57	2-Jun-2016

Ba	288	1.52-2.11	2-Jun-2016
Co	24.2	1.52-2.11	2-Jun-2016
V	105	1.52-2.11	2-Jun-2016
Ba	369	3.81-4.57	2-Jun-2016
Co	23.2	3.81-4.57	2-Jun-2016
V	114	3.81-4.57	2-Jun-2016

Acronym	Parameter	Standard
Metals		
Ba	Barium	390
Co	Cobalt	22
V	Vanadium	86

Standard: MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

NA indicates parameter was not analyzed.

Red text indicates exceedance above the Table 3 Standard

Ba	65	0.40-0.50	27-Jun-13
Parameter	Concentration (ug/g)	Depth (m)	Date Sampled (dd-mm-yy)

100 COMMERCE VALLEY DR W,
THORNHILL, ONTARIO
CANADA, L3T 0A1
WWW.WSPGROUP.COM

CLIENT:

GLENVIEW HOMES (INNES) LTD.

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Cross Sections
- Test Pit (WSP, 2020)
- Test Pit (WSP, 2013)
- Test Pit (WSP, 2016)
- Borehole (WSP, 2013)
- Monitoring Well (WSP, 2013)
- Borehole (WSP, 2016)
- Monitoring Well (WSP, 2016-2017)
- Monitoring Well (WSP, 2019)
- Monitoring Well (WSP, 2020)
- Monitoring Well (Paterson, 2017)
- Test Pit (Paterson, 2017)
- Surface Soil Sample (WSP, 2020)

PROJECT NUMBER: 17M-01348-00 | **DATE:** FEBRUARY 2021

DRAWN BY: JS/NN

CHECKED BY: NC

SCALE: 1:1,800

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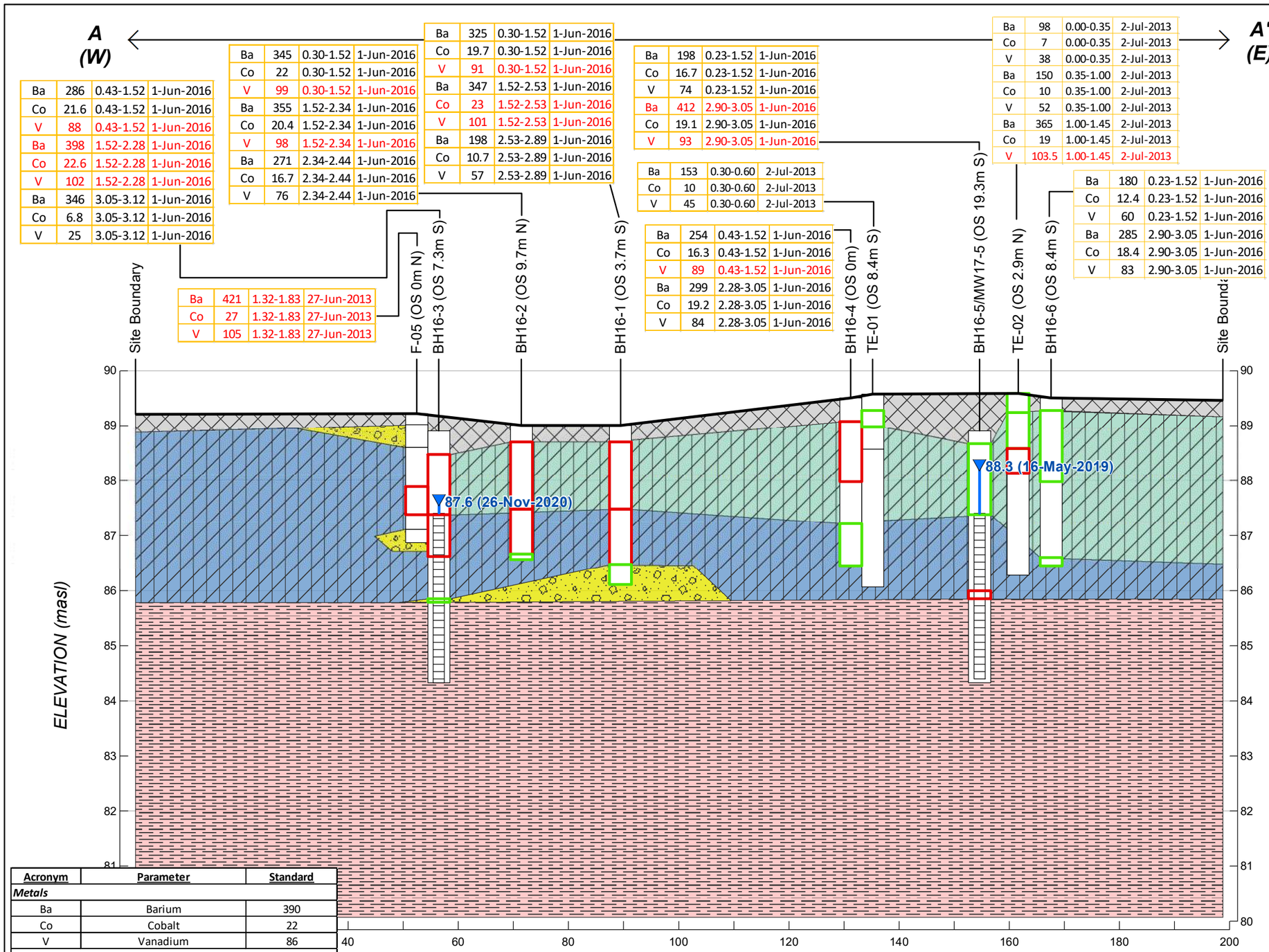
NAD1983 ZONE 18

TITLE

NATURALLY OCCURRING METALS
IN FILL AND NATIVE SOILS
ON SITE

FIGURE 8

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 8 Naturally Occurring Metals in Soil.mxd



Ba	286	0.43-1.52	1-Jun-2016
Co	21.6	0.43-1.52	1-Jun-2016
V	88	0.43-1.52	1-Jun-2016
Ba	398	1.52-2.28	1-Jun-2016
Co	22.6	1.52-2.28	1-Jun-2016
V	102	1.52-2.28	1-Jun-2016
Ba	346	3.05-3.12	1-Jun-2016
Co	6.8	3.05-3.12	1-Jun-2016
V	25	3.05-3.12	1-Jun-2016

Ba	345	0.30-1.52	1-Jun-2016
Co	22	0.30-1.52	1-Jun-2016
V	99	0.30-1.52	1-Jun-2016
Ba	355	1.52-2.34	1-Jun-2016
Co	20.4	1.52-2.34	1-Jun-2016
V	98	1.52-2.34	1-Jun-2016
Ba	271	2.34-2.44	1-Jun-2016
Co	16.7	2.34-2.44	1-Jun-2016
V	76	2.34-2.44	1-Jun-2016

Ba	421	1.32-1.83	27-Jun-2013
Co	27	1.32-1.83	27-Jun-2013
V	105	1.32-1.83	27-Jun-2013

Ba	325	0.30-1.52	1-Jun-2016
Co	19.7	0.30-1.52	1-Jun-2016
V	91	0.30-1.52	1-Jun-2016
Ba	347	1.52-2.53	1-Jun-2016
Co	23	1.52-2.53	1-Jun-2016
V	101	1.52-2.53	1-Jun-2016
Ba	198	2.53-2.89	1-Jun-2016
Co	10.7	2.53-2.89	1-Jun-2016
V	57	2.53-2.89	1-Jun-2016

Ba	198	0.23-1.52	1-Jun-2016
Co	16.7	0.23-1.52	1-Jun-2016
V	74	0.23-1.52	1-Jun-2016
Ba	412	2.90-3.05	1-Jun-2016
Co	19.1	2.90-3.05	1-Jun-2016
V	93	2.90-3.05	1-Jun-2016

Ba	153	0.30-0.60	2-Jul-2013
Co	10	0.30-0.60	2-Jul-2013
V	45	0.30-0.60	2-Jul-2013

Ba	254	0.43-1.52	1-Jun-2016
Co	16.3	0.43-1.52	1-Jun-2016
V	89	0.43-1.52	1-Jun-2016
Ba	299	2.28-3.05	1-Jun-2016
Co	19.2	2.28-3.05	1-Jun-2016
V	84	2.28-3.05	1-Jun-2016

Ba	98	0.00-0.35	2-Jul-2013
Co	7	0.00-0.35	2-Jul-2013
V	38	0.00-0.35	2-Jul-2013
Ba	150	0.35-1.00	2-Jul-2013
Co	10	0.35-1.00	2-Jul-2013
V	52	0.35-1.00	2-Jul-2013
Ba	365	1.00-1.45	2-Jul-2013
Co	19	1.00-1.45	2-Jul-2013
V	103.5	1.00-1.45	2-Jul-2013

Ba	180	0.23-1.52	1-Jun-2016
Co	12.4	0.23-1.52	1-Jun-2016
V	60	0.23-1.52	1-Jun-2016
Ba	285	2.90-3.05	1-Jun-2016
Co	18.4	2.90-3.05	1-Jun-2016
V	83	2.90-3.05	1-Jun-2016

Acronym	Parameter	Standard
Metals		
Ba	Barium	390
Co	Cobalt	22
V	Vanadium	86

Standard: MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

NA indicates parameter was not analyzed.

Red text indicates exceedance above the Table 3 Standard

Ba	65	0.40-0.50	27-Jun-13

Parameter
Concentration (ug/g)
Depth (m)
Date Sampled (dd-mm-yy)

wsp

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THORNHILL, ONTARIO
CANADA, L3T 0A1
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CLIENT:

GLENVIEW HOMES (INNES) LTD.

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Monitoring Well Screens
- Groundwater Elevation (masl)
- Boreholes
- Topsoil
- Fill
- Gravel
- Sandy Gravel
- Clayey Silt
- Silty Clay
- Clay
- Bedrock
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
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CHECKED BY: NC	
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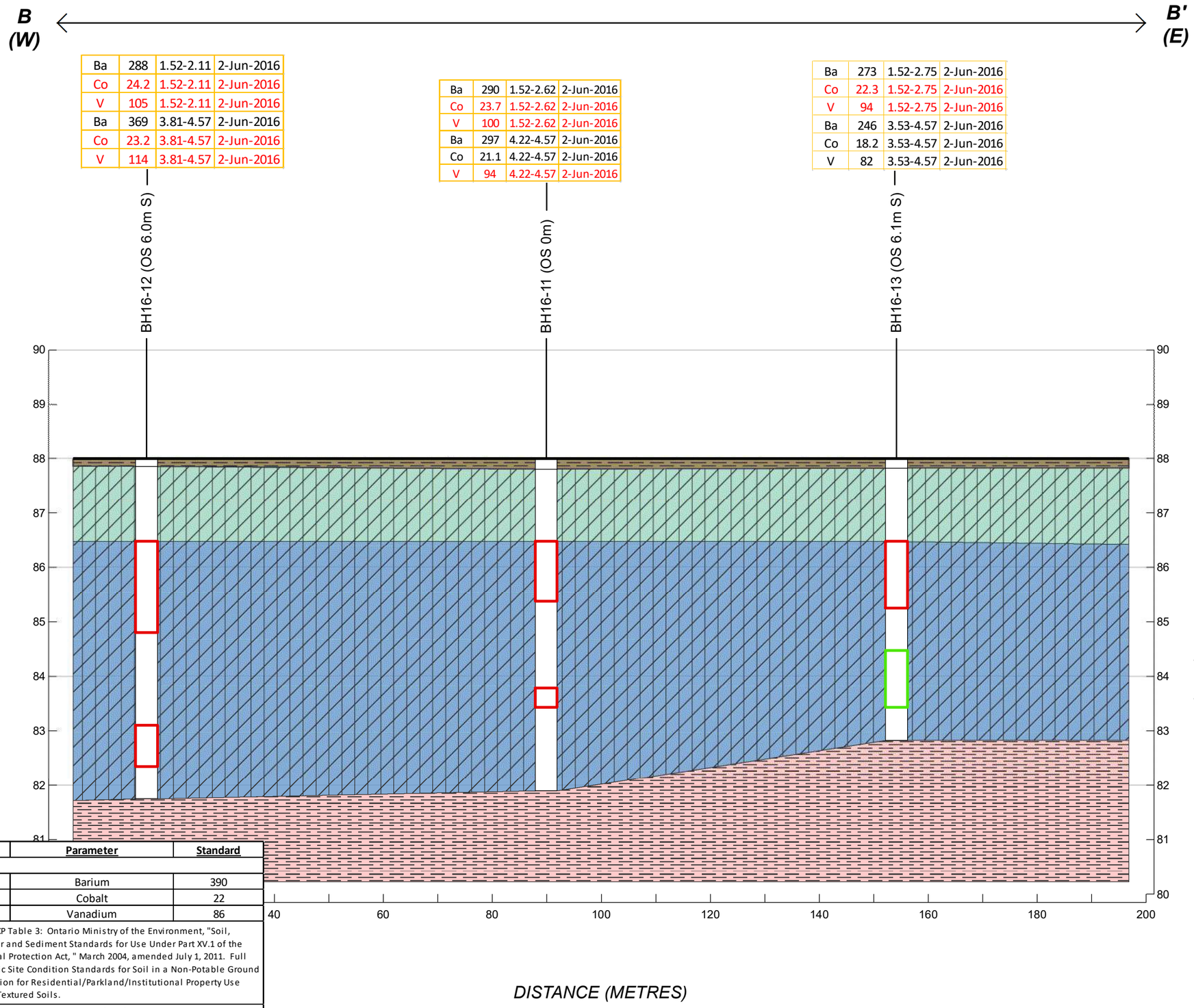
0 5 10 20 30 40 Meters

TITLE

CROSS SECTION A - A'
NATURALLY OCCURRING METALS IN FILL AND NATIVE SOILS

FIGURE 8-1

Path: J:\1442 Projects by Job Number\2016\33164428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 8-1 Cross Section A-A' Metals in Soil.mxd



Acronym	Parameter	Standard
Metals		
Ba	Barium	390
Co	Cobalt	22
V	Vanadium	86

Standard: MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

NA indicates parameter was not analyzed.

Red text indicates exceedance above the Table 3 Standard

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THORNHILL, ONTARIO
CANADA, L3T 0A1
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PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Boreholes
- Topsoil
- Fill
- Gravel
- Sandy Gravel
- Clayey Silt
- Silty Clay
- Clay
- Bedrock
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS

Ba	65	0.40-0.50	27-Jun-13
Parameter	Concentration (ug/g)	Depth (m)	Date Sampled (dd-mm-yy)

PROJECT NUMBER: 17M-01348-00	**DATE:** FEBRUARY 2021
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CHECKED BY: NC	
SCALE: 1:750 10X HORIZONTAL EXAG.	

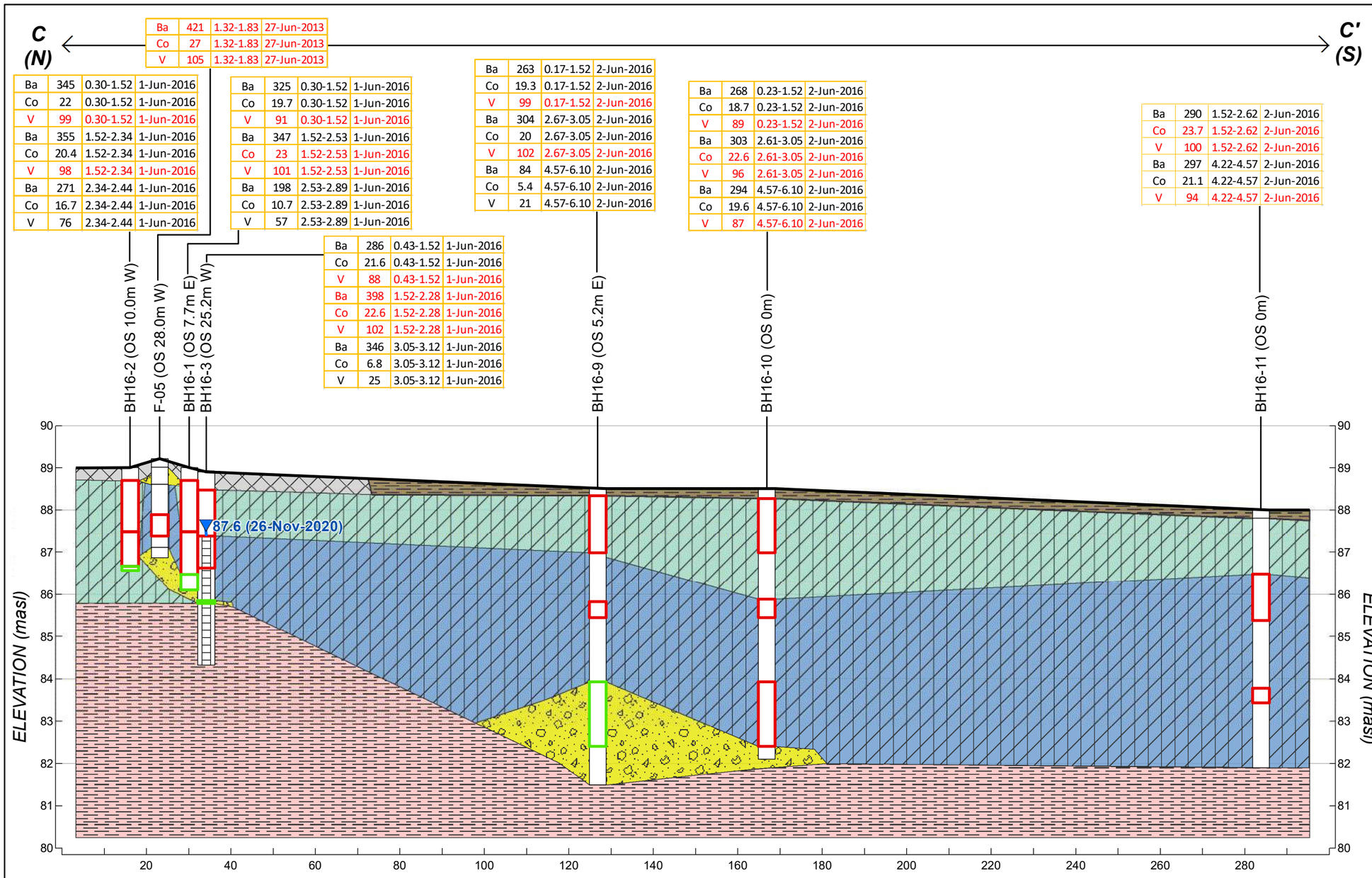
0 5 10 20 30 40 Meters

TITLE

CROSS SECTION B - B'
NATURALLY OCCURRING METALS IN FILL AND NATIVE SOILS

FIGURE 8-2

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 8-2 Cross Section B-B' Metals in Soil.mxd



Acronym	Parameter	Standard
Metals		
Ba	Barium	390
Co	Cobalt	22
V	Vanadium	86

Standard: MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, " March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards for Soil in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional Property Use with Coarse Textured Soils.

NA indicates parameter was not analyzed.

Red text indicates exceedance above the Table 3 Standard

Ba	65	0.40-0.50	27-Jun-13

Parameter; Concentration (ug/g); Depth (m); Date Sampled (dd-mm-yy)

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PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Ground Surface
- Monitoring Well Screens
- Groundwater Elevation (masl)
- Boreholes
- Topsoil
- Fill
- Gravel
- Sandy Gravel
- Clayey Silt
- Silty Clay
- Clay
- Bedrock
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS

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CHECKED BY: NC	
SCALE: 1:1,000 10X HORIZONTAL EXAG.	

0 5 10 20 30 40 Meters

TITLE

CROSS SECTION C - C'
NATURALLY OCCURRING METALS
IN FILL AND NATIVE SOILS

FIGURE 8-3

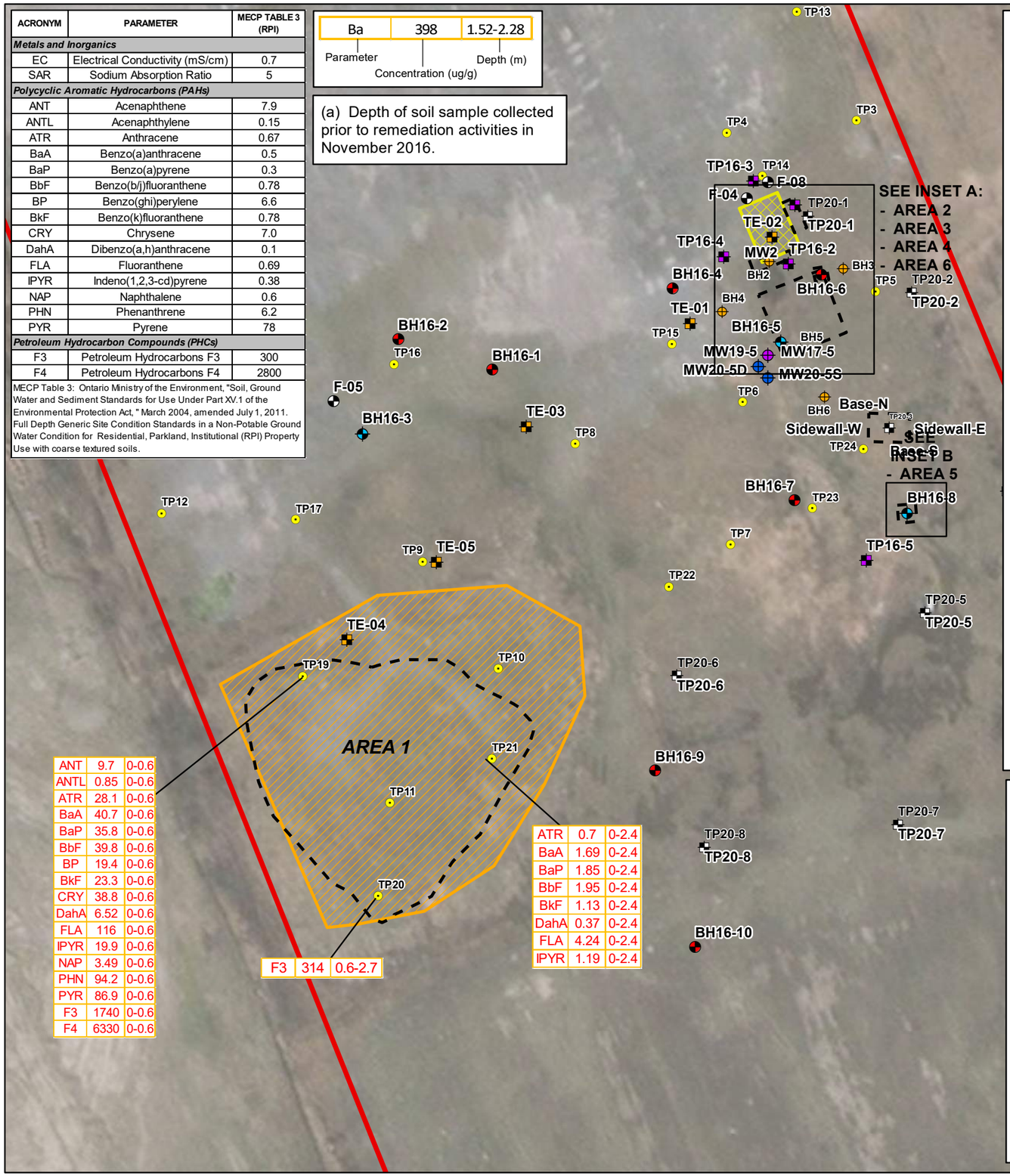
Path: J:\1442 Projects by Job Number\2016\33164428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 8-3 Cross Section C-C' Metals in Soil.mxd

ACRONYM	PARAMETER	MECP TABLE 3 (RPI)
Metals and Inorganics		
EC	Electrical Conductivity (mS/cm)	0.7
SAR	Sodium Absorption Ratio	5
Polycyclic Aromatic Hydrocarbons (PAHs)		
ANT	Acenaphthene	7.9
ANTL	Acenaphthylene	0.15
ATR	Anthracene	0.67
BaA	Benzo(a)anthracene	0.5
BaP	Benzo(a)pyrene	0.3
BbF	Benzo(b/j)fluoranthene	0.78
BP	Benzo(ghi)perylene	6.6
BkF	Benzo(k)fluoranthene	0.78
CRY	Chrysene	7.0
DahA	Dibenzo(a,h)anthracene	0.1
FLA	Fluoranthene	0.69
IPYR	Indeno(1,2,3-cd)pyrene	0.38
NAP	Naphthalene	0.6
PHN	Phenanthrene	6.2
PYR	Pyrene	78
Petroleum Hydrocarbon Compounds (PHCs)		
F3	Petroleum Hydrocarbons F3	300
F4	Petroleum Hydrocarbons F4	2800

MECP Table 3: Ontario Ministry of the Environment, "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act," March 2004, amended July 1, 2011. Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Ba	398	1.52-2.28
Parameter	Concentration (ug/g)	Depth (m)

(a) Depth of soil sample collected prior to remediation activities in November 2016.

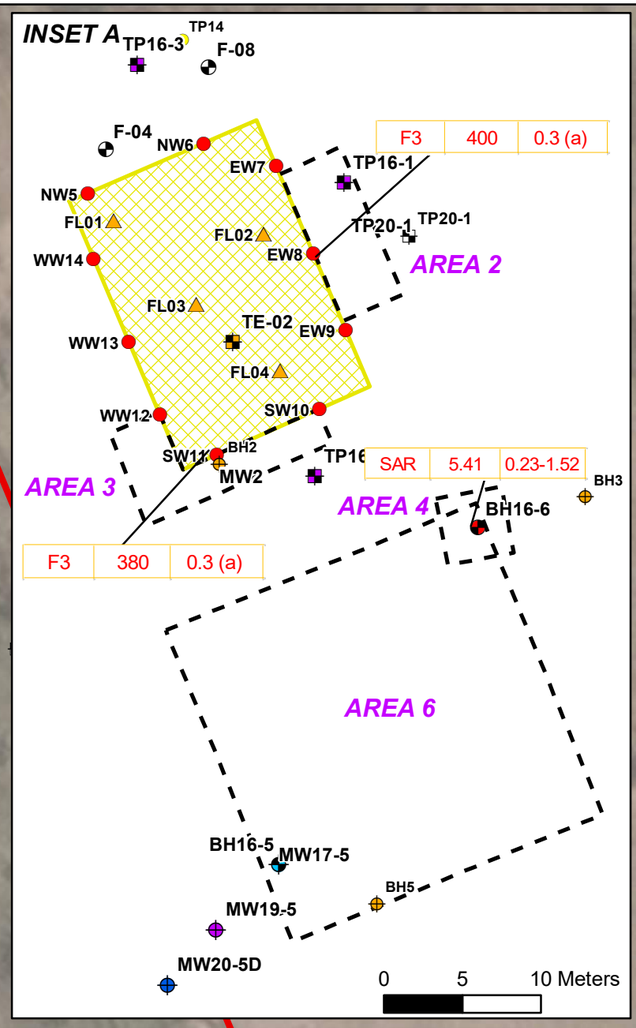


ANT	9.7	0-0.6
ANTL	0.85	0-0.6
ATR	28.1	0-0.6
BaA	40.7	0-0.6
BaP	35.8	0-0.6
BbF	39.8	0-0.6
BP	19.4	0-0.6
BkF	23.3	0-0.6
CRY	38.8	0-0.6
DahA	6.52	0-0.6
FLA	116	0-0.6
IPYR	19.9	0-0.6
NAP	3.49	0-0.6
PHN	94.2	0-0.6
PYR	86.9	0-0.6
F3	1740	0-0.6
F4	6330	0-0.6

F3	314	0.6-2.7

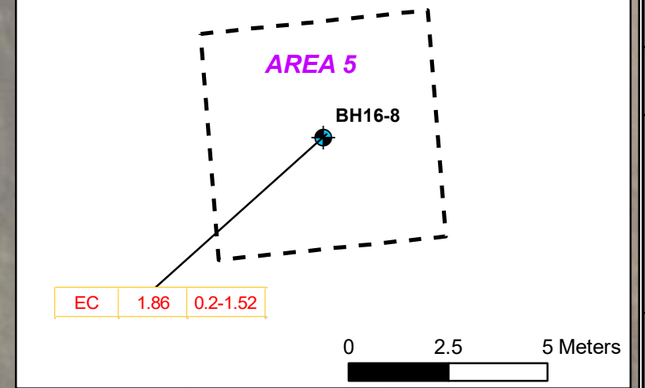
ATR	0.7	0-2.4
BaA	1.69	0-2.4
BaP	1.85	0-2.4
BbF	1.95	0-2.4
BkF	1.13	0-2.4
DahA	0.37	0-2.4
FLA	4.24	0-2.4
IPYR	1.19	0-2.4

INSET A



F3	400	0.3 (a)
SAR	5.41	0.23-1.52
F3	380	0.3 (a)

INSET B



EC	1.86	0.2-1.52

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THORNHILL, ONTARIO
CANADA, L3T 0A1
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CLIENT:

GLENVIEW HOMES

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Test Pit (WSP, 2013)
- Borehole (WSP, 2013)
- Monitoring Well (WSP, 2013)
- Test Pit (WSP, 2016)
- Borehole (WSP, 2016)
- Monitoring Well (WSP, 2016-2017)
- Monitoring Well (WSP, 2019)
- Monitoring Well (WSP, 2020)
- Monitoring Well (Patterson, 2017)
- Test Pit (Patterson, 2017)
- Floor Verification Samples
- Wall Verification Samples
- Area to be Remediated
- Area of observed debris (0.61 m bgs)
- Area Remediated in 2016

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: NN	
CHECKED BY: NC	
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0 5 10 20 30 40 50 Meters

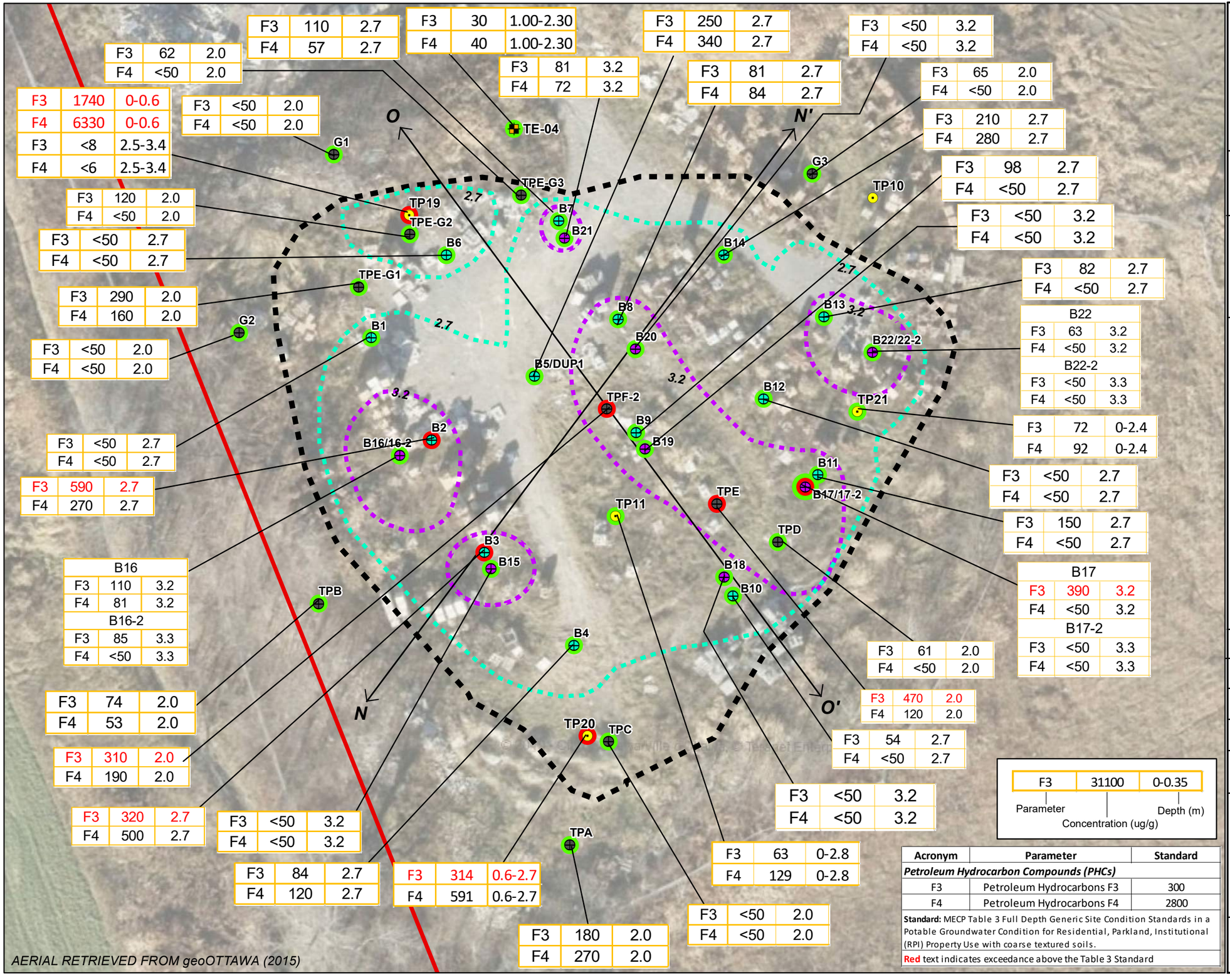
NAD1983 ZONE 18

TITLE

PLAN OVERVIEW OF REMEDIATION AREAS SHOWING CONTAMINANT LOCATIONS

FIGURE 9

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 9 Plan Overview of Remediation Areas Showing Contaminant Locations.mxd



Acronym	Parameter	Standard
Petroleum Hydrocarbon Compounds (PHCs)		
F3	Petroleum Hydrocarbons F3	300
F4	Petroleum Hydrocarbons F4	2800

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

wsp

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THORNHILL, ONTARIO
CANADA, L3T 0A1
WWW.WSPGROUP.COM

CLIENT:

GLENVIEW HOMES (INNES) LTD.

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Cross Sections
- Limit of Remediation Area 1 (1st Round = 2.0 m)
- 2nd Round Excavation = 2.7 m total
- 3rd Round Excavation = 3.2 m total
- 1st Round Sample at 2.0 m
- 2nd Round Sample at 2.7 m
- 3rd Round Sample at 3.2 m
- Test Pit (Paterson, 2017)
- Test Pit (WSP, 2013)
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS
- Shallow Sample Exceeds and Deeper Sample Meets Table 3 SCS

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: NN	
CHECKED BY: NC	
SCALE: 1:350	

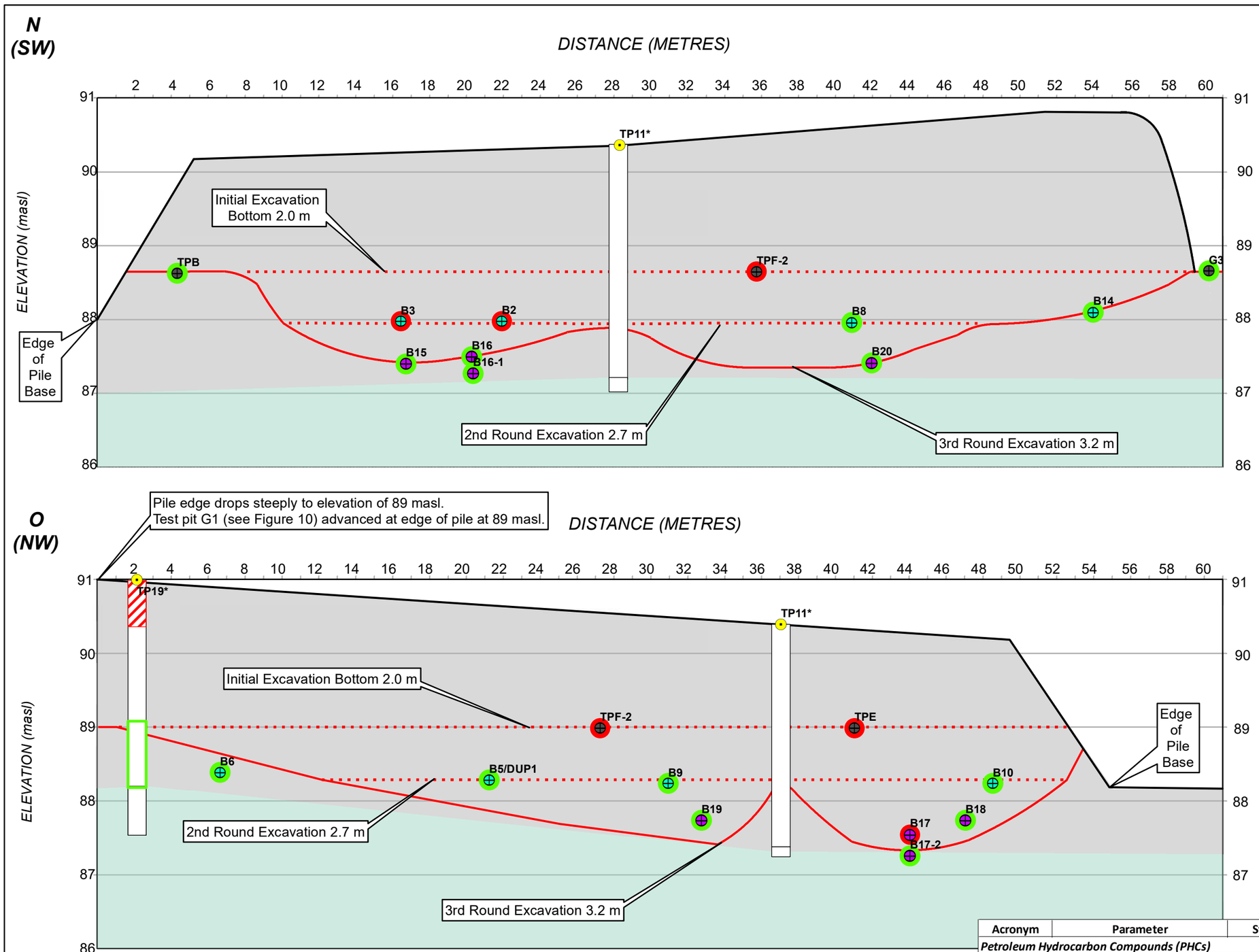
5 2.5 0 5 10 15 Meters
NAD1983 ZONE 18

TITLE

REMEDIATION AREA 1
PHCS IN SOIL

FIGURE 10

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 10 Remediation Area 1 PHCs.mxd



F3 | 31100 | 0-0.35
Parameter | Concentration (ug/g) | Depth (m)

Note: For contaminant concentrations, see Figure 10.

Acronym	Parameter	Standard
Petroleum Hydrocarbon Compounds (PHCs)		
F3	Petroleum Hydrocarbons F3	300
F4	Petroleum Hydrocarbons F4	2800

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

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CANADA, L3T 0A1
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CLIENT:

GLENVIEW HOMES (INNES) LTD.

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Final Bottom of Excavation
- Previous Excavation Bottom
- Ground Surface - Top of Pile
- 1st Round Sample
- 2nd Round Sample
- 3rd Round Sample
- Test Pit (Paterson, 2017)
- Sample MeetsTable 3 SCS
- Sample Exceeds 3 SCS
- Sampling Locations Prior to 2019 Remediation
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS - Soil Removed

Stratigraphy

- Fill
- Clayey Silt

PROJECT NUMBER:	17M-01348-00	DATE:	FEBRUARY 2021
DRAWN BY:	NN		
CHECKED BY:	NC		
SCALE:	1:220 4X HORIZONTAL EXAG.		

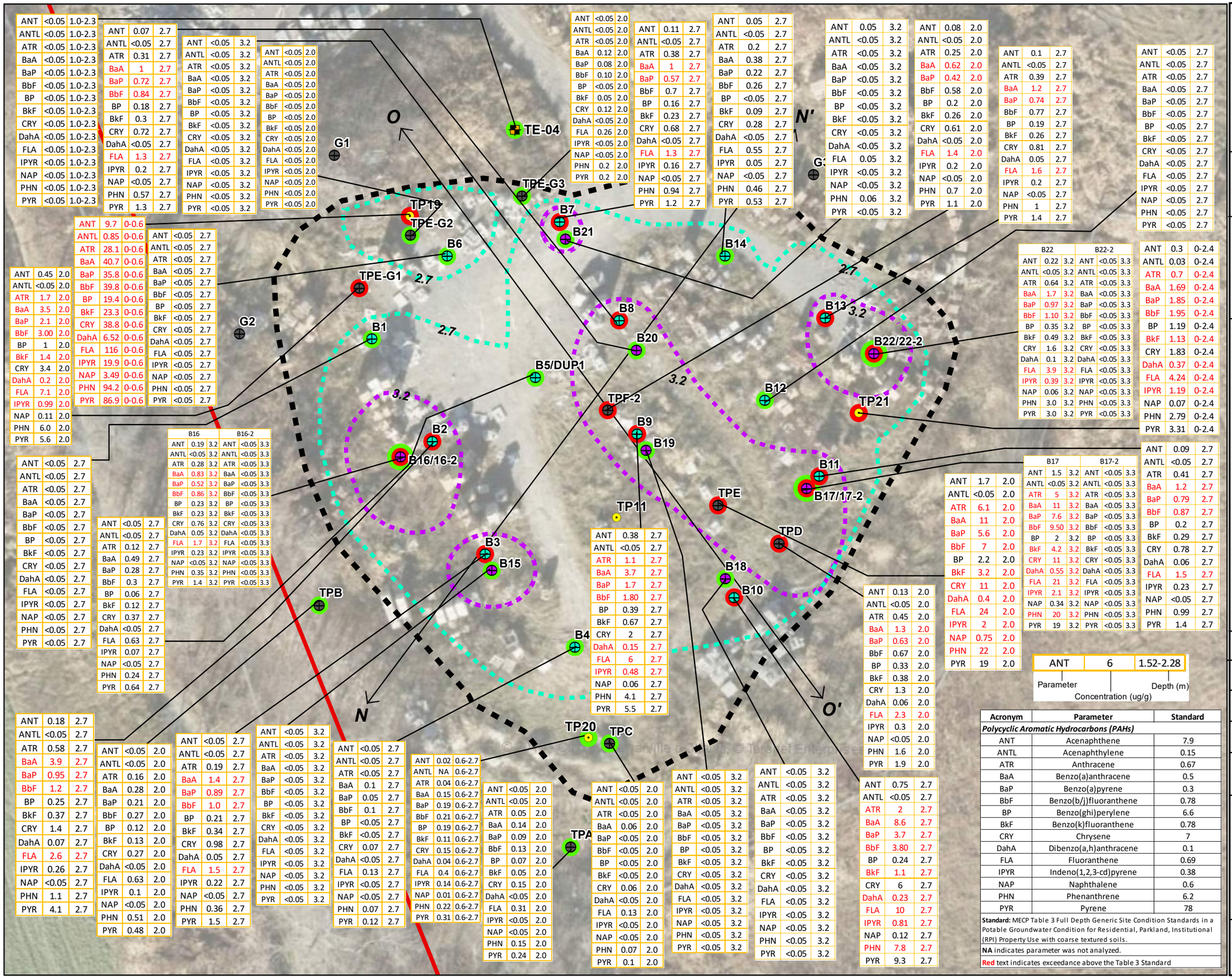
2 1 0 2 4 6 Meters
NAD1983 ZONE 18

TITLE

REMEDIATION AREA 1
CROSS SECTIONS
PHCS IN SOIL

FIGURE 10-1

Path: J:\17442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 10-1 Remediation Area 1 Cross Sections PHCs.mxd



ANT	<0.05	1.0-2.3
ANTL	<0.05	1.0-2.3
ATR	<0.05	1.0-2.3
BaA	<0.05	1.0-2.3
BaP	<0.05	1.0-2.3
BbF	<0.05	1.0-2.3
BP	<0.05	1.0-2.3
BkF	<0.05	1.0-2.3
CRY	<0.05	1.0-2.3
DahA	<0.05	1.0-2.3
FLA	<0.05	1.0-2.3
IPYR	<0.05	1.0-2.3
NAP	<0.05	1.0-2.3
PHN	<0.05	1.0-2.3
PYR	<0.05	1.0-2.3

ANT	0.07	2.7
ANTL	<0.05	2.7
ATR	0.31	2.7
BaA	1	2.7
BaP	0.72	2.7
BbF	0.84	2.7
BP	0.18	2.7
BkF	0.3	2.7
CRY	0.72	2.7
DahA	<0.05	2.7
FLA	1.3	2.7
IPYR	0.2	2.7
NAP	<0.05	2.7
PHN	0.57	2.7
PYR	1.3	2.7

ANT	<0.05	3.2
ANTL	<0.05	3.2
ATR	<0.05	3.2
BaA	<0.05	3.2
BaP	<0.05	3.2
BbF	<0.05	3.2
BP	<0.05	3.2
BkF	<0.05	3.2
CRY	<0.05	3.2
DahA	<0.05	3.2
FLA	<0.05	3.2
IPYR	<0.05	3.2
NAP	<0.05	3.2
PHN	<0.05	3.2
PYR	<0.05	3.2

ANT	<0.05	2.0
ANTL	<0.05	2.0
ATR	<0.05	2.0
BaA	<0.05	2.0
BaP	<0.05	2.0
BbF	<0.05	2.0
BP	<0.05	2.0
BkF	<0.05	2.0
CRY	<0.05	2.0
DahA	<0.05	2.0
FLA	<0.05	2.0
IPYR	<0.05	2.0
NAP	<0.05	2.0
PHN	<0.05	2.0
PYR	<0.05	2.0

ANT	0.11	2.7
ANTL	<0.05	2.7
ATR	0.38	2.7
BaA	1	2.7
BaP	0.57	2.7
BbF	0.7	2.7
BP	0.16	2.7
BkF	0.23	2.7
CRY	0.68	2.7
DahA	<0.05	2.7
FLA	1.3	2.7
IPYR	0.16	2.7
NAP	<0.05	2.7
PHN	0.94	2.7
PYR	1.2	2.7

ANT	0.05	2.7
ANTL	<0.05	2.7
ATR	0.2	2.7
BaA	0.38	2.7
BaP	0.22	2.7
BbF	0.26	2.7
BP	<0.05	2.7
BkF	0.09	2.7
CRY	0.28	2.7
DahA	<0.05	2.7
FLA	0.55	2.7
IPYR	0.05	2.7
NAP	<0.05	2.7
PHN	0.46	2.7
PYR	0.53	2.7

ANT	0.05	3.2
ANTL	<0.05	3.2
ATR	<0.05	3.2
BaA	<0.05	3.2
BaP	<0.05	3.2
BbF	<0.05	3.2
BP	<0.05	3.2
BkF	<0.05	3.2
CRY	<0.05	3.2
DahA	<0.05	3.2
FLA	0.05	3.2
IPYR	<0.05	3.2
NAP	<0.05	3.2
PHN	0.06	3.2
PYR	<0.05	3.2

ANT	0.08	2.0
ANTL	<0.05	2.0
ATR	0.25	2.0
BaA	0.62	2.0
BaP	0.42	2.0
BbF	0.58	2.0
BP	0.2	2.0
BkF	0.26	2.0
CRY	0.61	2.0
DahA	<0.05	2.0
FLA	1.4	2.0
IPYR	0.2	2.0
NAP	<0.05	2.0
PHN	0.7	2.0
PYR	1.1	2.0

ANT	0.1	2.7
ANTL	<0.05	2.7
ATR	0.39	2.7
BaA	1.2	2.7
BaP	0.74	2.7
BbF	0.77	2.7
BP	0.19	2.7
BkF	0.26	2.7
CRY	0.81	2.7
DahA	0.05	2.7
FLA	1.6	2.7
IPYR	0.2	2.7
NAP	<0.05	2.7
PHN	1	2.7
PYR	1.4	2.7

ANT	<0.05	2.7
ANTL	<0.05	2.7
ATR	<0.05	2.7
BaA	<0.05	2.7
BaP	<0.05	2.7
BbF	<0.05	2.7
BP	<0.05	2.7
BkF	<0.05	2.7
CRY	<0.05	2.7
DahA	<0.05	2.7
FLA	<0.05	2.7
IPYR	<0.05	2.7
NAP	<0.05	2.7
PHN	<0.05	2.7
PYR	<0.05	2.7

ANT	9.7	0-0.6
ANTL	0.85	0-0.6
ATR	28.1	0-0.6
BaA	40.7	0-0.6
BaP	35.8	0-0.6
BbF	39.8	0-0.6
BP	19.4	0-0.6
BkF	23.3	0-0.6
CRY	38.8	0-0.6
DahA	6.52	0-0.6
FLA	116	0-0.6
IPYR	19.9	0-0.6
NAP	3.49	0-0.6
PHN	94.2	0-0.6
PYR	86.9	0-0.6

ANT	<0.05	2.7
ANTL	<0.05	2.7
ATR	<0.05	2.7
BaA	<0.05	2.7
BaP	<0.05	2.7
BbF	<0.05	2.7
BP	<0.05	2.7
BkF	<0.05	2.7
CRY	<0.05	2.7
DahA	<0.05	2.7
FLA	<0.05	2.7
IPYR	<0.05	2.7
NAP	<0.05	2.7
PHN	<0.05	2.7
PYR	<0.05	2.7

ANT	0.45	2.0
ANTL	<0.05	2.0
ATR	1.7	2.0
BaA	3.5	2.0
BaP	2.1	2.0
BbF	3.00	2.0
BP	1	2.0
BkF	1.4	2.0
CRY	3.4	2.0
DahA	0.2	2.0
FLA	7.1	2.0
IPYR	0.99	2.0
NAP	0.11	2.0
PHN	6.0	2.0
PYR	5.6	2.0

B16			B16-2		
ANT	0.19	3.2	ANT	<0.05	3.3
ANTL	<0.05	3.2	ANTL	<0.05	3.3
ATR	0.28	3.2	ATR	<0.05	3.3
BaA	0.83	3.2	BaA	<0.05	3.3
BaP	0.52	3.2	BaP	<0.05	3.3
BbF	0.86	3.2	BbF	<0.05	3.3
BP	0.23	3.2	BP	<0.05	3.3
BkF	0.23	3.2	BkF	<0.05	3.3
CRY	0.76	3.2	CRY	<0.05	3.3
DahA	0.05	3.2	DahA	<0.05	3.3
FLA	1.7	3.2	FLA	<0.05	3.3
IPYR	0.23	3.2	IPYR	<0.05	3.3
NAP	<0.05	3.2	NAP	<0.05	3.3
PHN	0.35	3.2	PHN	<0.05	3.3
PYR	1.4	3.2	PYR	<0.05	3.3

B22			B22-2		
ANT	0.22	3.2	ANT	<0.05	3.3
ANTL	<0.05	3.2	ANTL	<0.05	3.3
ATR	0.64	3.2	ATR	<0.05	3.3
BaA	1.7	3.2	BaA	<0.05	3.3
BaP	0.97	3.2	BaP	<0.05	3.3
BbF	1.10	3.2	BbF	<0.05	3.3
BP	0.35	3.2	BP	<0.05	3.3
BkF	0.49	3.2	BkF	<0.05	3.3
CRY	1.6	3.2	CRY	<0.05	3.3
DahA	0.1	3.2	DahA	<0.05	3.3
FLA	3.9	3.2	FLA	<0.05	3.3
IPYR	0.39	3.2	IPYR	<0.05	3.3
NAP	0.06	3.2	NAP	<0.05	3.3
PHN	3.0	3.2	PHN	<0.05	3.3
PYR	3.0	3.2	PYR	<0.05	3.3

ANT	0.3	0-2.4
ANTL	0.03	0-2.4
ATR	0.7	0-2.4
BaA	1.69	0-2.4
BaP	1.85	0-2.4
BbF	1.95	0-2.4
BP	1.19	0-2.4
BkF	1.13	0-2.4
CRY	1.83	0-2.4
DahA	0.37	0-2.4
FLA	4.24	0-2.4
IPYR	1.19	0-2.4
NAP	0.07	0-2.4
PHN	2.79	0-2.4
PYR	3.31	0-2.4

ANT	0.09	2.7
ANTL	<0.05	2.7
ATR	0.41	2.7
BaA	1.2	2.7
BaP	0.79	2.7
BbF	0.87	2.7
BP	0.2	2.7
BkF	0.29	2.7
CRY	0.78	2.7
DahA	0.06	2.7
FLA	1.5	2.7
IPYR	0.23	2.7
NAP	<0.05	2.7
PHN	0.99	2.7
PYR	1.4	2.7

ANT	1.7	2.0
ANTL	<0.05	2.0
ATR	6.1	2.0
BaA	11	2.0
BaP	5.6	2.0
BbF	7	2.0
BP	2.2	2.0
BkF	3.2	2.0
CRY	11	2.0
DahA	0.4	2.0
FLA	24	2.0
IPYR	2	2.0
NAP	0.75	2.0
PHN	22	2.0
PYR	19	2.0

B17			B17-2		
ANT	1.5	3.2	ANT	<0.05	3.3
ANTL	<0.05	3.2	ANTL	<0.05	3.3
ATR	5	3.2	ATR	<0.05	3.3
BaA	11	3.2	BaA	<0.05	3.3
BaP	7.6	3.2	BaP	<0.05	3.3
BbF	9.50	3.2	BbF	<0.05	3.3
BP	2	3.2	BP	<0.05	3.3
BkF	4.2	3.2	BkF	<0.05	3.3
CRY	11	3.2	CRY	<0.05	3.3
DahA	0.55	3.2	DahA	<0.05	3.3
FLA	21	3.2	FLA	<0.05	3.3
IPYR	2.1	3.2	IPYR	<0.05	3.3
NAP	0.34	3.2	NAP	<0.05	3.3
PHN	20	3.2	PHN	<0.05	3.3
PYR	19	3.2	PYR	<0.05	3.3

ANT	<0.05	2.7
ANTL	<0.05	2.7
ATR	<0.05	2.7
BaA	<0.05	2.7
BaP	<0.05	2.7
BbF	<0.05	2.7
BP	<0.05	2.7
BkF	<0.05	2.7
CRY	<0.05	2.7
DahA	<0.05	2.7
FLA	<0.05	2.7
IPYR	<0.05	2.7
NAP	<0.05	2.7
PHN	0.12	2.7
PYR	0.64	2.7

ANT	0.38	2.7
ANTL	<0.05	2.7
ATR	1.1	2.7
BaA	3.7	2.7
BaP	1.7	2.7
BbF	1.80	2.7
BP	0.39	2.7
BkF	0.67	2.7
CRY	2	2.7
DahA	0.15	2.7
FLA	6	2.7
IPYR	0.48	2.7
NAP	0.06	2.7
PHN	4.1	2.7
PYR	5.5	2.7

ANT	0.13	2.0
ANTL	<0.05	2.0
ATR	0.45	2.0
BaA	1.3	2.0
BaP	0.63	2.0
BbF	0.67	2.0
BP	0.33	2.0
BkF	0.38	2.0
CRY	1.3	2.0
DahA	0.06	2.0
FLA	2.3	2.0
IPYR	0.3	2.0
NAP	<0.05	2.0
PHN	1.6	2.0
PYR	1.9	2.0

ANT	0.75	2.7
ANTL	<0.05	2.7
ATR	2	2.7
BaA	8.6	2.7
BaP	3.7	2.7
BbF	3.80	2.7
BP	0.24	2.7
BkF	1.1	2.7
CRY	6	2.7
DahA	0.23	2.7
FLA	10	2.7
IPYR	0.81	2.7
NAP	0.12	2.7
PHN	7.8	2.7
PYR	9.3	2.7

ANT	0.18	2.7
ANTL	<0.05	2.7
ATR	0.58	2.7
BaA	3.9	2.7
BaP	0.95	2.7
BbF	1.2	2.7
BP	0.25	2.7
BkF	0.37	2.7
CRY	1.4	2.7
DahA	0.07	2.7
FLA	2.6	2.7
IPYR	0.26	2.7
NAP	<0.05	2.7
PHN	1.1	2.7
PYR	4.1	2.7

ANT	<0.05	2.0
ANTL	<0.05	2.0
ATR	0.16	2.0
BaA	0.28	2.0
BaP	0.21	2.0
BbF	0.27	2.0
BP	0.12	2.0
BkF	0.13	2.0
CRY	0.27	2.0
DahA	<0.05	2.0
FLA	0.63	2.0
IPYR	0.1	2.0
NAP	<0.05	2.0
PHN	0.51	2.0
PYR	0.48	2.0

ANT	<0.05	2.7
ANTL	<0.05	2.7
ATR	0.19	2.7
BaA	1.4	2.7
BaP	0.89	2.7
BbF	1.0	2.7
BP	0.21	2.7
BkF	0.34	2.7
CRY	0.98	2.7
DahA	0.05	2.7
FLA	1.5	2.7
IPYR	0.22	2.7
NAP	<0.05	2.7
PHN	0.36	2.7
PYR	1.5	2.7

ANT	<0.05	3.2
ANTL	<0.05	3.2
ATR	<0.05	3.2
BaA	<0.05	3.2
BaP	<0.05	3.2
BbF	<0.05	3.2
BP	<0.05	3.2
BkF	<0.05	3.2
CRY	<0.05	3.2
DahA	<0.05	3.2
FLA	<0.05	3.2
IPYR	<0.05	3.2
NAP	<0.05	3.2
PHN	<0.05	3.2
PYR	<0.05	3.2

ANT	<0.05	2.7
ANTL	<0.05	2.7
ATR	<0.05	2.7
BaA	0.1	2.7
BaP	0.05	2.7
BbF	0.1	2.7
BP	<0.05	2.7
BkF	<0.05	2.7
CRY	0.07	2.7
DahA	<0.05	2.7
FLA	0.13	2.7
IPYR	<0.05	2.7
NAP	<0.05	2.7
PHN	0.07	2.7
PYR	0.12	2.7

ANT	0.02	0.6-2.7
ANTL	NA	0.6-2.7
ATR	0.04	0.6-2.7
BaA	0.15	0.6-2.7
BaP	0.19	0.6-2.7
BbF	0.21	0.6-2.7
BP	0.19	0.6-2.7
BkF	0.11	0.6-2.7
CRY	0.15	0.6-2.7
DahA	0.04	0.6-2.7
FLA	0.4	0.6-2.7
IPYR	0.14	0.6-2.7
NAP	0.01	0.6-2.7
PHN	0.22	0.6-2.7
PYR	0.31	0.6-2.7

ANT	<0.05	2.0
ANTL	<0.05	2.0
ATR	0.05	2.0
BaA	0.14	2.0
BaP	0.09	2.0
BbF	0.13	2.0
BP	0.07	2.0
BkF	0.05	2.0
CRY	0.15	2.0
DahA	<0.05	2.0
FLA	0.31	2.0
IPYR	<0.05	2.0
NAP	<0.05	2.0
PHN	0.15	2.0
PYR	0.24	2.0

ANT	<0.05	2.0
ANTL	<0.05	2.0
ATR	<0.05	2.0
BaA	0.06	2.0
BaP	<0.05	2.0
BbF	<0.05	2.0
BP	<0.05	2.0
BkF	<0.05	2.0
CRY	0.06	2.0
DahA	<0.05	2.0
FLA	0.13	2.0
IPYR	<0.05	2.0
NAP	<0.05	2.0
PHN	0.07	2.0
PYR	0.1	2.0

ANT	<0.05	3.2
ANTL	<0.05	3.2
ATR	<0.05	3.2
BaA	<0.05	3.2
BaP	<0.05	3.2
BbF	<0.05	3.2
BP	<0.05	3.2
BkF	<0.05	3.2
CRY	<0.05	3.2
DahA	<0.05	3.2
FLA	<0.05	3.2
IPYR	<0.05	3.2
NAP	<0.05	3.2
PHN	<0.05	3.2
PYR	<0.05	3.2

ANT	<0.05	3.2
ANTL	<0.05	3.2
ATR	<0.05	3.2
BaA	<0.05	3.2
BaP	<0.05	3.2
BbF	<0.05	3.2
BP	<0.05	3.2
BkF	<0.05	3.2
CRY	<0.05	3.2
DahA	<0.05	3.2
FLA	<0.05	3.2
IPYR	<0.05	3.2
NAP	<0.05	3.2
PHN	<0.05	3.2
PYR	<0.05	3.2

ANT	6	1.52-2.28

Parameter — Concentration (ug/g) — Depth (m)

Acronym	Parameter	Standard
Polycyclic Aromatic Hydrocarbons (PAHs)		
ANT	Acenaphthene	7.9
ANTL	Acenaphthylene	0.15
ATR	Anthracene	0.67
BaA	Benzo(a)anthracene	0.5
BaP	Benzo(a)pyrene	0.3
BbF	Benzo(b/j)fluoranthene	0.78
BP	Benzo(ghi)perylene	6.6
BkF	Benzo(k)fluoranthene	0.78
CRY	Chrysene	7
DahA	Dibenzo(a,h)anthracene	0.1
FLA	Fluoranthene	0.69
IPYR	Indeno(1,2,3-cd)pyrene	0.38
NAP	Naphthalene	0.6
PHN	Phenanthrene	6.2
PYR	Pyrene	78

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

NA indicates parameter was not analyzed.

Red text indicates exceedance above the Table 3 Standard

wsp

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PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Cross Sections
- Limit of Remediation Area 1 (1st Round = 2.0 m)
- 2nd Round Excavation = 2.7 m total
- 3rd Round Excavation = 3.2 m total
- 1st Round Sample at 2.0 m
- 2nd Round Sample at 2.7 m
- 3rd Round Sample at 3.2 m
- Test Pit (Paterson, 2017)
- Test Pit (WSP, 2013)
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS
- Shallow Sample Exceeds and Deeper Sample Meets Table 3 SCS

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: NN	
CHECKED BY: NC	
SCALE: 1:350	

5 2.5 0 5 10 15 Meters

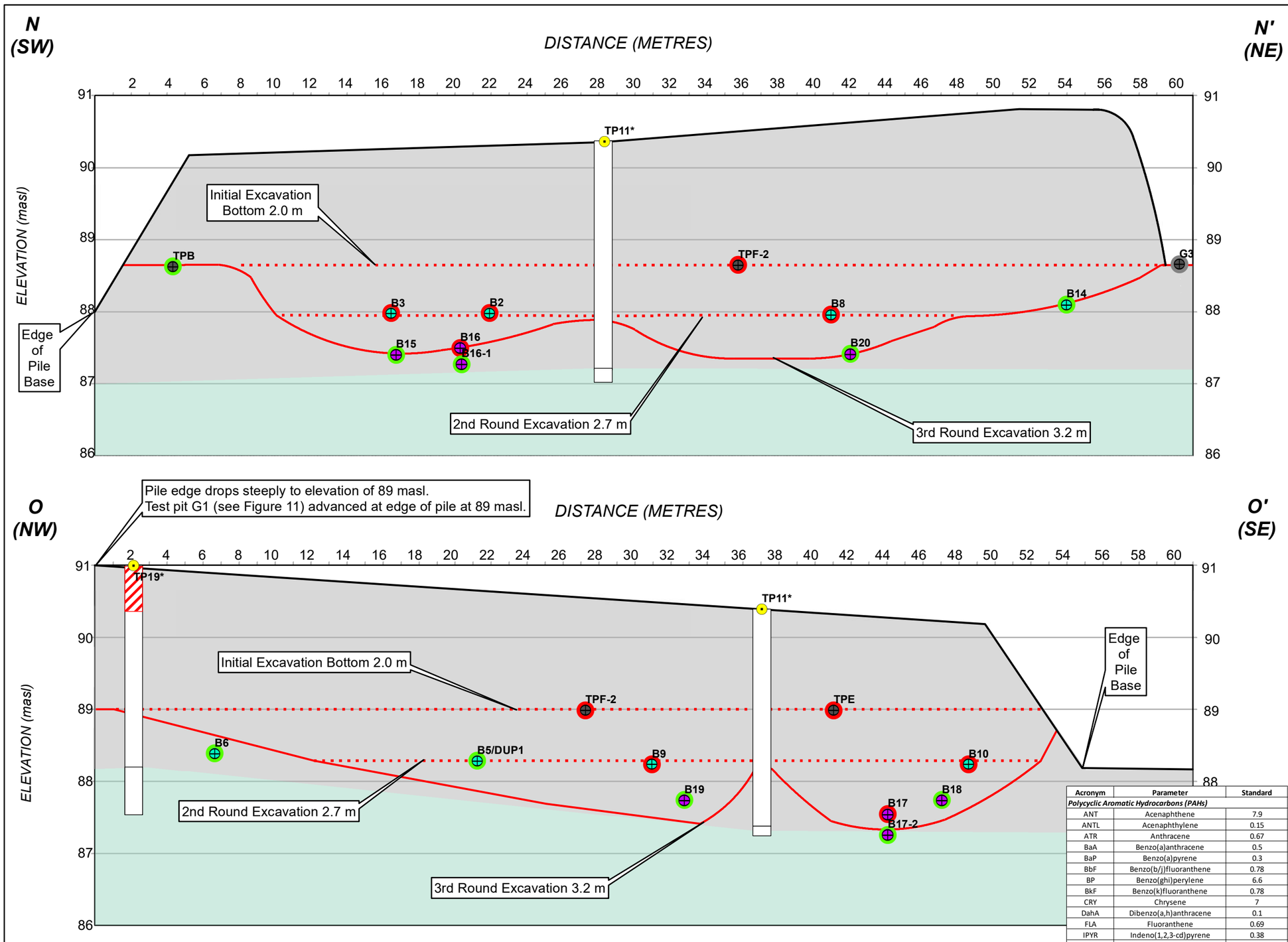
NAD1983 ZONE 18

TITLE

REMEDIATION AREA 1
PAHS IN SOIL

FIGURE 11

Path: J:\1442 Projects by Job Number\2016\33164428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 11 Remediation Area 1 PAHs.mxd



Note: For contaminant concentrations, see Figure 11.

Acronym	Parameter	Standard
Polycyclic Aromatic Hydrocarbons (PAHs)		
ANT	Acenaphthene	7.9
ANTL	Acenaphthylene	0.15
ATR	Anthracene	0.67
BaA	Benzo(a)anthracene	0.5
BaP	Benzo(a)pyrene	0.3
BbF	Benzo(b/j)fluoranthene	0.78
BP	Benzo(ghi)perylene	6.6
BkF	Benzo(k)fluoranthene	0.78
CRY	Chrysene	7
DahA	Dibenzo(a,h)anthracene	0.1
FLA	Fluoranthene	0.69
IPYR	Indeno(1,2,3-cd)pyrene	0.38
NAP	Naphthalene	0.6
PHN	Phenanthrene	6.2
PYR	Pyrene	78

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

NA indicates parameter was not analyzed.

Red text indicates exceedance above the Table 3 Standard

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PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Final Bottom of Excavation
- Previous Excavation Bottom
- Ground Surface - Top of Pile
- 1st Round Sample
- 2nd Round Sample
- 3rd Round Sample
- Test Pit (Paterson, 2017)
- Sample Meets Tabe 3 SCS
- Sample Exceeds Tabe 3 SCS
- Sample Not Analyzed for PAHs
- Sampling Locations Prior to 2019 Remediation
- Sample Exceeds Table 3 SCS - Soil Removed

Stratigraphy

- Fill
- Clayey Silt

PROJECT NUMBER:	17M-01348-00	DATE:	FEBRUARY 2021
DRAWN BY:	NN		
CHECKED BY:	NC		
SCALE:	1:220 4X HORIZONTAL EXAG.		

2 1 0 2 4 6 Meters

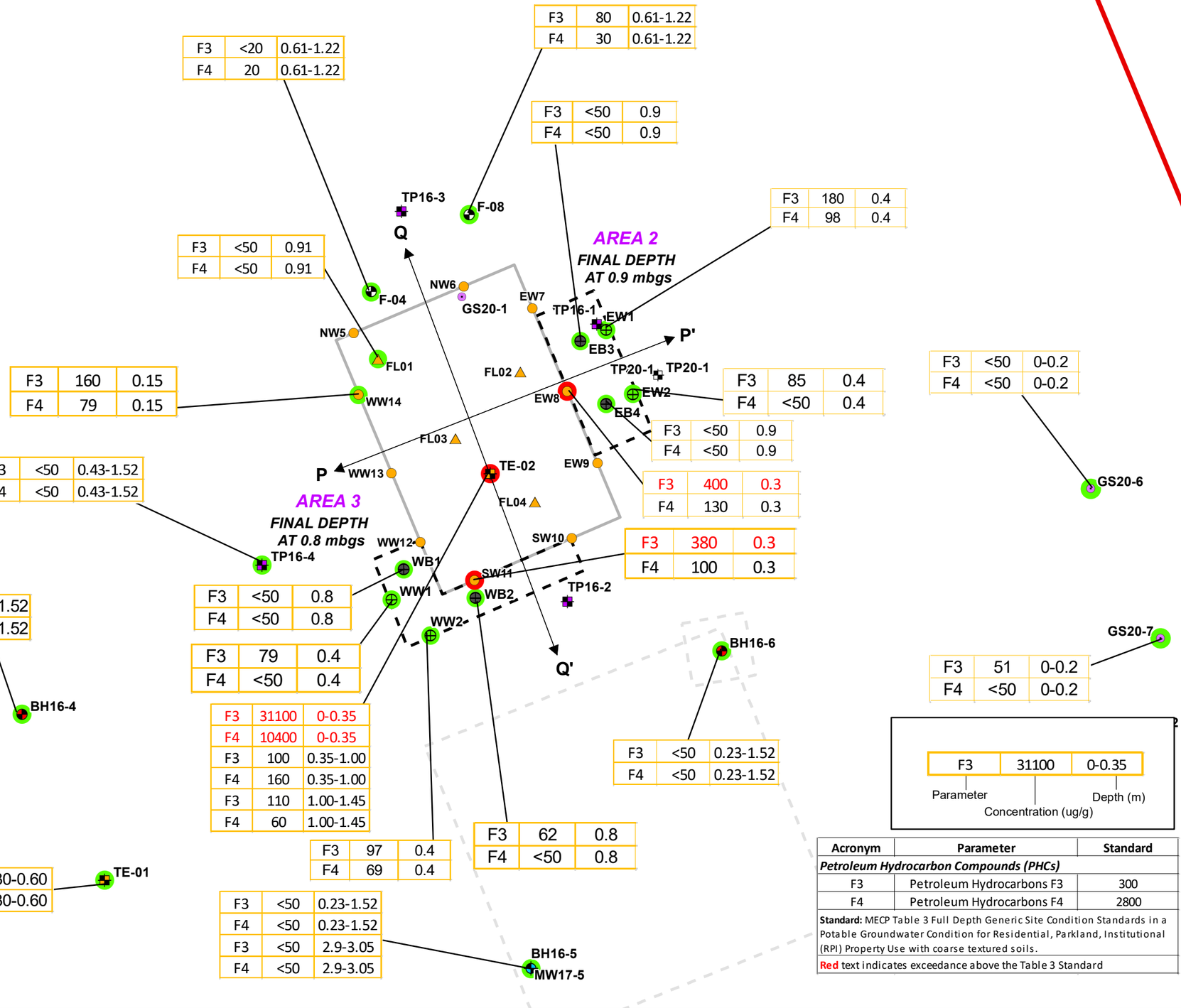
NAD1983 ZONE 18

TITLE

REMEDIATION AREA 1
CROSS SECTIONS
PAHS IN SOIL

FIGURE 11-1

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 11-1 Remediation Area 1 Cross Sections PAHs.mxd



Acronym	Parameter	Standard
Petroleum Hydrocarbon Compounds (PHCs)		
F3	Petroleum Hydrocarbons F3	300
F4	Petroleum Hydrocarbons F4	2800

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

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GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Remediaton Areas
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS
- Floor Verification Samples
- Wall Verification Samples
- Base Sample
- Wall Sample
- Test Pit (WSP, 2013)
- Test Pit (WSP, 2016)
- Test Pit (Paterson, 2017)
- Test Pit (WSP, 2020)
- Surface Soil Sample (WSP, 2020)
- Borehole (WSP, 2013)
- Monitoring Well (WSP, 2013)
- Borehole (WSP, 2016)
- Monitoring Well (WSP, 2016-2017)
- Monitoring Well (Paterson, 2017)
- Monitoring Well (WSP, 2019)
- Monitoring Well (WSP, 2020)

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SCALE: VARIABLE	

2 1 0 2 4 6 Meters

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TITLE

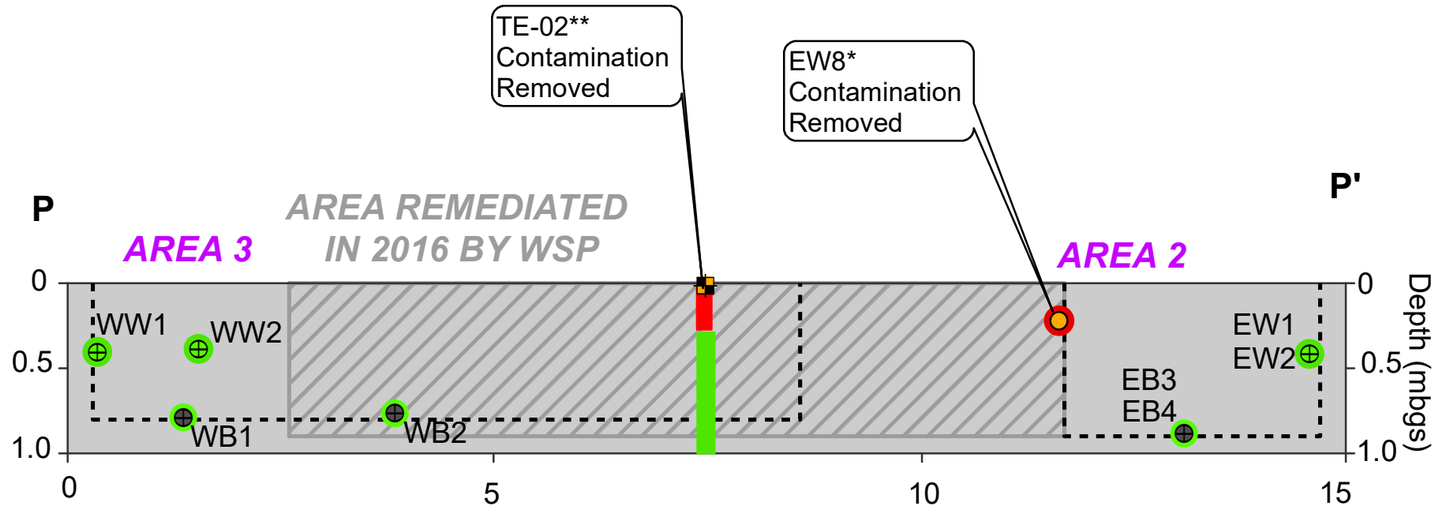
REMEDIATION AREAS 2 AND 3
PHCS IN SOIL

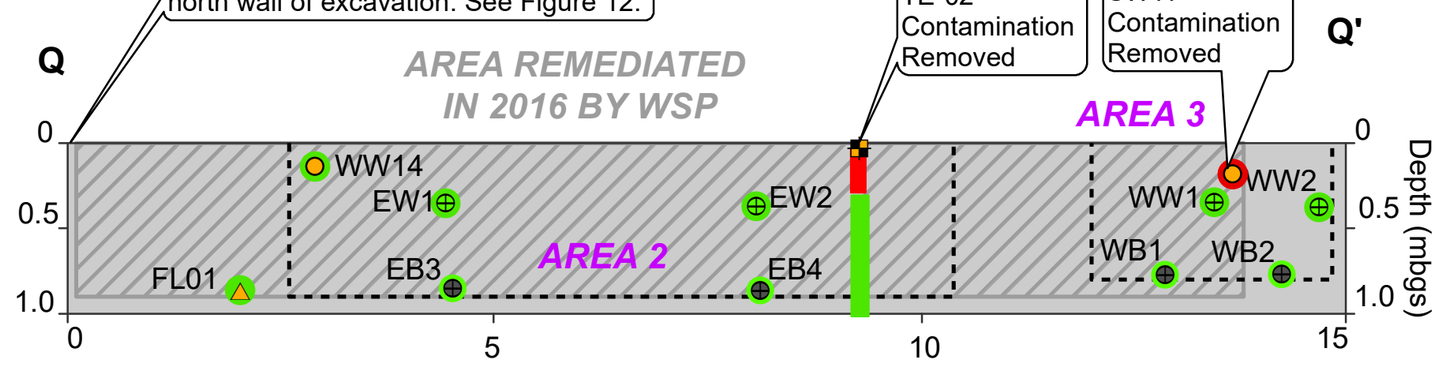
FIGURE 12

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 12 Remediation Area 2 3 PHCs.mxd

AREA 2 AND 3 CROSS SECTIONS

SCALE: 1:70 (Horizontal) 1:35 (Vertical)





* Sampling locations prior to 2019 remediation.

F3 | 31100 | 0-0.35

Parameter | Concentration (ug/g) | Depth (m)

Acronym	Parameter	Standard
Petroleum Hydrocarbon Compounds (PHCs)		
F3	Petroleum Hydrocarbons F3	300
F4	Petroleum Hydrocarbons F4	2800

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

Note: See contaminant concentrations on Figure 12.

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PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Remediaton Areas
- Area Remediated in 2016
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS
- Floor Verification Samples
- Wall Verification Samples
- Base Sample
- Wall Sample
- Test Pit (WSP, 2013)
- Test Pit (WSP, 2016)
- Test Pit (Paterson, 2017)
- Test Pit (WSP, 2020)
- Surface Soil Sample (WSP, 2020)
- Borehole (WSP, 2013)
- Monitoring Well (WSP, 2013)
- Borehole (WSP, 2016)
- Monitoring Well (WSP, 2016-2017)
- Monitoring Well (Paterson, 2017)
- Monitoring Well (WSP, 2019)
- Monitoring Well (WSP, 2020)

Stratigraphy
- Fill Within APEC

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SCALE: VARIABLE	

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TITLE

REMEDIATION AREAS 2 AND 3
CROSS SECTIONS
PHCS IN SOIL

FIGURE 12-1

Path: J:\17442 Projects by Job Number\2016\33164\28-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 12-1 Remediation Area 2 3 PHCs.mxd

NOTE: SAR and EC exceedances are exempt from consideration as contaminants under Section 49.1 of O. Reg. 153/04.

Acronym	Parameter	Standard
Other Related Parameters		
EC	Electrical Conductivity (mS/cm)	0.7
SAR	Sodium Absorption Ratio	5

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

Parameter	Concentraton	Depth (mbgs)
EC	0.458	1.52-2.28

TE-01

TP15

EC	0.57	0.23-1.52	
SAR	5.41	0.23-1.52	

R

BH3

N5 / N6

BH16-6

AREA 4

N3 / N4

E7 / E8

N1 / N2

SAR	1.26	2.5	

R' E5 / E6

EC	NA	1.7-2.0	TP20-2
SAR	0.483	1.7-2.0	
EC	NA	1.7-2.0	SAR DUP
SAR	0.262	1.7-2.0	(Duplicate)

TP20-2

W1 / W2

E3 / E4

AREA 6

W3

E1 / E2

BH16-5/ MW17-5

W4 / W5

SW4 / SW5

SW3

SW1 / SW2

BH5

MW19-5

MW20-5D

MW20-5S

EC	0.325	0.23-1.52	BH16-5-1B
SAR	0.657	0.23-1.52	

EC	0.56	1.5
SAR	NA	1.5

EC	0.767	0.9-1.2	
SAR	NA	0.9-1.2	

NOTE: Although there was excavation in 2020 around TP20-3, this soil remains on-site, replaced in the excavation.

TP6

Base-N

Sidewall-W

TP20-3

Sidewall-E

TP20-3 EXCAVATION

Base-S

TP24

EC	0.49	0.9-1.2	
SAR	NA	0.9-1.2	

EC	0.72	0.8-1.1	
SAR	NA	0.8-1.1	

EC	0.533	1.5
SAR	NA	1.5

EC	1.86	0.20-1.52	BH16-8-1
SAR	4.79	0.20-1.52	
EC	0.91	0.20-1.52	TP16-5 SA1
SAR	NA	0.20-1.52	(Duplicate)

EC	0.579	0.20-1.52	
SAR	1.02	0.20-1.52	

BH16-7

TP20-4

AREA 5

T

B1

BH16-8

S'

S

SW2 B2

SW1

T'

TP23

EC	0.324	2.0

EC	0.298	2.0

EC	0.338	1.0

EC	0.286	1.0

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PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Test Pit (WSP, 2013)
- Borehole (WSP, 2013)
- Monitoring Well (WSP, 2013)
- Test Pit (WSP, 2016)
- Borehole (WSP, 2016)
- Monitoring Well (WSP, 2016-2017)
- Monitoring Well (WSP, 2019)
- Monitoring Well (WSP, 2020)
- Floor Verification Sample
- Wall Verification Sample
- Base Sample
- Wall Sample

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: NN	
CHECKED BY: NC	
SCALE: VARIABLE	

3 1.5 0 3 6 9 Meters

NAD1983 ZONE 18

TITLE

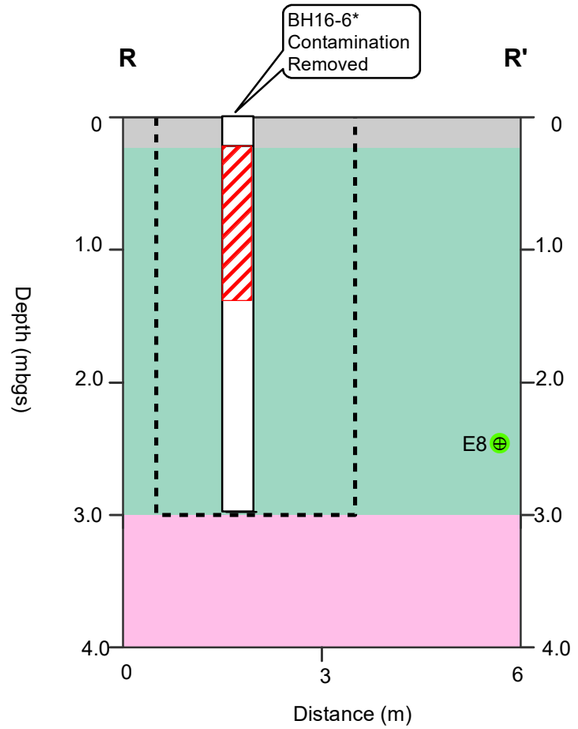
REMEDIATION AREAS 4 AND 5
SAR AND EC IN SOIL

FIGURE 13

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 13 Remediation Area 4 5 EC SAR.mxd

AREA 4 CROSS SECTION

HORIZONTAL SCALE: 1:90
VERTICAL SCALE: 1:45



NOTE: See Figure 13 for Contaminant Concentrations

Parameter	Concentraton	Depth (mbgs)
EC	0.458	1.52-2.28

Acronym	Parameter	Standard
Other Related Parameters		
EC	Electrical Conductivity (mS/cm)	0.7
SAR	Sodium Absorption Ratio	5

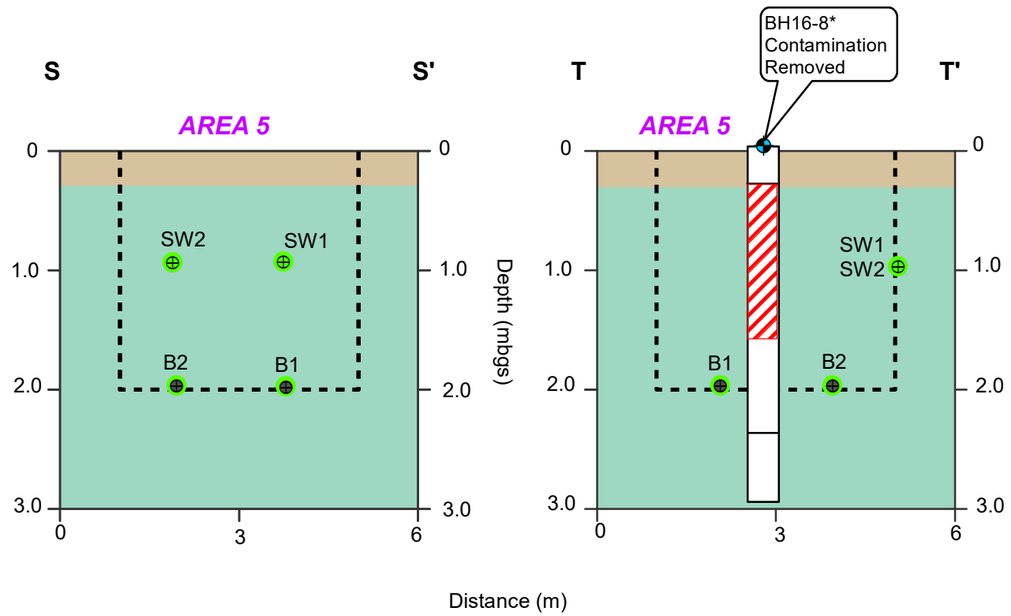
Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

AREA 5 CROSS SECTIONS

HORIZONTAL SCALE: 1:100
VERTICAL SCALE: 1:50

* Sampling locations prior to 2019 remediation.



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GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Remedial Excavation
- Fill (Within APEC)
- Topsoil
- Clayey Silt
- Bedrock
- Base Sample
- Wall Sample
- Sample Meets Table 3 SCS
- Sample Exceeds Table 3 SCS - Removed During Excavation

PROJECT NUMBER: 17M-01348-00	DATE: FEBRUARY 2021
DRAWN BY: NN	
CHECKED BY: NC	
SCALE: VARIABLE	

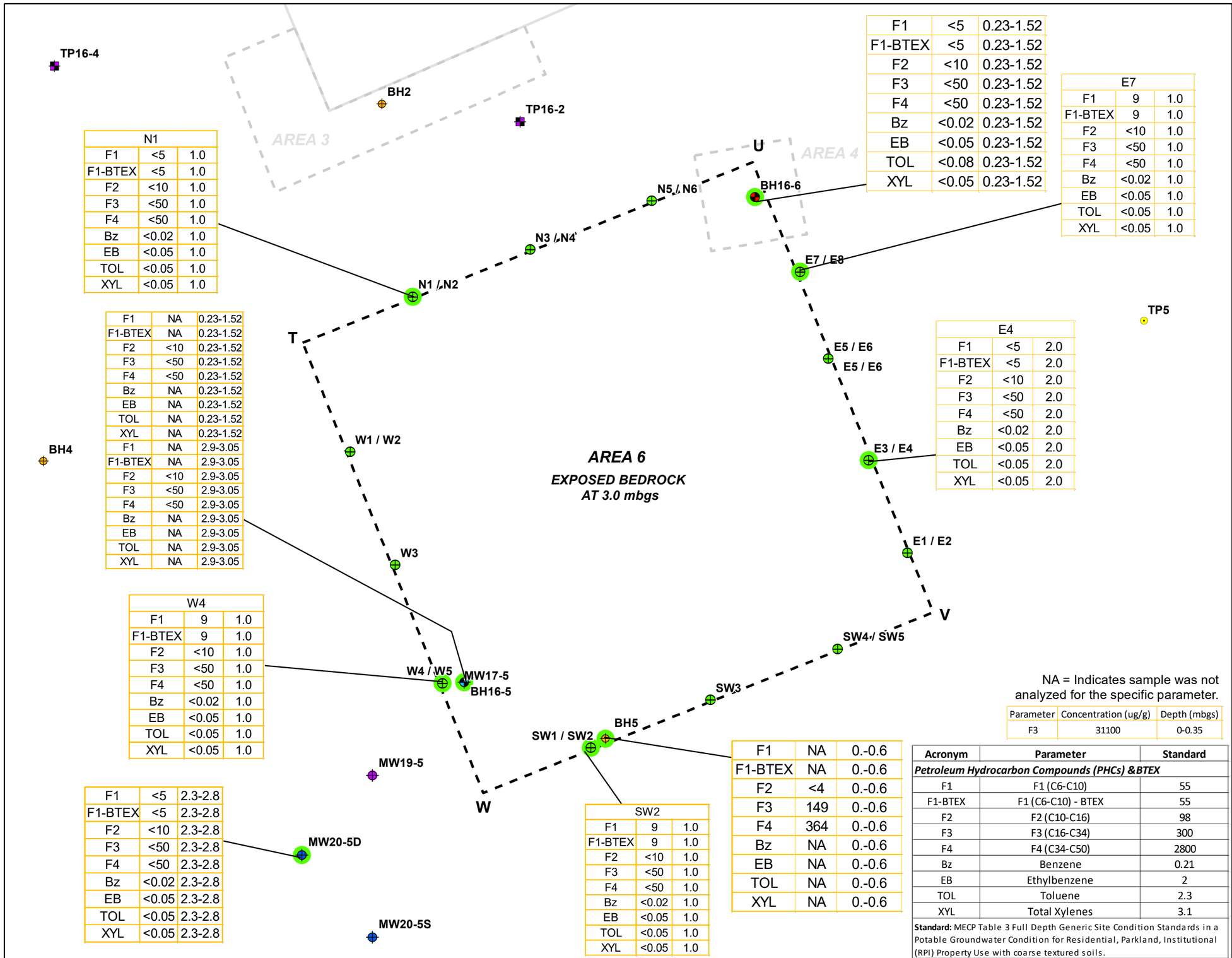
NAD1983 ZONE 18

TITLE

REMEDIATION AREAS 4 AND 5
CROSS SECTIONS
SAR AND EC IN SOIL

FIGURE 13-1

Path: J:\1442 Projects by Job Number\2016\33164428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 13-1 Remediation Area 4 5 ECSAR.mxd



N1		
F1	<5	1.0
F1-BTEX	<5	1.0
F2	<10	1.0
F3	<50	1.0
F4	<50	1.0
Bz	<0.02	1.0
EB	<0.05	1.0
TOL	<0.05	1.0
XYL	<0.05	1.0

F1	<5	0.23-1.52
F1-BTEX	<5	0.23-1.52
F2	<10	0.23-1.52
F3	<50	0.23-1.52
F4	<50	0.23-1.52
Bz	<0.02	0.23-1.52
EB	<0.05	0.23-1.52
TOL	<0.08	0.23-1.52
XYL	<0.05	0.23-1.52

E7		
F1	9	1.0
F1-BTEX	9	1.0
F2	<10	1.0
F3	<50	1.0
F4	<50	1.0
Bz	<0.02	1.0
EB	<0.05	1.0
TOL	<0.05	1.0
XYL	<0.05	1.0

F1	NA	0.23-1.52
F1-BTEX	NA	0.23-1.52
F2	<10	0.23-1.52
F3	<50	0.23-1.52
F4	<50	0.23-1.52
Bz	NA	0.23-1.52
EB	NA	0.23-1.52
TOL	NA	0.23-1.52
XYL	NA	0.23-1.52
F1	NA	2.9-3.05
F1-BTEX	NA	2.9-3.05
F2	<10	2.9-3.05
F3	<50	2.9-3.05
F4	<50	2.9-3.05
Bz	NA	2.9-3.05
EB	NA	2.9-3.05
TOL	NA	2.9-3.05
XYL	NA	2.9-3.05

E4		
F1	<5	2.0
F1-BTEX	<5	2.0
F2	<10	2.0
F3	<50	2.0
F4	<50	2.0
Bz	<0.02	2.0
EB	<0.05	2.0
TOL	<0.05	2.0
XYL	<0.05	2.0

W4		
F1	9	1.0
F1-BTEX	9	1.0
F2	<10	1.0
F3	<50	1.0
F4	<50	1.0
Bz	<0.02	1.0
EB	<0.05	1.0
TOL	<0.05	1.0
XYL	<0.05	1.0

F1	<5	2.3-2.8
F1-BTEX	<5	2.3-2.8
F2	<10	2.3-2.8
F3	<50	2.3-2.8
F4	<50	2.3-2.8
Bz	<0.02	2.3-2.8
EB	<0.05	2.3-2.8
TOL	<0.05	2.3-2.8
XYL	<0.05	2.3-2.8

SW2		
F1	9	1.0
F1-BTEX	9	1.0
F2	<10	1.0
F3	<50	1.0
F4	<50	1.0
Bz	<0.02	1.0
EB	<0.05	1.0
TOL	<0.05	1.0
XYL	<0.05	1.0

F1	NA	0.-0.6
F1-BTEX	NA	0.-0.6
F2	<4	0.-0.6
F3	149	0.-0.6
F4	364	0.-0.6
Bz	NA	0.-0.6
EB	NA	0.-0.6
TOL	NA	0.-0.6
XYL	NA	0.-0.6

NA = Indicates sample was not analyzed for the specific parameter.

Parameter	Concentration (ug/g)	Depth (mbgs)
F3	31100	0-0.35

Acronym	Parameter	Standard
Petroleum Hydrocarbon Compounds (PHCs) & BTEX		
F1	F1 (C6-C10)	55
F1-BTEX	F1 (C6-C10) - BTEX	55
F2	F2 (C10-C16)	98
F3	F3 (C16-C34)	300
F4	F4 (C34-C50)	2800
Bz	Benzene	0.21
EB	Ethylbenzene	2
TOL	Toluene	2.3
XYL	Total Xylenes	3.1

Standard: MECP Table 3 Full Depth Generic Site Condition Standards in a Potable Groundwater Condition for Residential, Parkland, Institutional (RPI) Property Use with coarse textured soils.

Red text indicates exceedance above the Table 3 Standard

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PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Test Pit (WSP, 2013)
- Borehole (WSP, 2013)
- Monitoring Well (WSP, 2013)
- Test Pit (WSP, 2016)
- Borehole (WSP, 2016)
- Monitoring Well (WSP, 2016-2017)
- Monitoring Well (WSP, 2019)
- Monitoring Well (WSP, 2020)
- Monitoring Well (Paterson, 2017)
- Test Pit (Paterson, 2017)
- Test Pit (WSP, 2020)
- Surface Soil Sample (WSP, 2020)
- Base Sample
- Wall Sample
- Sample Meets Table 3 SCS

PROJECT NUMBER: 17M-01348-00

DATE: FEBRUARY 2021

DRAWN BY: NN

CHECKED BY: NC

SCALE: 1:250

2 1 0 2 4 Meters

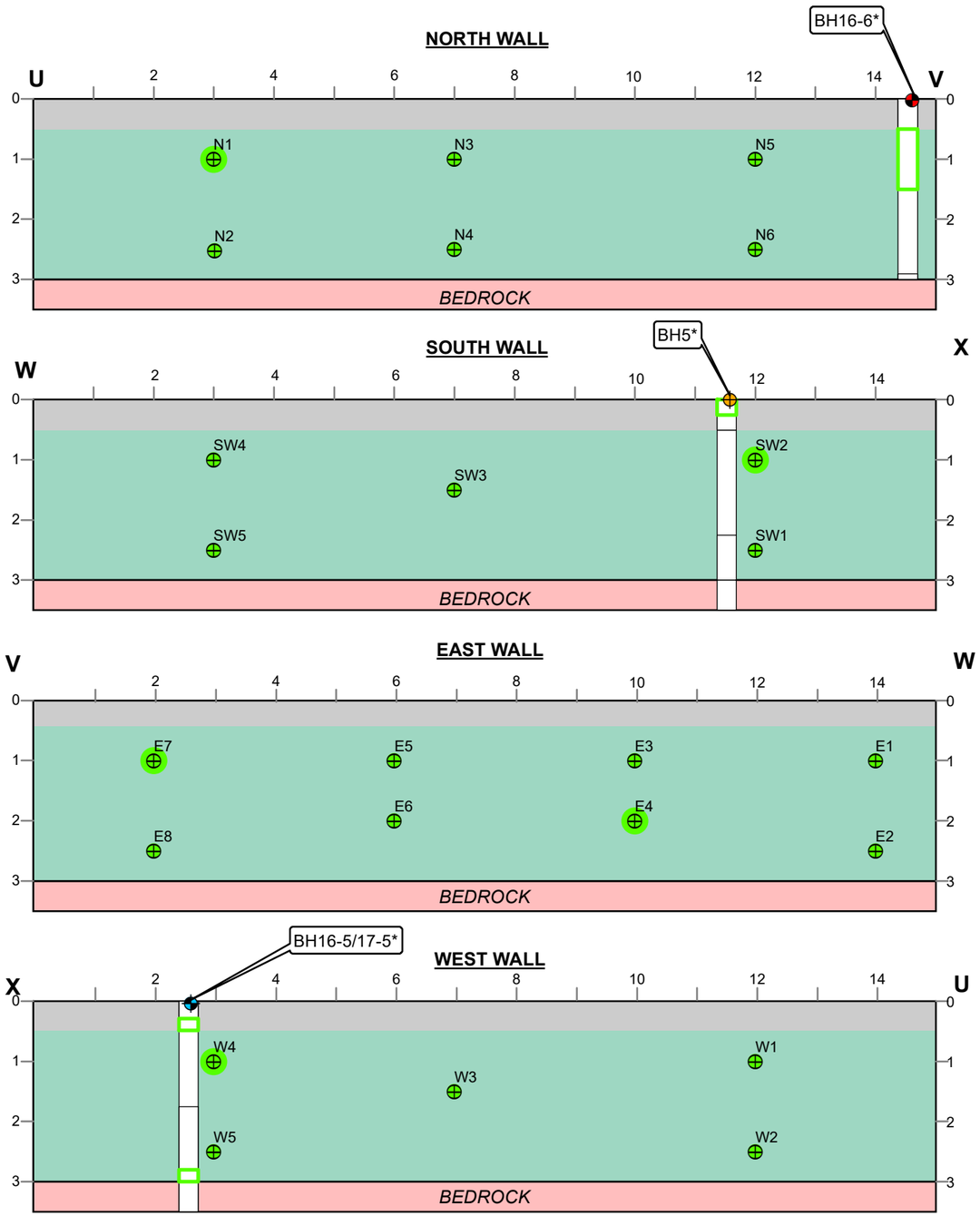
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TITLE

REMEDIATION AREA 6
PHCs & BTEX IN SOIL

FIGURE 14

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 14 Remediation Area 6 Sampling Plan.mxd



AREA 6 CROSS SECTIONS

SCALE: 1:90

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PART OF LOT 4, CONCESSION 3 (OTTAWA FRONT)
GLOUCESTER
(3610 INNES ROAD, OTTAWA, ONTARIO)

LEGEND

- Property Boundary
- Limit of Remediation Area 6
- Soil Sample Meets Table 3 SCS
- Wall Sample
- Fill
- Clayey Silt
- Bedrock

* Sampling locations prior to 2019 remediation

PROJECT NUMBER:	17M-01348-00	DATE:	FEBRUARY 2021
DRAWN BY:	NN		
CHECKED BY:	NC		
SCALE:	1:90		

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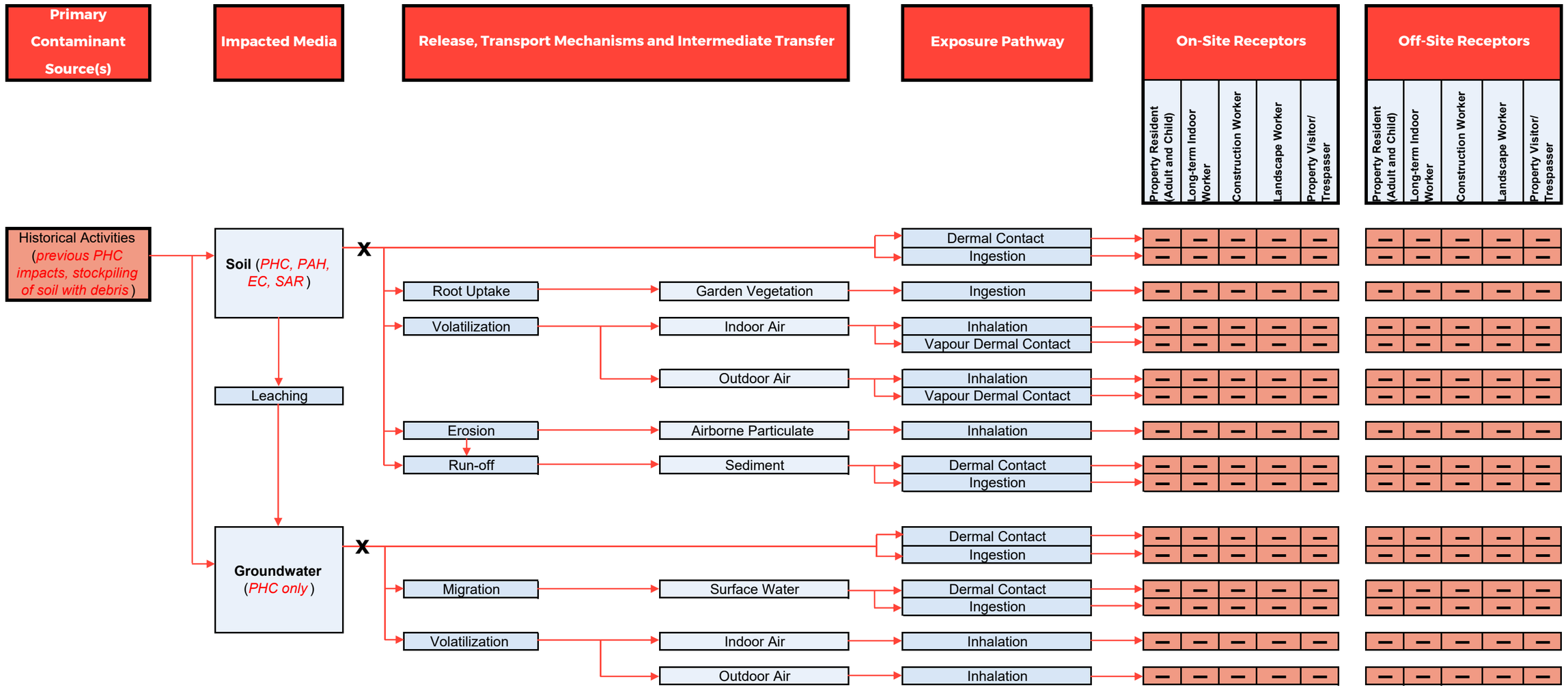
TITLE

REMEDIATION AREA 6
CROSS SECTIONS
PHCs & BTEX IN SOIL

FIGURE 14-1

Path: J:\1442 Projects by Job Number\2016\3316428-001 3636 Innes Road Ottawa\Mapping\MXD\Phase II ESA 2021-02\Figure 14-1 Remediation Area 6 Cross Section.mxd

CONTAMINANT TRANSPORT DIAGRAM - HUMAN HEALTH EXPOSURE

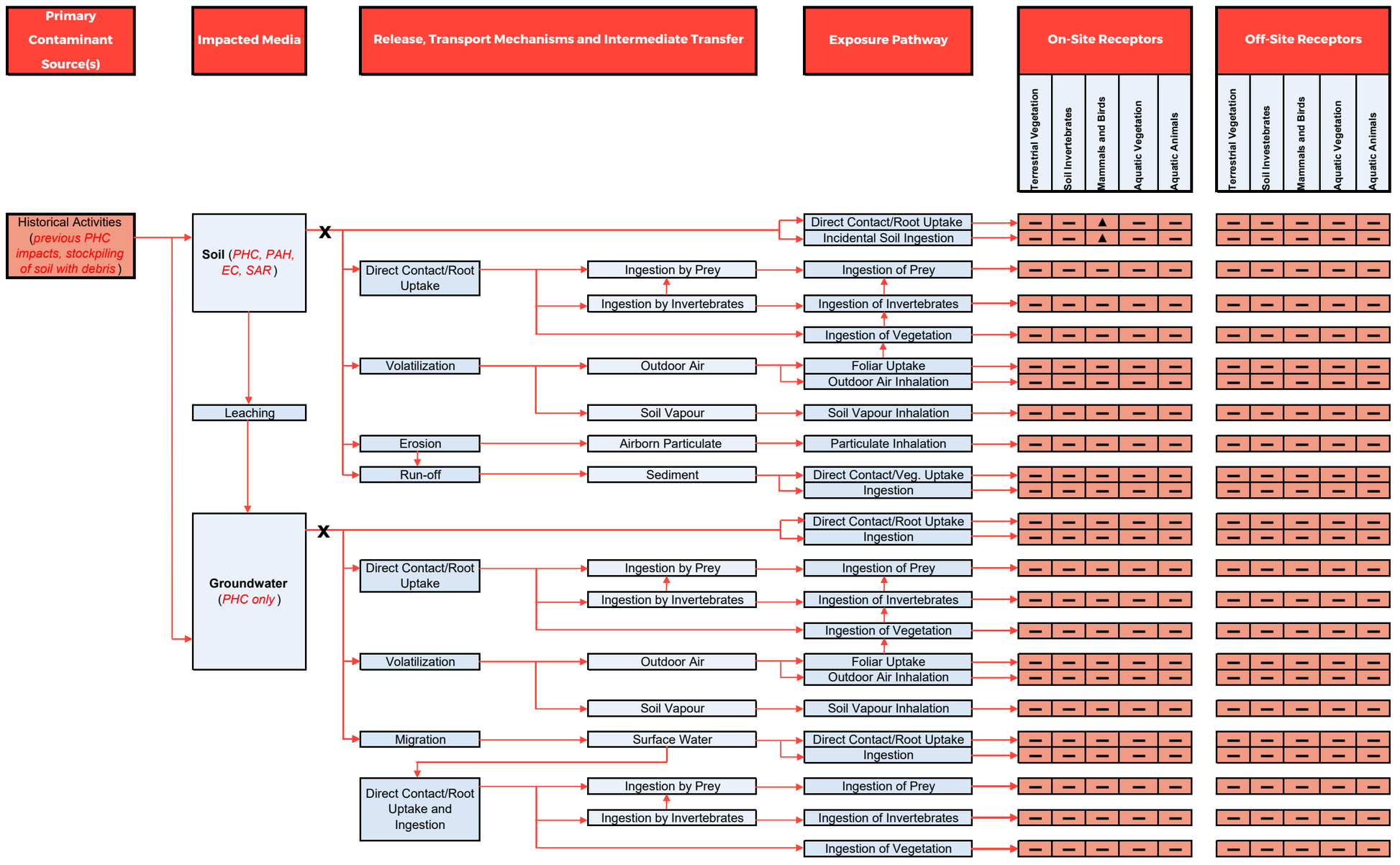


LEGEND:

[—] - NO Receptor considered to be present and/or Pathway Incomplete
[▲] - Receptor is considered to be present and Pathway Complete
X - Exposure Pathway considered blocked (Risk assessment and/or Remediation)

Project No.: *17M-01348-00*		**Figure No.:** 15
Project: *3610 Innes Road, Ottawa*		
Date: *Feb 2021*	**Drawn:** AM	**Approved:** CA

CONTAMINANT TRANSPORT DIAGRAM - ECOLOGICAL EXPOSURE



LEGEND:

[—] - NO Receptor considered to be present and/or Pathway Incomplete
[▲] - Receptor is considered to be present and Pathway Complete
X - Exposure Pathway considered blocked (Risk Management and/or Remediation)

Project No.: *17M-01348-00*		**Figure No.:** 16
Project: *3610 Innes Road, Ottawa*		
Date: *Feb 2021*	**Drawn:** *AM*	**Approved:** *CA*

APPENDIX

A-1 SAMPLING AND ANALYSIS PLAN

Sampling and Analysis Plan
Phase Two Environmental Site Assessment
Lot 4, Concession 4, Parts 1, 2, 3 Gloucester, Ontario
(0 Innes Road, Ottawa, Ontario)

Soil				
Sample Location	**Proposed Borehole/Test Pit Depth (mbgs)**	**Reg 153 Metals & Inorganics**	**PHC F1-F4**	**PAHs**
BH16-1	6	3	0	0
BH16-2	6	3	0	0
BH/MW16-3	6	3	0	0
BH16-4	6	2	1	0
BH/MW16-5	6	2	2	1
BH16-6	10-15	2	1	0
BH16-7	6	2	1	1
BH/MW16-8	6	2	1	1
BH16-9	6	3	0	0
BH16-10	6	3	0	0
BH16-11	6	2	0	0
BH16-12	6	2	0	0
BH16-13	6	2	0	0
Blind Field Duplicates		**2**	**1**	**0**
TOTALS		**17**	**10**	**7**

*PHC F1-BTEX samples to be placed directly into vials with preservative or using hermetic core.

Sampling and Analysis Plan
Phase Two Environmental Site Assessment
Lot 4, Concession 4, Parts 1, 2, 3 Gloucester, Ontario
(0 Innes Road, Ottawa, Ontario)

Sample Location	Groundwater				Environmental Investigation Notes
	Proposed Monitoring Well Depth	Reg 153 Metals & Inorganics	PHC F1-F4	PAHs	
MW-3	4.5 m (Screen: 1.5-4.5 m)	1	1	1	Take headspace vapour readings before purging and collecting samples
MW-5	4.5 m (Screen: 1.5-4.5 m)	1	1	1	
MW-8	4.5 m (Screen: 1.5-4.5 m)	1	1	1	
Blind Field Duplicates		1	1	1	
TOTALS		4	4	4	

Sampling and Analysis Plan - 3610 Innes Road, November 2020				
SOIL				
Sample Location	**Acid/Base/Neutral (ABNs) Compounds (1 x 250 ml jar)**	**Chlorophenols (CPs) (1 x 120 ml jar)**	**Petroleum Hydrocarbons (PHCs) (F1-F4) and BTEX (1 x 120 ml jar and 2 x methanol vials)**	**Rationale for Sampling**
AREA 1 - Former Wood Storage Area	5 surface samples (0 - 0.3 m)	5 surface samples (0 - 0.3 m)	None	Assess area for potential leaching of wood preservative chemicals from stored wood at former retail facility.
AREA 2 - Grassy area east of remediation at Area 6	None	None	2 surface samples (0 - 0.3 m)	Assess area for potential impacts from discharge of groundwater to ground surface during remediation.
Blind Field Duplicates	**1 ABN**	**1 Chlorophenol**	**1 PHC and BTEX**	
TOTALS	**6**	**6**	**3**	

NOTES FOR SOIL SAMPLING
1. PHC F1 samples place measured volume directly into vials with preservative. Do not composite sample from multiple locations.
2. Collect F1 with the highest ISBLN vapour reading for sample analysis.

GROUNDWATER				
Sample Location	**Acid/Base/Neutral (ABNs) Compounds**	**Chlorophenols (CPs)**	**Petroleum Hydrocarbons (PHCs) (F1-F4) and BTEX (1 x 120 ml jar and 2 x methanol vials)**	**Rationale for Sampling**
Shallow Well	None	None	1	Lateral delineation of groundwater impacts at monitoring location 5 (MW16-5, MW17-5 and MW19-5).
Deep Well	None	None	1	Verticall delineation of groundwater impacts at monitoring location 5 (MW16-5, MW17-5 and MW19-5).
Blind Field Duplicates	**None**	**None**	**1 1 Trip Blank (PHC-F1, BTEX)**	Select duplicate from well with greatest recharge rate.
TOTALS	**0**	**0**	**4**	

NOTES FOR GROUNDWATER SAMPLING
1. Record headspace concentration in well prior to collecting sample.
2. Record water level at all accessible wells prior to sampling.

APPENDIX

A-2 *BOREHOLE LOGS*

RAPPORT DE FORAGE : **F-04**

GENIVAR

Préparé par : **Catherine Tardy Laporte** Date début : **2013-06-27**
Vérifié par : **Annie Gauthier** Date fin : **2013-06-27**

Nom du projet : **Évaluation Environnementale de site (ÉES) Phase II**
Site : **Site # 38 Orléans**
Secteur : **3636-3646, chemin Innes, Orléans (Ontario)**
Client : **La Coop fédérée**

Numéro de projet : **131-13558-00**
Coordonnées géographiques : X = 75.5201167458 °O
Y = 45.4451939281 °N
Élévation surface : 89.29 m *()*
Élévation margelle :

Entrepreneur forage : Marathon Drilling Co. Ltd.
Type de foreuse : CME 75
Équipement de forage : Tarière tige pleine /
Diamètre du forage : 200 mm
Fluide forage : Aucun
Équip. d'échantillonnage : Carottier fendu

ODEUR
F - Faible odeur
M - Odeur moyenne
P - Odeur persistante

VISUEL
D - Produit disséminé
S - Sol saturé de produit

TYPE D'ÉCHANTILLON
CD - Carottier à diamants
CF - Cuillère fendue
PS - Échantillonneur à piston
TC - Tube creux
TM - Tarière manuelle
TR - Truelle
TS - Tube Shelby
TT - Tube transparent

▽ Niveau d'eau ▼ Phase libre

ANALYSES CHIMIQUES

BPC	Biphényles polychlorés
BTEX	Benzène, toluène, éthylbenzène, xylène
COT	Carbone organique total
C. Inorg.	Autres composés inorganiques (cyanure, fluorure, bromure, soufre total)
C. Phénol.	Composés phénoliques
COV	Hydrocarbures HAM et HAC
Diox. & Fur.	Dioxines et furanes
HAC	Hydrocarb. aliphatiques chlorés
HAM	Hydrocarbures aromatiques monocycliques
HAP	Hydrocarbures aromatiques polycycliques
HP C_{10}-C_{50}	Hydrocarbures pétroliers C_{10}-C_{50}
HP F1-F4	Hydrocarb. pétrol. F1-F4 (C_{10}-C_{50})
Mercure	Mercure
Métaux	Argent, arsenic, baryum, cadmium, cobalt, chrome, cuivre, étain, manganèse, molybdène, nickel, plomb, sélénium, zinc.
RMD	Lixiviation (mat. dangereuses)

PROFONDEUR / ÉLÉVATION (m)	STRATIGRAPHIE	DESCRIPTION	OBSERVATIONS: CONC. VAPEUR (ppm OU % LIE)	ODEUR (F M P)	VISUEL (D S)	ÉCHANTILLONS: TYPE ÉCHANTILLON	% RÉCUPÉRATION	N (Coups/6")	NUMÉRO	ANALYSES	DUPLICATA	PUITS D'OBSERVATION: DIAGRAMME	DESCRIPTION	REMARQUES
		Surface du terrain.												
89.29 0.20		Remblai : Sable graveleux gris et blanc.				CF	74	85 55 30 18	F-04 (0.00-0.20)					
89.09 0.61		Remblai : Gravier sableux saturé							F-04 (0.20-0.61)					
88.68 1.22		Sol naturel : Argile silteuse brune grise.				CF	90	1 1 2 6	F-04 (0.61-1.22)	HP F1-F4 HAP BTEX				
88.07		Fin du forage à 1.22 m de profondeur.												Refus à 1.22 m sur bloc ou roc.

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

RAPPORT DE FORAGE : **F-05**

GENIVAR

Préparé par : **Catherine Tardy Laporte** Date début : **2013-06-27**
Vérifié par : **Annie Gauthier** Date fin : **2013-06-27**

Nom du projet : **Évaluation Environnementale de site (ÉES) Phase II**
Site : **Site # 38 Orléans**
Secteur : **3636-3646, chemin Innes, Orléans (Ontario)**
Client : **La Coop fédérée**

Numéro de projet : **131-13558-00**
Coordonnées géographiques : X = 75.5198284892 °O
Y = 45.4453512328 °N
Élévation surface : 89.21 m *()*
Élévation margelle :

Entrepreneur forage : Marathon Drilling Co. Ltd.
Type de foreuse : CME 75
Équipement de forage : Tarière tige pleine /
Diamètre du forage : 200 mm
Fluide forage : Aucun
Équip. d'échantillonnage : Carottier fendu

ODEUR
F - Faible odeur
M - Odeur moyenne
P - Odeur persistante

VISUEL
D - Produit disséminé
S - Sol saturé de produit

TYPE D'ÉCHANTILLON
CD - Carottier à diamants
CF - Cuillère fendue
PS - Échantillonneur à piston
TC - Tube creux
TM - Tarière manuelle
TR - Truelle
TS - Tube Shelby
TT - Tube transparent

▽ Niveau d'eau ▼ Phase libre

ANALYSES CHIMIQUES
BPC Biphényles polychlorés
BTEX Benzène, toluène, éthylbenzène, xylène
COT Carbone organique total
C. Inorg. Autres composés inorganiques (cyanure, fluorure, bromure, soufre total)
C. Phénol. Composés phénoliques
COV Hydrocarbures HAM et HAC
Diox. & Fur. Dioxines et furanes
HAC Hydrocarb. aliphatiques chlorés
HAM Hydrocarbures aromatiques monocycliques
HAP Hydrocarbures aromatiques polycycliques
HP C_{10}-C_{50} Hydrocarbures pétroliers C_{10}-C_{50}
HP F1-F4 Hydrocarb. pétrol. F1-F4 (C_{10}-C_{50})
Mercure Mercure
Métaux Argent, arsenic, baryum, cadmium, cobalt, chrome, cuivre, étain, manganèse, molybdène, nickel, plomb, sélénium, zinc.
RMD Lixiviation (mat. dangereuses)

PROFONDEUR ÉLÉVATION (m)	GÉOLOGIE / STRATIGRAPHIE: STRATIGRAPHIE	GÉOLOGIE / STRATIGRAPHIE: DESCRIPTION	OBSERVATIONS: CONC. VAPEUR (ppm OU % LIE)	OBSERVATIONS: ODEUR (F M P)	OBSERVATIONS: VISUEL (D S)	ÉCHANTILLONS: TYPE ÉCHANTILLON	ÉCHANTILLONS: % RÉCUPÉRATION	ÉCHANTILLONS: N (Coups/6")	ÉCHANTILLONS: NUMÉRO	ÉCHANTILLONS: ANALYSES	ÉCHANTILLONS: DUPLICATA	PUITS D'OBSERVATION: DIAGRAMME	PUITS D'OBSERVATION: DESCRIPTION	REMARQUES
		Surface du terrain.												
89.21 0.20		Remblai : Sable et gravier sec				CF	66	58 69 21 18	F-05 (0.00-0.20)					
89.01 0.61		Sol naturel : Gravier noir et saturé avec un peu de sable.							F-05 (0.20-0.61)					
88.60		Sol naturel : Argile silteuse brune-beige et humide.				CF	100	1 1 5 6	F-05 (0.61-1.22)					
1.83						CF	100		F-05 (1.22-1.32)	HP F1-F4 HAP BTEX Métaux (R153)				
									F-05 (1.32-1.83)					
87.38 2.10		Sol naturel : Argile silteuse grise humide.				CF	82	3 3 22 8	F-05 (1.83-2.10)					
87.11 2.34		Sol naturel : Gravier sableux gris.							F-05 (2.10-2.34)					
86.87	Roc atteint	Fin du forage à 2.34 m de profondeur.												

RAPPORT DE FORAGE : **F-06**

GENIVAR

Préparé par : **Catherine Tardy Laporte** Date début : **2013-06-27**
Vérifié par : **Annie Gauthier** Date fin : **2013-06-27**

Nom du projet : **Évaluation Environnementale de site (ÉES) Phase II**
Site : **Site # 38 Orléans**
Secteur : **3636-3646, chemin Innes, Orléans (Ontario)**
Client : **La Coop fédérée**

Numéro de projet : **131-13558-00**
Coordonnées géographiques : X = 75.5200570318 °O
Y = 45.4477309683 °N
Élévation surface : 89.22 m *()*
Élévation margelle :

Entrepreneur forage : Marathon Drilling Co. Ltd.
Type de foreuse : CME 75
Équipement de forage : Tarière tige pleine /
Diamètre du forage : 200 mm
Fluide forage : Aucun
Équip. d'échantillonnage : Carottier fendu

ODEUR
F - Faible odeur
M - Odeur moyenne
P - Odeur persistante

VISUEL
D - Produit disséminé
S - Sol saturé de produit

TYPE D'ÉCHANTILLON
CD - Carottier à diamants
CF - Cuillère fendue
PS - Échantillonneur à piston
TC - Tube creux
TM - Tarière manuelle
TR - Truelle
TS - Tube Shelby
TT - Tube transparent

Niveau d'eau Phase libre

ANALYSES CHIMIQUES

BPC	Biphényles polychlorés
BTEX	Benzène, toluène, éthylbenzène, xylène
COT	Carbone organique total
C. Inorg.	Autres composés inorganiques (cyanure, fluorure, bromure, soufre total)
C. Phénol.	Composés phénoliques
COV	Hydrocarbures HAM et HAC
Diox. & Fur.	Dioxines et furanes
HAC	Hydrocarb. aliphatiques chlorés
HAM	Hydrocarbures aromatiques monocycliques
HAP	Hydrocarbures aromatiques polycycliques
HP C_{10}-C_{50}	Hydrocarbures pétroliers C_{10}-C_{50}
HP F1-F4	Hydrocarb. pétrol. F1-F4 (C_{10}-C_{50})
Mercure	Mercure
Métaux	Argent, arsenic, baryum, cadmium, cobalt, chrome, cuivre, étain, manganèse, molybdène, nickel, plomb, sélénium, zinc.
RMD	Lixiviation (mat. dangereuses)

PROFONDEUR ÉLÉVATION (m)	GÉOLOGIE / STRATIGRAPHIE: STRATIGRAPHIE	GÉOLOGIE / STRATIGRAPHIE: DESCRIPTION	OBSERVATIONS: CONC. VAPEUR (ppm OU % LIE)	OBSERVATIONS: ODEUR (F M P)	OBSERVATIONS: VISUEL (D S)	ÉCHANTILLONS: TYPE ÉCHANTILLON	ÉCHANTILLONS: % RÉCUPÉRATION	ÉCHANTILLONS: N (Coups/6")	ÉCHANTILLONS: NUMÉRO	ÉCHANTILLONS: ANALYSES	ÉCHANTILLONS: DUPLICATA	PUITS D'OBSERVATION: DIAGRAMME	PUITS D'OBSERVATION: DESCRIPTION	REMARQUES
		Surface du terrain.												
89.22		Remblai : Sable graveleux gris-brun et sec.				CF	100	1 3 4 7	F-06 (0.00-0.61)	HP F1-F4 HAP BTEX				
0.61														
88.61		Sol naturel : Argile silteuse grise.				CF	100	1 4 4 6	F-06 (0.61-1.22)					
						CF	49	56 36 19 10	F-06 (1.22-1.83)					
87.70														
1.83		Fin du forage à 1.52 m de profondeur.												

RAPPORT DE FORAGE : **F-07**

GENIVAR

Préparé par : **Catherine Tardy Laporte** Date début : **2013-06-27**
Vérifié par : **Annie Gauthier** Date fin : **2013-06-27**

Nom du projet : **Évaluation Environnementale de site (ÉES) Phase II**
Site : **Site # 38 Orléans**
Secteur : **3636-3646, chemin Innes, Orléans (Ontario)**
Client : **La Coop fédérée**

Numéro de projet : **131-13558-00**
Coordonnées géographiques : X = 75.5199577902 °O
Y = 45.4476971365 °N
Élévation surface : 89.47 m *()*
Élévation margelle :

Entrepreneur forage : Marathon Drilling Co. Ltd.
Type de foreuse : CME 75
Équipement de forage : Tarière tige pleine /
Diamètre du forage : 200 mm
Fluide forage : Aucun
Équip. d'échantillonnage : Carottier fendu

ODEUR
F - Faible odeur
M - Odeur moyenne
P - Odeur persistante

VISUEL
D - Produit disséminé
S - Sol saturé de produit

TYPE D'ÉCHANTILLON
CD - Carottier à diamants
CF - Cuillère fendue
PS - Échantillonneur à piston
TC - Tube creux
TM - Tarière manuelle
TR - Truelle
TS - Tube Shelby
TT - Tube transparent

▽ Niveau d'eau ▼ Phase libre

ANALYSES CHIMIQUES
BPC Biphényles polychlorés
BTEX Benzène, toluène, éthylbenzène, xylène
COT Carbone organique total
C. Inorg. Autres composés inorganiques (cyanure, fluorure, bromure, soufre total)
C. Phénol. Composés phénoliques
COV Hydrocarbures HAM et HAC
Diox. & Fur. Dioxines et furanes
HAC Hydrocarb. aliphatiques chlorés
HAM Hydrocarbures aromatiques monocycliques
HAP Hydrocarbures aromatiques polycycliques
HP C_{10}-C_{50} Hydrocarbures pétroliers C_{10}-C_{50}
HP F1-F4 Hydrocarb. pétrol. F1-F4 (C_{10}-C_{50})
Mercure Mercure
Métaux Argent, arsenic, baryum, cadmium, cobalt, chrome, cuivre, étain, manganèse, molybdène, nickel, plomb, sélénium, zinc.
RMD Lixiviation (mat. dangereuses)

PROFONDEUR *ÉLÉVATION* (m)	GÉOLOGIE / STRATIGRAPHIE: STRATIGRAPHIE	GÉOLOGIE / STRATIGRAPHIE: DESCRIPTION	OBSERVATIONS: CONC. VAPEUR (ppm OU % LIE)	OBSERVATIONS: ODEUR (F M P)	OBSERVATIONS: VISUEL (D S)	ÉCHANTILLONS: TYPE ÉCHANTILLON	ÉCHANTILLONS: % RÉCUPÉRATION	ÉCHANTILLONS: N (Coups/6")	ÉCHANTILLONS: NUMÉRO	ÉCHANTILLONS: ANALYSES	ÉCHANTILLONS: DUPLICATA	PUITS D'OBSERVATION: DIAGRAMME	PUITS D'OBSERVATION: DESCRIPTION	REMARQUES
		Surface du terrain.												
89.47		Remblai : Sable graveleux gris-blanc et sec.				CF	57	110 54 13 11	F-07 (0.00-0.50)					
0.50														
0.60		Remblai : Sable graveleux gris-blanc et humide.							F-07 (0.50-0.61)					
88.87		Sol naturel : Argile silteuse.				CF	90	1 3 4 6	F-07 (0.61-1.22)	HP F1-F4 HAP BTEX				
						CF			F-07 (1.22-1.83)					
87.95														
1.83		Fin du forage à 1.52 m de profondeur.												

RAPPORT DE FORAGE : **F-08**

GENIVAR

Préparé par : **Catherine Tardy Laporte** Date début : **2013-06-27**
Vérifié par : **Annie Gauthier** Date fin : **2013-06-27**

Nom du projet : **Évaluation Environnementale de site (ÉES) Phase II**
Site : **Site # 38 Orléans**
Secteur : **3636-3646, chemin Innes, Orléans (Ontario)**
Client : **La Coop fédérée**

Numéro de projet : **131-13558-00**
Coordonnées géographiques : X = 75.5196453839 °O
Y = 45.4472729549 °N
Élévation surface : 89.2 m *()*
Élévation margelle :

Entrepreneur forage : Marathon Drilling Co. Ltd.
Type de foreuse : CME 75
Équipement de forage : Tarière tige pleine /
Diamètre du forage : 200 mm
Fluide forage : Aucun
Équip. d'échantillonnage :

ODEUR
F - Faible odeur
M - Odeur moyenne
P - Odeur persistante

VISUEL
D - Produit disséminé
S - Sol saturé de produit

TYPE D'ÉCHANTILLON
CD - Carottier à diamants
CF - Cuillère fendue
PS - Échantillonneur à piston
TC - Tube creux
TM - Tarière manuelle
TR - Truelle
TS - Tube Shelby
TT - Tube transparent

▽ Niveau d'eau ▼ Phase libre

ANALYSES CHIMIQUES

BPC	Biphényles polychlorés
BTEX	Benzène, toluène, éthylbenzène, xylène
COT	Carbone organique total
C. Inorg.	Autres composés inorganiques (cyanure, fluorure, bromure, soufre total)
C. Phénol.	Composés phénoliques
COV	Hydrocarbures HAM et HAC
Diox. & Fur.	Dioxines et furanes
HAC	Hydrocarb. aliphatiques chlorés
HAM	Hydrocarbures aromatiques monocycliques
HAP	Hydrocarbures aromatiques polycycliques
HP C_{10}-C_{50}	Hydrocarbures pétroliers C_{10}-C_{50}
HP F1-F4	Hydrocarb. pétrol. F1-F4 (C_{10}-C_{50})
Mercure	Mercure
Métaux	Argent, arsenic, baryum, cadmium, cobalt, chrome, cuivre, étain, manganèse, molybdène, nickel, plomb, sélénium, zinc.
RMD	Lixiviation (mat. dangereuses)

PROFONDEUR *ÉLÉVATION* (m)	GÉOLOGIE / STRATIGRAPHIE: STRATIGRAPHIE	GÉOLOGIE / STRATIGRAPHIE: DESCRIPTION	OBSERVATIONS: CONC. VAPEUR (ppm OU % LIE)	OBSERVATIONS: ODEUR (F M P)	OBSERVATIONS: VISUEL (D S)	ÉCHANTILLONS: TYPE ÉCHANTILLON	ÉCHANTILLONS: % RÉCUPÉRATION	ÉCHANTILLONS: N (Coups/6")	ÉCHANTILLONS: NUMÉRO	ÉCHANTILLONS: ANALYSES	ÉCHANTILLONS: DUPLICATA	PUITS D'OBSERVATION: DIAGRAMME	PUITS D'OBSERVATION: DESCRIPTION	REMARQUES
		Surface du terrain.												
0.10 *89.10*		Remblai : Argile graveleuse.				CF	41	2 11						
		Remblai : Sable graveleux gris.						8 22		HP F1-F4 HAP BTEX				
0.61 *88.59*		Fin du forage à 0.61 m de profondeur.												Refus à 0.61 m sur bloc ou roc.

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

Projet : 131-13558-00_TE_01.GPJ Type rapport : GENIVAR-PUITS-FR Data Template : GENIVAR_TEMPLATE_GEOTECH.GDT 2013-8-16

RAPPORT DE FORAGE : **F-09**

GENIVAR

Préparé par : **Catherine Tardy Laporte** Date début : **2013-06-27**
Vérifié par : **Annie Gauthier** Date fin : **2013-06-27**

Nom du projet : **Évaluation Environnementale de site (ÉES) Phase II**
Site : **Site # 38 Orléans**
Secteur : **3636-3646, chemin Innes, Orléans (Ontario)**
Client : **La Coop fédérée**

Numéro de projet : **131-13558-00**
Coordonnées géographiques : X = 75.5190143537 °O
Y = 45.4460829513 °N
Élévation surface : 89.71 m *()*
Élévation margelle :

Entrepreneur forage : Marathon Drilling Co. Ltd.
Type de foreuse : CME 75
Équipement de forage : Tarière tige pleine /
Diamètre du forage : 200 mm
Fluide forage : Aucun
Équip. d'échantillonnage :

ODEUR
F - Faible odeur
M - Odeur moyenne
P - Odeur persistante

VISUEL
D - Produit disséminé
S - Sol saturé de produit

TYPE D'ÉCHANTILLON
CD - Carottier à diamants
CF - Cuillère fendue
PS - Échantillonneur à piston
TC - Tube creux
TM - Tarière manuelle
TR - Truelle
TS - Tube Shelby
TT - Tube transparent

Niveau d'eau Phase libre

ANALYSES CHIMIQUES
BPC Biphényles polychlorés
BTEX Benzène, toluène, éthylbenzène, xylène
COT Carbone organique total
C. Inorg. Autres composés inorganiques (cyanure, fluorure, bromure, soufre total)
C. Phénol. Composés phénoliques
COV Hydrocarbures HAM et HAC
Diox. & Fur. Dioxines et furanes
HAC Hydrocarb. aliphatiques chlorés
HAM Hydrocarbures aromatiques monocycliques
HAP Hydrocarbures aromatiques polycycliques
HP C_{10}-C_{50} Hydrocarbures pétroliers C_{10}-C_{50}
HP F1-F4 Hydrocarb. pétrol. F1-F4 (C_{10}-C_{50})
Mercure Mercure
Métaux Argent, arsenic, baryum, cadmium, cobalt, chrome, cuivre, étain, manganèse, molybdène, nickel, plomb, sélénium, zinc.
RMD Lixiviation (mat. dangereuses)

PROFONDEUR ÉLÉVATION (m)	GÉOLOGIE / STRATIGRAPHIE: STRATIGRAPHIE	GÉOLOGIE / STRATIGRAPHIE: DESCRIPTION	OBSERVATIONS: CONC. VAPEUR (ppm OU % LIE)	OBSERVATIONS: ODEUR (F M P)	OBSERVATIONS: VISUEL (D S)	ÉCHANTILLONS: TYPE ÉCHANTILLON	ÉCHANTILLONS: % RÉCUPÉRATION	ÉCHANTILLONS: N (Coups/6")	ÉCHANTILLONS: NUMÉRO	ÉCHANTILLONS: ANALYSES	ÉCHANTILLONS: DUPLICATA	PUITS D'OBSERVATION: DIAGRAMME	PUITS D'OBSERVATION: DESCRIPTION	REMARQUES
		Surface du terrain.												
89.71		Remblai : Sable et gravier. Gris blanc sec devenant humide.				CF	74	64 66 24 16		HP F1-F4 HAP BTEX	DUP7			
0.61														
89.10		Sol naturel : Argile silteuse avec un peu de sable humide.				CF	25	1 2 3 4						
						CF	100	2 3 3 5						
88.19														
1.83		Fin du forage à 1.52 m de profondeur.												

RAPPORT DE TRANCHÉE : **TE-01**

GENIVAR

Préparé par : **Catherine Tardy Laporte** Date début : **2013-07-02**
Vérifié par : **Annie Gauthier** Date fin : **2013-07-02**

Nom du projet : **Évaluation Environnementale de site (ÉES) Phase II**
Site : **Site # 38 Orléans**
Secteur : **3636-3646, chemin Innes, Orléans (Ontario)**
Client : **La Coop fédérée**

Numéro de projet : **131-13558-00**
Coordonnées géographiques : X = 75.5199533185 °O
Y = 45.4457572743 °N
Élévation surface : 89.57 m *()*
Élévation margelle :

Entrepreneur forage : Denis Ladouceur Excavation Ltée
Type de foreuse : Rétrocaveuse
Équipement de forage : Manuelle /
Diamètre du forage :
Fluide forage :
Équip. d'échantillonnage : Carottier fendu

ODEUR
F - Faible odeur
M - Odeur moyenne
P - Odeur persistante

VISUEL
D - Produit disséminé
S - Sol saturé de produit

TYPE D'ÉCHANTILLON
CD - Carottier à diamants
CF - Cuillère fendue
PS - Échantillonneur à piston
TC - Tube creux
TM - Tarière manuelle
TR - Truelle
TS - Tube Shelby
TT - Tube transparent

Niveau d'eau Phase libre

ANALYSES CHIMIQUES
BPC Biphényles polychlorés
BTEX Benzène, toluène, éthylbenzène, xylène
COT Carbone organique total
C. Inorg. Autres composés inorganiques (cyanure, fluorure, bromure, soufre total)
C. Phénol. Composés phénoliques
COV Hydrocarbures HAM et HAC
Diox. & Fur. Dioxines et furanes
HAC Hydrocarb. aliphatiques chlorés
HAM Hydrocarbures aromatiques monocycliques
HAP Hydrocarbures aromatiques polycycliques
HP C_{10}-C_{50} Hydrocarbures pétroliers C_{10}-C_{50}
HP F1-F4 Hydrocarb. pétrol. F1-F4 (C_{10}-C_{50})
Mercure Mercure
Métaux Argent, arsenic, baryum, cadmium, cobalt, chrome, cuivre, étain, manganèse, molybdène, nickel, plomb, sélénium, zinc.
RMD Lixiviation (mat. dangereuses)

PROFONDEUR *ÉLÉVATION* (m)	STRATIGRAPHIE	DESCRIPTION	OBSERVATIONS: CONC. VAPEUR (ppm OU % LIE)	ODEUR (F M P)	VISUEL (D S)	ÉCHANTILLONS: TYPE ÉCHANTILLON	% RÉCUPÉRATION	N (Coups/6")	NUMÉRO	ANALYSES	DUPLICATA	PUITS D'OBSERVATION: DIAGRAMME	DESCRIPTION	REMARQUES
		Surface du terrain.												
89.57		Remblai : Gravier sableux avec trace de silt. Gris et humide.				TR			TE-01 (0.00-0.30)					
0.30 / *89.27*		Remblai : Silt sableux brun avec trace de matière résiduelle (bois brûlé).							TE-01 (0.30-0.60)	HP F1-F4 HAP BTEX Métaux (R153)				
0.60 / *88.97*		*Infiltration d'eau à 0.6 m.*												
		Sol naturel : Silt argileux gris humide.							TE-01 (0.60-1.00)					
1.00 / *88.57*		Sol naturel : Silt sableux graveleux avec trace d'argile. Gris humide.							TE-01 (1.00-3.50)					
3.50 / *86.07*	Roc atteint	*Infiltration d'eau.*												
		Fin de la tranchée												

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

Projet : 131-13558-00_TE_01.GPJ Type rapport : GENIVAR-PUITS-FR Data Template : GENIVAR_TEMPLATE_GEOTECH.GDT 2013-8-16

RAPPORT DE TRANCHÉE : **TE-02**

GENIVAR

Préparé par : **Catherine Tardy Laporte** Date début : **2013-07-02**
Vérifié par : **Annie Gauthier** Date fin : **2013-07-02**

Nom du projet : **Évaluation Environnementale de site (ÉES) Phase II**
Site : **Site # 38 Orléans**
Secteur : **3636-3646, chemin Innes, Orléans (Ontario)**
Client : **La Coop fédérée**

Numéro de projet : **131-13558-00**
Coordonnées géographiques : X = 75.5205637155 °O
Y = 45.4458202359 °N
Élévation surface : 89.59 m *()*
Élévation margelle :

Entrepreneur forage : Denis Ladouceur Excavation Ltée
Type de foreuse : Rétrocaveuse
Équipement de forage : Manuelle /
Diamètre du forage :
Fluide forage :
Équip. d'échantillonnage : Carottier fendu

ODEUR
F - Faible odeur
M - Odeur moyenne
P - Odeur persistante

VISUEL
D - Produit disséminé
S - Sol saturé de produit

TYPE D'ÉCHANTILLON
CD - Carottier à diamants
CF - Cuillère fendue
PS - Échantillonneur à piston
TC - Tube creux
TM - Tarière manuelle
TR - Truelle
TS - Tube Shelby
TT - Tube transparent

Niveau d'eau ▼ Phase libre

ANALYSES CHIMIQUES
BPC Biphényles polychlorés
BTEX Benzène, toluène, éthylbenzène, xylène
COT Carbone organique total
C. Inorg. Autres composés inorganiques (cyanure, fluorure, bromure, soufre total)
C. Phénol. Composés phénoliques
COV Hydrocarbures HAM et HAC
Diox. & Fur. Dioxines et furanes
HAC Hydrocarb. aliphatiques chlorés
HAM Hydrocarbures aromatiques monocycliques
HAP Hydrocarbures aromatiques polycycliques
HP C_{10}-C_{50} Hydrocarbures pétroliers C_{10}-C_{50}
HP F1-F4 Hydrocarb. pétrol. F1-F4 (C_{10}-C_{50})
Mercure Mercure
Métaux Argent, arsenic, baryum, cadmium, cobalt, chrome, cuivre, étain, manganèse, molybdène, nickel, plomb, sélénium, zinc.
RMD Lixiviation (mat. dangereuses)

PROFONDEUR / ÉLÉVATION (m)	GÉOLOGIE / STRATIGRAPHIE	DESCRIPTION	OBSERVATIONS: CONC. VAPEUR (ppm OU % LIE)	ODEUR (F M P)	VISUEL (D S)	ÉCHANTILLONS: TYPE ÉCHANTILLON	% RÉCUPÉRATION	N (Coups/6")	NUMÉRO	ANALYSES	DUPLICATA	PUITS D'OBSERVATION: DIAGRAMME	DESCRIPTION	REMARQUES
		Surface du terrain.												
89.59		Remblai : Matière résiduelle (55%) (brique, bois, bois brûlé et plastique) et silt sableux avec trace de matière organique. Brun humide.				TR			TE-02 (0.00-0.35)	HP F1-F4 HAP BTEX Métaux (R153)				
0.35 / 89.24		Sol naturel : Silt avec un peu de sable et trace de matière organique.							TE-02 (0.35-1.00)	HP F1-F4 HAP BTEX Métaux (R153)				
1.00 / 88.59		Sol naturel : Silt argileux avec traces de gravier brun-beige.							TE-02 (1.00-1.45)	HP F1-F4 HAP BTEX Métaux (R153)				
1.45 / 88.14		Sol naturel : Silt argileux gris avec traces de gravier.							TE-02 (1.45-3.30)					
3.30 / 86.29	Roc atteint	*Infiltration d'eau.* Fin de la tranchée												

RAPPORT DE TRANCHÉE : **TE-03**

GENIVAR

Préparé par : **Catherine Tardy Laporte** Date début : **2013-07-02**
Vérifié par : **Annie Gauthier** Date fin : **2013-07-02**

Nom du projet : **Évaluation Environnementale de site (ÉES) Phase II**
Site : **Site # 38 Orléans**
Secteur : **3636-3646, chemin Innes, Orléans (Ontario)**
Client : **La Coop fédérée**

Numéro de projet : **131-13558-00**
Coordonnées géographiques : X = 75.5206801071 °O
Y = 45.4461519033 °N
Élévation surface : 88.98 m *()*
Élévation margelle :

Entrepreneur forage : Denis Ladouceur Excavation Ltée
Type de foreuse : Rétrocaveuse
Équipement de forage : Manuelle /
Diamètre du forage :
Fluide forage :
Équip. d'échantillonnage : Carottier fendu

ODEUR
F - Faible odeur
M - Odeur moyenne
P - Odeur persistante

VISUEL
D - Produit disséminé
S - Sol saturé de produit

TYPE D'ÉCHANTILLON
CD - Carottier à diamants
CF - Cuillère fendue
PS - Échantillonneur à piston
TC - Tube creux
TM - Tarière manuelle
TR - Truelle
TS - Tube Shelby
TT - Tube transparent

Niveau d'eau ▼ Phase libre

ANALYSES CHIMIQUES
BPC Biphényles polychlorés
BTEX Benzène, toluène, éthylbenzène, xylène
COT Carbone organique total
C. Inorg. Autres composés inorganiques (cyanure, fluorure, bromure, soufre total)
C. Phénol. Composés phénoliques
COV Hydrocarbures HAM et HAC
Diox. & Fur. Dioxines et furanes
HAC Hydrocarb. aliphatiques chlorés
HAM Hydrocarbures aromatiques monocycliques
HAP Hydrocarbures aromatiques polycycliques
HP C_{10}-C_{50} Hydrocarbures pétroliers C_{10}-C_{50}
HP F1-F4 Hydrocarb. pétrol. F1-F4 (C_{10}-C_{50})
Mercure Mercure
Métaux Argent, arsenic, baryum, cadmium, cobalt, chrome, cuivre, étain, manganèse, molybdène, nickel, plomb, sélénium, zinc.
RMD Lixiviation (mat. dangereuses)

PROFONDEUR / ÉLÉVATION (m)	GÉOLOGIE / STRATIGRAPHIE	DESCRIPTION	OBSERVATIONS: CONC. VAPEUR (ppm OU % LIE)	ODEUR F	ODEUR M	ODEUR P	VISUEL D	VISUEL S	ÉCHANTILLONS: TYPE ÉCHANTILLON	% RÉCUPÉRATION	N (Coups/6")	NUMÉRO	ANALYSES	DUPLICATA	PUITS D'OBSERVATION: DIAGRAMME	DESCRIPTION	REMARQUES
		Surface du terrain.															
88.98		Remblai : Gravier sableux gris saturé. *Eau à la surface.*							TR			TE-03 (0.00-0.30)					
0.30																	
88.68		Sol naturel : Silt argileux gris humide.										TE-03 (0.30-1.00)	HP F1-F4 HAP	DUP8			
1.00																	
87.98		Sol naturel : Silt avec un peu d'argile gris humide.										TE-03 (1.00-2.60)					
2.60																	
86.38	Roc atteint	Fin de la tranchée															

RAPPORT DE TRANCHÉE : **TE-04**

GENIVAR

Préparé par : **Catherine Tardy Laporte** Date début : **2013-07-02**
Vérifié par : **Annie Gauthier** Date fin : **2013-07-02**

Nom du projet : **Évaluation Environnementale de site (ÉES) Phase II**
Site : **Site # 38 Orléans**
Secteur : **3636-3646, chemin Innes, Orléans (Ontario)**
Client : **La Coop fédérée**

Numéro de projet : **131-13558-00**
Coordonnées géographiques : X = 75.5202005926 °O
Y = 45.4465543177 °N
Élévation surface : 90.77 m *()*
Élévation margelle :

Entrepreneur forage : Denis Ladouceur Excavation Ltée
Type de foreuse : Rétrocaveuse
Équipement de forage : Manuelle /
Diamètre du forage :
Fluide forage :
Équip. d'échantillonnage : Carottier fendu

ODEUR
F - Faible odeur
M - Odeur moyenne
P - Odeur persistante

VISUEL
D - Produit disséminé
S - Sol saturé de produit

TYPE D'ÉCHANTILLON
CD - Carottier à diamants
CF - Cuillère fendue
PS - Échantillonneur à piston
TC - Tube creux
TM - Tarière manuelle
TR - Truelle
TS - Tube Shelby
TT - Tube transparent

Niveau d'eau Phase libre

ANALYSES CHIMIQUES
BPC Biphényles polychlorés
BTEX Benzène, toluène, éthylbenzène, xylène
COT Carbone organique total
C. Inorg. Autres composés inorganiques (cyanure, fluorure, bromure, soufre total)
C. Phénol. Composés phénoliques
COV Hydrocarbures HAM et HAC
Diox. & Fur. Dioxines et furanes
HAC Hydrocarb. aliphatiques chlorés
HAM Hydrocarbures aromatiques monocycliques
HAP Hydrocarbures aromatiques polycycliques
HP C_{10}-C_{50} Hydrocarbures pétroliers C_{10}-C_{50}
HP F1-F4 Hydrocarb. pétrol. F1-F4 (C_{10}-C_{50})
Mercure Mercure
Métaux Argent, arsenic, baryum, cadmium, cobalt, chrome, cuivre, étain, manganèse, molybdène, nickel, plomb, sélénium, zinc.
RMD Lixiviation (mat. dangereuses)

PROFONDEUR / ÉLÉVATION (m)	GÉOLOGIE / STRATIGRAPHIE: STRATIGRAPHIE	GÉOLOGIE / STRATIGRAPHIE: DESCRIPTION	OBSERVATIONS: CONC. VAPEUR (ppm OU % LIE)	OBSERVATIONS: ODEUR (F M P)	OBSERVATIONS: VISUEL (D S)	ÉCHANTILLONS: TYPE ÉCHANTILLON	ÉCHANTILLONS: % RÉCUPÉRATION	ÉCHANTILLONS: N (Coups/6")	ÉCHANTILLONS: NUMÉRO	ÉCHANTILLONS: ANALYSES	ÉCHANTILLONS: DUPLICATA	PUITS D'OBSERVATION: DIAGRAMME	PUITS D'OBSERVATION: DESCRIPTION	REMARQUES
		Surface du terrain.												
90.77		Remblai : Sable graveleux avec trace de matière organique. Brun sec.				TR			TE-04 (0.00-1.00)					
1.00 / 89.77		Remblai : Silt argileux avec trace de matière organique. Brun noir humide.							TE-04 (1.00-2.30)	HP F1-F4 HAP Métaux (R153)				
2.30 / 88.47		Sol naturel : Silt avec un peu d'argile gris humide.							TE-04 (2.30-3.20)					
3.20 / 87.57		*Infiltration d'eau*												
		Fin de la tranchée												

Projet : 131-13558-00_TE_01.GPJ Type rapport : GENIVAR-PUITS-FR Data Template : GENIVAR_TEMPLATE_GEOTECH.GDT 2013-8-16

RAPPORT DE TRANCHÉE : **TE-05**

GENIVAR

Préparé par : **Catherine Tardy Laporte** Date début : **2013-07-02**
Vérifié par : **Annie Gauthier** Date fin : **2013-07-02**

Nom du projet : **Évaluation Environnementale de site (ÉES) Phase II**
Site : **Site # 38 Orléans**
Secteur : **3636-3646, chemin Innes, Orléans (Ontario)**
Client : **La Coop fédérée**

Numéro de projet : **131-13558-00**
Coordonnées géographiques : X = 75.5204743629 °O
Y = 45.4472004843 °N
Élévation surface : 92.43 m *()*
Élévation margelle :

Entrepreneur forage : Denis Ladouceur Excavation Ltée
Type de foreuse : Rétrocaveuse
Équipement de forage : Manuelle /
Diamètre du forage :
Fluide forage :
Équip. d'échantillonnage : Carottier fendu

ODEUR
F - Faible odeur
M - Odeur moyenne
P - Odeur persistante

VISUEL
D - Produit disséminé
S - Sol saturé de produit

TYPE D'ÉCHANTILLON
CD - Carottier à diamants
CF - Cuillère fendue
PS - Échantillonneur à piston
TC - Tube creux
TM - Tarière manuelle
TR - Truelle
TS - Tube Shelby
TT - Tube transparent

Niveau d'eau ▼ Phase libre

ANALYSES CHIMIQUES

BPC	Biphényles polychlorés
BTEX	Benzène, toluène, éthylbenzène, xylène
COT	Carbone organique total
C. Inorg.	Autres composés inorganiques (cyanure, fluorure, bromure, soufre total)
C. Phénol.	Composés phénoliques
COV	Hydrocarbures HAM et HAC
Diox. & Fur.	Dioxines et furanes
HAC	Hydrocarb. aliphatiques chlorés
HAM	Hydrocarbures aromatiques monocycliques
HAP	Hydrocarbures aromatiques polycycliques
HP C_{10}-C_{50}	Hydrocarbures pétroliers C_{10}-C_{50}
HP F1-F4	Hydrocarb. pétrol. F1-F4 (C_{10}-C_{50})
Mercure	Mercure
Métaux	Argent, arsenic, baryum, cadmium, cobalt, chrome, cuivre, étain, manganèse, molybdène, nickel, plomb, sélénium, zinc.
RMD	Lixiviation (mat. dangereuses)

PROFONDEUR / ÉLÉVATION (m)	STRATIGRAPHIE	DESCRIPTION	OBSERVATIONS: CONC. VAPEUR (ppm OU % LIE)	ODEUR (F M P)	VISUEL (D S)	ÉCHANTILLONS: TYPE ÉCHANTILLON	% RÉCUPÉRATION	N (Coups/6")	NUMÉRO	ANALYSES	DUPLICATA	PUITS D'OBSERVATION: DIAGRAMME	DESCRIPTION	REMARQUES
		Surface du terrain.												
92.43 / 0.15		Terre végétale et un peu de matière résiduelle (20%) (brique).				TR								
92.28		Remblai : Silt sableux graveleux avec trace de matière résiduelle (bois) brun.							TE-05 (0.15-2.30)	HP F1-F4 HAP				
2.30 / *90.13*		Remblai : Silt argileux avec trace de matière organique brun noir.							TE-05 (2.30-3.00)					
									TE-05 (3.00-3.60)					
3.60 / *88.83*		Fin de la tranchée												

BOREHOLE DRILLING RECORD : **BH16-1**

Prepared by: **Kathryn Maton** Date (Start): **1/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **1/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5032601 mE
Y = 459357 mN
Surface Elevation: m *()*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: None
Sampling Method:

ODOUR
F - Light
M - Medium
P - Persistent

VISUAL
D - Disseminated Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
TU - DT32 Liner
MC - Macro Core Liner

Water Level ▽ Free Phase

CHEMICAL ANALYSIS

PCB	Poly-Chlorinated Biphenyls	MAH	Monocyclic Aromatic Hydrocarbons
BTEX	Benzene, Toluene, Ethylbenzene, Xylene	PAH	Polycyclic Aromatic Hydrocarbons
Inorg. C.	Inorganic Compounds	PH C_{10}-C_{50}	Petroleum Hydrocarbons C_{10}-C_{50}
Phenol. C.	Phenolic Compounds	PH F1-F4	Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50})
VOC	Volatil Organic Compounds (MAH & CAH)	Metals	Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.
Diox. & Fur.	Dioxins & Furans	HWR	Leacheate Tests (Haz. Waste Reg.)
CAH	Chlorinated Aliphatic Hydrocarbons		

DEPTH *ELEVATION* (m)	LITHOLOGY	DESCRIPTION	VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	OBSERVATIONS: ODOUR F M P	OBSERVATIONS: VISUAL D S	SAMPLES: SAMPLE TYPE	% RECOVERY	N (Blow/6")	NUMBER	ANALYSIS	DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
		Ground surface.												
0.30		**FILL** sand and gravel, brown, dry	H - 0, I - 0			MC	66		BH16-1 1A					
		CLAYEY SILT brown, moist, stiff	H - 0, I - 0						BH16-1 1B	Metals and Inorganics				
1.52		**SILTY CLAY** grey-brown, moist, stiff	H - 0, I - 0			MC	100		BH16-1 2A	Metals and Inorganics				
2.53		**GRAVEL** with sand and some silty clay, grey-brown, wet, soft	H - 0, I - 0						BH16-1 2B	Metals and Inorganics				
2.89		*Refusal at 2.89 m below ground surface on assumed bedrock*												
		End of borehole at 2.89 m.												

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Projet : 161-08368-00 PHASE TWO ESA - 3636 INNES ROAD.GPJ Type rapport : WSP_EN_WELL-ENVIRONMENTAL Data Template : WSP_TEMPLATE_GEOTECH.GDT 6/10/2016

BOREHOLE DRILLING RECORD : **BH16-2**

Prepared by: **Kathryn Maton** Date (Start): **1/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **1/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5032622 mE
Y = 459337 mN
Surface Elevation: m *()*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: None
Sampling Method:

ODOUR
F - Light
M - Medium
P - Persistent

VISUAL
D - Disseminated Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
TU - DT32 Liner
MC - Macro Core Liner

▽ Water Level ▼ Free Phase

CHEMICAL ANALYSIS

PCB	Poly-Chlorinated Biphenyls	MAH	Monocyclic Aromatic Hydrocarbons
BTEX	Benzene, Toluene, Ethylbenzene, Xylene	PAH	Polycyclic Aromatic Hydrocarbons
Inorg. C.	Inorganic Compounds	PH C_{10}-C_{50}	Petroleum Hydrocarbons C_{10}-C_{50}
Phenol. C.	Phenolic Compounds	PH F1-F4	Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50})
VOC	Volatil Organic Compounds (MAH & CAH)	Metals	Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.
Diox. & Fur.	Dioxins & Furans	HWR	Leacheate Tests (Haz. Waste Reg.)
CAH	Chlorinated Aliphatic Hydrocarbons		

DEPTH *ELEVATION* (m)	GEOLOGY / LITHOLOGY: LITHOLOGY	GEOLOGY / LITHOLOGY: DESCRIPTION	OBSERVATIONS: VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	OBSERVATIONS: ODOUR (F M P)	OBSERVATIONS: VISUAL (D S)	SAMPLES: SAMPLE TYPE	SAMPLES: % RECOVERY	SAMPLES: N (Blow/6")	SAMPLES: NUMBER	SAMPLES: ANALYSIS	SAMPLES: DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
		Ground surface.												
0.30		**FILL** sand and gravel, brown, dry	H - 0, I - 0			MC	50		BH16-2 1A					
		CLAYEY SILT brown, moist, stiff	H - 20, I - 0						BH16-2 1B	Metals and Inorganics				
			H - 0, I - 0			MC	83		BH16-2 2A	Metals and Inorganics				
2.44		*with some sand*												
		Refusal at 2.44 m below ground surface on assumed bedrock	H - 0, I - 0						BH16-2 2B	Metals and Inorganics				
		End of borehole at 2.44 m.												

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

Projet : 161-08368-00 PHASE TWO ESA - 3636 INNES ROAD.GPJ Type rapport : WSP_EN_WELL-ENVIRONMENTAL Data Template : WSP_TEMPLATE_GEOTECH.GDT 6/10/2016

BOREHOLE DRILLING RECORD : **BH/MW16-3**

Prepared by: **Kathryn Maton** Date (Start): **1/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **2/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5011286 mE
Y = 472354 mN
Surface Elevation: 87.23 m *(Relative)*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: Air
Sampling Method:

ODOUR
F - Light
M - Medium
P - Persistent

VISUAL
D - Disseminated Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
TU - DT32 Liner
MC - Macro Core Liner

CHEMICAL ANALYSIS
PCB Poly-Chlorinated Biphenyls
BTEX Benzene, Toluene, Ethylbenzene, Xylene
Inorg. C. Inorganic Compounds
Phenol. C. Phenolic Compounds
VOC Volatile Organic Compounds (MAH & CAH)
Diox. & Fur. Dioxins & Furans
CAH Chlorinated Aliphatic Hydrocarbons
MAH Monocyclic Aromatic Hydrocarbons
PAH Polycyclic Aromatic Hydrocarbons
PH C_{10}-C_{50} Petroleum Hydrocarbons C_{10}-C_{50}
PH F1-F4 Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50})
Metals Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.
HWR Leacheate Tests (Haz. Waste Reg.)

Water Level ▽ Free Phase ▼

DEPTH *ELEVATION* (m)	GEOLOGY / LITHOLOGY: LITHOLOGY	GEOLOGY / LITHOLOGY: DESCRIPTION	OBSERVATIONS: VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	OBSERVATIONS: ODOUR F M P	OBSERVATIONS: VISUAL D S	SAMPLES: SAMPLE TYPE	SAMPLES: % RECOVERY	SAMPLES: N (Blow/6")	SAMPLES: NUMBER	SAMPLES: ANALYSIS	SAMPLES: DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
		Ground surface.												
87.23		**FILL** sand and gravel, brown, dry	H - 0, I - 0			MC	73		BH/MW16-3 1A					
0.43														
86.80		**CLAYEY SILT** brown, moist, stiff	H - 0, I - 0						BH/MW16-3 1B	Metals and Inorganics			Bentonite	
1.52														
85.71		**SILTY CLAY** grey-brown, moist, stiff	H - 0, I - 0			MC	100		BH/MW16-3 2A	Metals and Inorganics			Slotted PVC pipe	
			H - 0, I - 0						BH/MW16-3 2B				Sand	
3.05														
3.12													SCREEN	
84.11		**GRAVEL** with sand , brown, wet	H - 0, I - 0			MC	5		BH/MW16-3 3	Metals and Inorganics			Diam.: 51 mm Open.: 0.25 mm Length: 3.05 m	
		BEDROCK											WATER Depth: 2.13 m Elev.: m Date: 6/7/2016	
4.57														
82.66		End of borehole at 4.57 m.												

Projet : 161-08368-00 PHASE TWO ESA - 3636 INNES ROAD.GPJ Type rapport : WSP_EN_WELL-ENVIRONMENTAL Data Template : WSP_TEMPLATE_GEOTECH.GDT 6/10/2016

BOREHOLE DRILLING RECORD : **BH16-4**

Prepared by: **Kathryn Maton** Date (Start): **1/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **1/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5032619 mE
Y = 459397 mN
Surface Elevation: m *()*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: None
Sampling Method:

ODOUR
F - Light
M - Medium
P - Persistent

VISUAL
D - Disseminated Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
TU - DT32 Liner
MC - Macro Core Liner

▽ Water Level ▼ Free Phase

CHEMICAL ANALYSIS
PCB Poly-Chlorinated Biphenyls
BTEX Benzene, Toluene, Ethylbenzene, Xylene
Inorg. C. Inorganic Compounds
Phenol. C. Phenolic Compounds
VOC Volatile Organic Compounds (MAH & CAH)
Diox. & Fur. Dioxins & Furans
CAH Chlorinated Aliphatic Hydrocarbons
MAH Monocyclic Aromatic Hydrocarbons
PAH Polycyclic Aromatic Hydrocarbons
PH C_{10}-C_{50} Petroleum Hydrocarbons C_{10}-C_{50}
PH F1-F4 Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50})
Metals Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.
HWR Leacheate Tests (Haz. Waste Reg.)

DEPTH *ELEVATION* (m)	GEOLOGY / LITHOLOGY: LITHOLOGY	GEOLOGY / LITHOLOGY: DESCRIPTION	OBSERVATIONS: VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	OBSERVATIONS: ODOUR F M P	OBSERVATIONS: VISUAL D S	SAMPLES: SAMPLE TYPE	SAMPLES: % RECOVERY	SAMPLES: N (Blow/6")	SAMPLES: NUMBER	SAMPLES: ANALYSIS	SAMPLES: DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
		Ground surface.												
0.43		**FILL** sand and gravel, brown, dry	H - 0, I - 0			MC	71		BH16-4 1A					
0.5		**CLAYEY SILT** brown, moist, stiff	H - 0, I - 0						BH16-4 1B	Metals and Inorganics PHCs F2-F4				
1.5			H - 0, I - 0			MC	86		BH16-4 2A					
2.28														
2.5		**SILTY CLAY** grey-brown, moist, stiff *becoming wet and soft*	H - 0, I - 0						BH16-4 2B	Metals and Inorganics	BH16-4-102B			
3.05		*Refusal at 3.05 m below ground surface on assumed bedrock* End of borehole at 3.05 m.												

Projet : 161-08368-00 PHASE TWO ESA - 3636 INNES ROAD.GPJ Type rapport : WSP_EN_WELL-ENVIRONMENTAL Data Template : WSP_TEMPLATE_GEOTECH.GDT 6/10/2016

BOREHOLE DRILLING RECORD : **BH/MW16-5**

Prepared by: **Kathryn Maton** Date (Start): **1/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **2/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5032607 mE, Y = 459421 mN
Surface Elevation: 87.47 m *(Relative)*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: Air
Sampling Method:

ODOUR: F - Light; M - Medium; P - Persistent
VISUAL: D - Disseminated Product; S - Saturated with Product

SAMPLE TYPE: DC - Diamond Corer; SS - Split Spoon; MA - Manual Auger; TR - Trowel; ST - Shelby Tube; TU - DT32 Liner; MC - Macro Core Liner

▽ Water Level ▼ Free Phase

CHEMICAL ANALYSIS: PCB Poly-Chlorinated Biphenyls; BTEX Benzene, Toluene, Ethylbenzene, Xylene; Inorg. C. Inorganic Compounds; Phenol. C. Phenolic Compounds; VOC Volatile Organic Compounds (MAH & CAH); Diox. & Fur. Dioxins & Furans; CAH Chlorinated Aliphatic Hydrocarbons; MAH Monocyclic Aromatic Hydrocarbons; PAH Polycyclic Aromatic Hydrocarbons; PH C_{10}-C_{50} Petroleum Hydrocarbons C_{10}-C_{50}; PH F1-F4 Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50}); Metals Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.; HWR Leacheate Tests (Haz. Waste Reg.)

DEPTH *ELEVATION* (m)	LITHOLOGY	DESCRIPTION	VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	OBSERVATIONS: ODOUR F M P	OBSERVATIONS: VISUAL D S	SAMPLE TYPE	% RECOVERY	N (Blow/6")	NUMBER	ANALYSIS	DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
		Ground surface.												
87.47 0.00		**FILL** sand and gravel, brown, dry	H - 0, I - 0			MC	76		BH/MW16-5 1A					
0.23 *87.24*		**CLAYEY SILT** brown, moist, stiff	H - 0, I - 0						BH/MW16-5 1B	Metals and Inorganics PHCs F2-F4	BH16-5-101B		Bentonite	
1.52 *85.95*		**SILTY CLAY** grey-brown, moist, stiff	H - 0, I - 30			MC	83		BH/MW16-5 2A				Sand	
		← *becoming wet and soft*											Slotted PVC pipe	
3.05 *84.42*		**BEDROCK**	H - 0, I - 35						BH/MW16-5 2B	Metals and Inorganics PH F_1-F_4 BTEX PAH			SCREEN Diam.: 51 mm Open.: 0.25 mm Length: 3.05 m WATER Depth: 2.27 m Elev.: m Date: 6/7/2016	
4.57 *82.90*		End of borehole at 4.57 m.												

BOREHOLE DRILLING RECORD : **BH16-6**

Prepared by: **Kathryn Maton** Date (Start): **1/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **1/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5032622 mE
Y = 459430 mN
Surface Elevation: m *()*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: None
Sampling Method:

ODOUR
F - Light
M - Medium
P - Persistent

VISUAL
D - Disseminated Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
TU - DT32 Liner
MC - Macro Core Liner

Water Level ▽ Free Phase

CHEMICAL ANALYSIS
PCB Poly-Chlorinated Biphenyls
BTEX Benzene, Toluene, Ethylbenzene, Xylene
Inorg. C. Inorganic Compounds
Phenol. C. Phenolic Compounds
VOC Volatile Organic Compounds (MAH & CAH)
Diox. & Fur. Dioxins & Furans
CAH Chlorinated Aliphatic Hydrocarbons
MAH Monocyclic Aromatic Hydrocarbons
PAH Polycyclic Aromatic Hydrocarbons
PH C_{10}-C_{50} Petroleum Hydrocarbons C_{10}-C_{50}
PH F1-F4 Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50})
Metals Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.
HWR Leacheate Tests (Haz. Waste Reg.)

DEPTH *ELEVATION* (m)	GEOLOGY / LITHOLOGY: LITHOLOGY	GEOLOGY / LITHOLOGY: DESCRIPTION	OBSERVATIONS: VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	OBSERVATIONS: ODOUR (F M P)	OBSERVATIONS: VISUAL (D S)	SAMPLES: SAMPLE TYPE	SAMPLES: % RECOVERY	SAMPLES: N (Blow/6")	SAMPLES: NUMBER	SAMPLES: ANALYSIS	SAMPLES: DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
		Ground surface.												
0.23		**FILL** Sand and gravel, brown, dry	H - 15, I - 2			MC	46		BH16-6 1A					
		CLAYEY SILT brown, moist, stiff	H - 0, I - 0						BH16-6 1B	Metals and Inorganics PH F_1-F_4 BTEX				
2.90			H - 0, I - 0			MC	100		BH16-6 2A					
3.05		**SILTY CLAY** grey-brown, moist, stiff *Refusal at 3.05 m below ground surface on assumed bedrock*	H - 0, I - 0						BH16-6 2B	Metals and Inorganics				
		End of borehole at 3.05 m.												

Projet : 161-08368-00 PHASE TWO ESA - 3636 INNES ROAD.GPJ Type rapport : WSP_EN_WELL-ENVIRONMENTAL Data Template : WSP_TEMPLATE_GEOTECH.GDT 6/10/2016

BOREHOLE DRILLING RECORD : **BH16-7**

Prepared by: **Kathryn Maton** Date (Start): **1/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **1/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5032572 mE
Y = 459424 mN
Surface Elevation: m *()*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: None
Sampling Method:

ODOUR
F - Light
M - Medium
P - Persistent

VISUAL
D - Disseminated Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
TU - DT32 Liner
MC - Macro Core Liner

▽ Water Level ▼ Free Phase

CHEMICAL ANALYSIS
PCB Poly-Chlorinated Biphenyls
BTEX Benzene, Toluene, Ethylbenzene, Xylene
Inorg. C. Inorganic Compounds
Phenol. C. Phenolic Compounds
VOC Volatile Organic Compounds (MAH & CAH)
Diox. & Fur. Dioxins & Furans
CAH Chlorinated Aliphatic Hydrocarbons
MAH Monocyclic Aromatic Hydrocarbons
PAH Polycyclic Aromatic Hydrocarbons
PH C_{10}-C_{50} Petroleum Hydrocarbons C_{10}-C_{50}
PH F1-F4 Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50})
Metals Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.
HWR Leacheate Tests (Haz. Waste Reg.)

DEPTH *ELEVATION* (m)	GEOLOGY / LITHOLOGY: LITHOLOGY	GEOLOGY / LITHOLOGY: DESCRIPTION	OBSERVATIONS: VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	OBSERVATIONS: ODOUR F M P	OBSERVATIONS: VISUAL D S	SAMPLES: SAMPLE TYPE	SAMPLES: % RECOVERY	SAMPLES: N (Blow/6")	SAMPLES: NUMBER	SAMPLES: ANALYSIS	SAMPLES: DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
		Ground surface.												
0.20		**TOP SOIL**				MC	85							
		CLAYEY SILT brown or grey-brown, moist, stiff	H - 10, I - 0						BH16-7 1	Metals and Inorganics PAH PH F_1-F_4 BTEX				
2.44			H - 0, I - 0			MC	100		BH16-7 2A					
		SILTY CLAY with some sand, grey-brown, moist, stiff *becoming wet and soft*	H - 0, I - 0						BH16-7 2B	Metals and Inorganics				
3.05														
		SANDY GRAVEL with some silty clay grey-brown, wet, soft	H - 0, I - 0			MC	26		BH16-7 3					
4.11		*Refusal at 4.11 m below ground surface on assumed bedrock*												
		End of borehole at 4.11 m.												

Projet : 161-08368-00 PHASE TWO ESA - 3636 INNES ROAD.GPJ Type rapport : WSP_EN_WELL-ENVIRONMENTAL Data Template : WSP_TEMPLATE_GEOTECH.GDT 6/10/2016

BOREHOLE DRILLING RECORD : **BH/MW16-8**

Prepared by: **Kathryn Maton** Date (Start): **1/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **2/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5032569 mE, Y = 459449 mN
Surface Elevation: 86.84 m *(Relative)*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: Air
Sampling Method:

ODOUR: F - Light; M - Medium; P - Persistent
VISUAL: D - Disseminated Product; S - Saturated with Product

SAMPLE TYPE: DC - Diamond Corer; SS - Split Spoon; MA - Manual Auger; TR - Trowel; ST - Shelby Tube; TU - DT32 Liner; MC - Macro Core Liner

CHEMICAL ANALYSIS: PCB Poly-Chlorinated Biphenyls; BTEX Benzene, Toluene, Ethylbenzene, Xylene; Inorg. C. Inorganic Compounds; Phenol. C. Phenolic Compounds; VOC Volatile Organic Compounds (MAH & CAH); Diox. & Fur. Dioxins & Furans; CAH Chlorinated Aliphatic Hydrocarbons; MAH Monocyclic Aromatic Hydrocarbons; PAH Polycyclic Aromatic Hydrocarbons; PH C_{10}-C_{50} Petroleum Hydrocarbons C_{10}-C_{50}; PH F1-F4 Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50}); Metals Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.; HWR Leacheate Tests (Haz. Waste Reg.)

▽ Water Level ▼ Free Phase

DEPTH *ELEVATION* (m)	GEOLOGY / LITHOLOGY: LITHOLOGY	GEOLOGY / LITHOLOGY: DESCRIPTION	OBSERVATIONS: VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	OBSERVATIONS: ODOUR F M P	OBSERVATIONS: VISUAL D S	SAMPLES: SAMPLE TYPE	SAMPLES: % RECOVERY	SAMPLES: N (Blow/6")	SAMPLES: NUMBER	SAMPLES: ANALYSIS	SAMPLES: DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
		Ground surface.												
86.84 0.20		**TOP SOIL**				MC	100							
86.64		**CLAYEY SILT** brown or grey-brown, moist, stiff	H - 10, I - 0						BH/MW16-81	Metals and Inorganics PAH PH F_1-F_4 BTEX			Bentonite	
			H - 10, I - 0			MC	100		BH/MW16-82A				Sand	
2.44 *84.40*		**SILTY CLAY** grey-brown, moist, stiff	H - 5, I - 0						BH/MW16-82B	Metals and Inorganics			Slotted PVC pipe	
3.05 *83.79*		**SANDY GRAVEL** with trace to some silty clay grey-brown, wet, soft	H - 0, I - 0			MC	100		BH/MW16-83A				SCREEN Diam.: 51 mm Open.: 0.25 mm Length: 3.05 m WATER Depth: 1.45 m Elev.: m Date: 6/7/2016	
			H - 15, I - 0						BH/MW16-83B					
4.11 *82.73*		End of borehole at 4.11 m.												

BOREHOLE DRILLING RECORD : **BH16-9**

Prepared by: **Kathryn Maton** Date (Start): **2/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **2/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5032512 mE
Y = 459382 mN
Surface Elevation: m *()*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: None
Sampling Method:

ODOUR
F - Light
M - Medium
P - Persistent

VISUAL
D - Disseminated Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
TU - DT32 Liner
MC - Macro Core Liner

▽ Water Level ▼ Free Phase

CHEMICAL ANALYSIS

PCB	Poly-Chlorinated Biphenyls	MAH	Monocyclic Aromatic Hydrocarbons
BTEX	Benzene, Toluene, Ethylbenzene, Xylene	PAH	Polycyclic Aromatic Hydrocarbons
Inorg. C.	Inorganic Compounds	PH C_{10}-C_{50}	Petroleum Hydrocarbons C_{10}-C_{50}
Phenol. C.	Phenolic Compounds	PH F1-F4	Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50})
VOC	Volatil Organic Compounds (MAH & CAH)	Metals	Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.
Diox. & Fur.	Dioxins & Furans	HWR	Leacheate Tests (Haz. Waste Reg.)
CAH	Chlorinated Aliphatic Hydrocarbons		

DEPTH *ELEVATION* (m)	LITHOLOGY	DESCRIPTION	VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	OBSERVATIONS ODOUR F	M	P	VISUAL D	S	SAMPLES SAMPLE TYPE	% RECOVERY	N (Blow/6")	NUMBER	ANALYSIS	DUPLICATE	MONITORING WELL DIAGRAM	DESCRIPTION	REMARKS
		Ground surface.															
0.17		**TOP SOIL**	H - 0, I - 0						MC	91		BH16-9 1	Metals and Inorganics				
0.5		**CLAYEY SILT** brown or grey-brown, moist, stiff															0.5
1.0																	1.0
1.52																	
1.5		**SILTY CLAY** grey-brown, moist, stiff	H - 0, I - 0						MC	100		BH16-9 2A					1.5
2.0																	2.0
2.5		*becoming wet*															2.5
3.0			H - 0, I - 0									BH16-9 2B	Metals and Inorganics				3.0
3.5			H - 0, I - 0						MC	100		BH16-9 3A					3.5
4.0		*-with some sand and some gravel*															4.0
4.57		*-becoming grey*	H - 0, I - 0									BH16-9 3B					
4.5		**SANDY GRAVEL** with some silty clay grey-brown, wet	H - 0, I - 0						MC	53		BH16-9 4	Metals and Inorganics				4.5
5.0																	5.0
5.5																	5.5
6.0																	6.0
6.5			H - 0, I - 0						MC	60		BH16-9 5					6.5
7.01		*Refusal at 7.01 m below ground surface on assumed bedrock*															
7.0		End of borehole at 7.01 m.															7.0
7.5																	7.5
8.0																	8.0
8.5																	8.5
9.0																	9.0
9.5																	9.5
10.0																	10.0

Projet : 161-08368-00 PHASE TWO ESA - 3636 INNES ROAD.GPJ Type rapport : WSP_EN_WELL-ENVIRONMENTAL Data Template : WSP_TEMPLATE_GEOTECH.GDT 6/10/2016

BOREHOLE DRILLING RECORD : **BH16-10**

Prepared by: **Kathryn Maton** Date (Start): **2/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **2/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5032473 mE
Y = 459402 mN
Surface Elevation: m *()*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: None
Sampling Method:

ODOUR
F - Light
M - Medium
P - Persistent

VISUAL
D - Disseminated Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
TU - DT32 Liner
MC - Macro Core Liner

▽ Water Level ▼ Free Phase

CHEMICAL ANALYSIS

PCB	Poly-Chlorinated Biphenyls	MAH	Monocyclic Aromatic Hydrocarbons
BTEX	Benzene, Toluene, Ethylbenzene, Xylene	PAH	Polycyclic Aromatic Hydrocarbons
Inorg. C.	Inorganic Compounds	PH C_{10}-C_{50}	Petroleum Hydrocarbons C_{10}-C_{50}
Phenol. C.	Phenolic Compounds	PH F1-F4	Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50})
VOC	Volatil Organic Compounds (MAH & CAH)	Metals	Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.
Diox. & Fur.	Dioxins & Furans	HWR	Leacheate Tests (Haz. Waste Reg.)
CAH	Chlorinated Aliphatic Hydrocarbons		

DEPTH *ELEVATION* (m)	LITHOLOGY	DESCRIPTION	VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	ODOUR F M P	VISUAL D S	SAMPLE TYPE	% RECOVERY	N (Blow/6")	NUMBER	ANALYSIS	DUPLICATE	MONITORING WELL DIAGRAM	MONITORING WELL DESCRIPTION	REMARKS
		Ground surface.												
0.23		**TOP SOIL**				MC	80							
0.5		**CLAYEY SILT** brown or grey-brown, moist, stiff	H - 0, I - 0						BH16-10 1	Metals and Inorganics				
1.5			H - 0, I - 0			MC	100		BH16-10 2A					
2.61														
2.5		**SILTY CLAY** grey-brown, wet, soft	H - 0, I - 0						BH16-10 2B	Metals and Inorganics				
3.0			H - 0, I - 0			MC	100		BH16-10 3A					
3.5			H - 0, I - 0						BH16-10 3B					
4.0			H - 0, I - 0			MC	100		BH16-10 4A	Metals and Inorganics				
4.5														
6.10														
6.40		**SANDY GRAVEL** with some silty clay grey-brown, wet, soft *Refusal at 6.40 m below ground surface on assumed bedrock*	H - 0, I - 0						BH16-10 4B					
		End of borehole at 6.40 m.												

Projet : 161-08368-00 PHASE TWO ESA - 3636 INNES ROAD.GPJ Type rapport : WSP_EN_WELL-ENVIRONMENTAL Data Template : WSP_TEMPLATE_GEOTECH.GDT 6/10/2016

BOREHOLE DRILLING RECORD : **BH16-11**

Prepared by: **Kathryn Maton** Date (Start): **2/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **2/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5032342 mE
Y = 459432 mN
Surface Elevation: m *()*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: None
Sampling Method:

ODOUR
F - Light
M - Medium
P - Persistent

VISUAL
D - Disseminated Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
TU - DT32 Liner
MC - Macro Core Liner

▽ Water Level ▼ Free Phase

CHEMICAL ANALYSIS

PCB	Poly-Chlorinated Biphenyls	MAH	Monocyclic Aromatic Hydrocarbons
BTEX	Benzene, Toluene, Ethylbenzene, Xylene	PAH	Polycyclic Aromatic Hydrocarbons
Inorg. C.	Inorganic Compounds	PH C_{10}-C_{50}	Petroleum Hydrocarbons C_{10}-C_{50}
Phenol. C.	Phenolic Compounds	PH F1-F4	Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50})
VOC	Volatil Organic Compounds (MAH & CAH)	Metals	Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.
Diox. & Fur.	Dioxins & Furans	HWR	Leacheate Tests (Haz. Waste Reg.)
CAH	Chlorinated Aliphatic Hydrocarbons		

DEPTH *ELEVATION* (m)	GEOLOGY / LITHOLOGY: LITHOLOGY	GEOLOGY / LITHOLOGY: DESCRIPTION	OBSERVATIONS: VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	OBSERVATIONS: ODOUR (F M P)	OBSERVATIONS: VISUAL (D S)	SAMPLES: SAMPLE TYPE	SAMPLES: % RECOVERY	SAMPLES: N (Blow/6")	SAMPLES: NUMBER	SAMPLES: ANALYSIS	SAMPLES: DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
		Ground surface.												
0.20		**TOP SOIL**				MC	86							
		CLAYEY SILT brown or grey-brown, moist, stiff	H - 0, I - 0						BH16-11 1					
1.52		**SILTY CLAY** grey-brown, wet to very wet, soft to very soft	H - 0, I - 0			MC	100		BH16-11 2A	Metals and Inorganics				
		becoming wet	H - 0, I - 0						BH16-11 2B					
			H - 0, I - 0			MC	100		BH16-11 3A					
		becoming grey and unweathered	H - 0, I - 0						BH16-11 3B	Metals and Inorganics				
			H - 0, I - 0			MC	100		BH16-11 4A					
			H - 0, I - 0						BH16-11 4B					
6.10		*Refusal at 6.10 m below ground surface on assumed bedrock*												
		End of borehole at 6.10 m.												

Projet : 161-08368-00 PHASE TWO ESA - 3636 INNES ROAD.GPJ Type rapport : WSP_EN_WELL-ENVIRONMENTAL Data Template : WSP_TEMPLATE_GEOTECH.GDT 6/10/2016

BOREHOLE DRILLING RECORD : **BH16-12**

Prepared by: **Kathryn Maton** Date (Start): **2/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **2/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5032334 mE
Y = 459386 mN
Surface Elevation: m *()*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: None
Sampling Method:

ODOUR
F - Light
M - Medium
P - Persistent

VISUAL
D - Disseminated Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
TU - DT32 Liner
MC - Macro Core Liner

▽ Water Level ▼ Free Phase

CHEMICAL ANALYSIS
PCB Poly-Chlorinated Biphenyls
BTEX Benzene, Toluene, Ethylbenzene, Xylene
Inorg. C. Inorganic Compounds
Phenol. C. Phenolic Compounds
VOC Volatil Organic Compounds (MAH & CAH)
Diox. & Fur. Dioxins & Furans
CAH Chlorinated Aliphatic Hydrocarbons
MAH Monocyclic Aromatic Hydrocarbons
PAH Polycyclic Aromatic Hydrocarbons
PH C_{10}-C_{50} Petroleum Hydrocarbons C_{10}-C_{50}
PH F1-F4 Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50})
Metals Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.
HWR Leacheate Tests (Haz. Waste Reg.)

DEPTH *ELEVATION* (m)	GEOLOGY / LITHOLOGY: LITHOLOGY	GEOLOGY / LITHOLOGY: DESCRIPTION	OBSERVATIONS: VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	OBSERVATIONS: ODOUR F M P	OBSERVATIONS: VISUAL D S	SAMPLES: SAMPLE TYPE	SAMPLES: % RECOVERY	SAMPLES: N (Blow/6")	SAMPLES: NUMBER	SAMPLES: ANALYSIS	SAMPLES: DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
		Ground surface.												
0.15		**TOP SOIL**	H - 0, I - 0			MC	76		BH16-12 1					
0.5		**CLAYEY SILT** brown or grey-brown, moist, stiff												
1.0														
1.52														
1.5		**SILTY CLAY** grey-brown, moist, stiff	H - 0, I - 0			MC	100		BH16-12 2A	Metals and Inorganics				
2.0		*becoming wet and soft*												
2.5			H - 0, I - 0						BH16-12 2B					
3.0		*becoming grey, very soft and unweathered*												
3.5			H - 0, I - 0			MC	100		BH16-12 3A					
4.0			H - 0, I - 0						BH16-12 3B	Metals and Inorganics				
4.5														
5.0			H - 0, I - 0			MC	100		BH16-12 4A					
5.5														
6.0		*with some sand*												
6.25		*Refusal at 6.25 m below ground surface on assumed bedrock*	H - 0, I - 0						BH16-12 4B					
6.5		End of borehole at 6.25 m.												
7.0														
7.5														
8.0														
8.5														
9.0														
9.5														
10.0														

Projet : 161-08368-00 PHASE TWO ESA - 3636 INNES ROAD.GPJ Type rapport : WSP_EN_WELL-ENVIRONMENTAL Data Template : WSP_TEMPLATE_GEOTECH.GDT 6/10/2016

BOREHOLE DRILLING RECORD : **BH16-13**

Prepared by: **Kathryn Maton** Date (Start): **2/6/2016**
Reviewed by: **Carolyn Adams** Date (End): **2/6/2016**

Project Name: **Phase Two Environmental Site Assessment**
Site: **Part of Lot 4, Concession 3, Parts 1-5, Gloucester, Ontario**
Sector:
Client: **The Builders Warehouse Inc.**

Project Number: **161-06382-00**
Geographic Coordinates: X = 5032385 mE
Y = 459515 mN
Surface Elevation: m *()*
Top of PVC Elevation:

Drilling Company: Strata Drilling Group
Drilling Equipment: Geomachine GS100
Drilling Method: Probe rod
Borehole Diameter: 50 mm
Drilling Fluid: None
Sampling Method:

ODOUR
F - Light
M - Medium
P - Persistent

VISUAL
D - Disseminated Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
TU - DT32 Liner
MC - Macro Core Liner

▽ Water Level ▼ Free Phase

CHEMICAL ANALYSIS

PCB	Poly-Chlorinated Biphenyls	MAH	Monocyclic Aromatic Hydrocarbons
BTEX	Benzene, Toluene, Ethylbenzene, Xylene	PAH	Polycyclic Aromatic Hydrocarbons
Inorg. C.	Inorganic Compounds	PH C_{10}-C_{50}	Petroleum Hydrocarbons C_{10}-C_{50}
Phenol. C.	Phenolic Compounds	PH F1-F4	Petroleum Hydrocarbons F1-F4 (C_{10}-C_{50})
VOC	Volatil Organic Compounds (MAH & CAH)	Metals	Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Molybdenum, Nickel, Silver, Tin, Zinc.
Diox. & Fur.	Dioxins & Furans	HWR	Leacheate Tests (Haz. Waste Reg.)
CAH	Chlorinated Aliphatic Hydrocarbons		

DEPTH *ELEVATION* (m)	GEOLOGY / LITHOLOGY: LITHOLOGY	GEOLOGY / LITHOLOGY: DESCRIPTION	OBSERVATIONS: VAPOR CONC. I - Isobutylene (ppm) H - Hexane (ppm)	OBSERVATIONS: ODOUR (F M P)	OBSERVATIONS: VISUAL (D S)	SAMPLES: SAMPLE TYPE	SAMPLES: % RECOVERY	SAMPLES: N (Blow/6")	SAMPLES: NUMBER	SAMPLES: ANALYSIS	SAMPLES: DUPLICATE	MONITORING WELL: DIAGRAM	MONITORING WELL: DESCRIPTION	REMARKS
		Ground surface.												
0.18		**TOP SOIL**	H - 0, I - 0			MC	73							
0.5		**CLAYEY SILT** brown or grey-brown, moist, stiff												
1.0														
1.52		**SILTY CLAY** grey-brown, moist, stiff	H - 0, I - 0			MC	100			Metals and Inorganics	BH16-13-102A			
2.0														
2.5		*becoming wet*												
3.0		*becoming wet to very wet*	H - 0, I - 0											
3.5		*becoming grey and unweathered*	H - 0, I - 0			MC	100							
4.0			H - 0, I - 0							Metals and Inorganics				
4.5														
5.0			H - 0, I - 0			MC	50							
5.18		*Refusal at 5.18 m below ground surface on assumed bedrock*												
		End of borehole at 5.18 m.												
10.0														

Projet : 161-08368-00 PHASE TWO ESA - 3636 INNES ROAD.GPJ Type rapport : WSP_EN_WELL-ENVIRONMENTAL Data Template : WSP_TEMPLATE_GEOTECH.GDT 6/10/2016

MONITORING WELL DRILLING RECORD : **MW17-5**

Project Number: **17M-01348-00**

3604-3646 Innes Road, Orleans, Ontario
3604-3646 Innes Road
Glenview Homes (Innes) Ltd. and Glenview Properties Inc.

DRILLING DETAILS

Date (Start):	2017-08-12
Date (End):	2017-08-12
Drilling Company:	Strata Drilling Group
Drilling Equipment:	Géomachine
Drilling Method:	Hydraulic Percussion
Borehole Diameter:	88.9 mm
Drilling Fluid:	Water

SURVEY DETAILS

Easting:	m
Northing:	m
Surface Elevation:	87.77 masl
Top of Well Elevation:	masl

ODOUR
L - Light
M - Medium
S - Strong

VISUAL
D - Dispersed with Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
DT - Dual Tube
MC - Macro Core
NR - No Recovery

CHEMICAL ANALYSIS

Metals	Sb As Ba Be B Cd Cr Co Cu Pb Mo Ni Se Ag Tl U V Zn
Inorg.	Inorganic Compounds
PHC	Petroleum Hydrocarbons (F1-F4)
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
VOC	Volatile Organic Compounds
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
D/F	Dioxins & Furans
Phenol	Phenolic Compounds
GSA	Grain-size Analysis

(m) DEPTH *ELEVATION* (masl)	LITHOLOGY / GEOLOGY: STRATIGRAPHY	DESCRIPTION	OBSERVATIONS: PID *CGD* (ppm)	ODOUR (L M S)	VISUAL (D S)	SAMPLES: SAMPLE TYPE & No.	% RECOVERY	N (Blow/15cm)	CHEMICAL ANALYSIS	DUPLICATE	MONITORING WELL: DIAGRAM	DESCRIPTION	REMARKS
0.46		**TOPSOIL**: with some brick fragments, dark brown, moist, compact											
0.5		**CLAYEY SILT**: brown, moist, dense				DT1	100%					BENTONITE	0.5
1.0													1.0
1.5												WATER Depth: 1.46 m Date: 16/5/2019	1.5
2.0						DT2	100%					SAND	2.0
2.5													2.5
2.59		**SILTY CLAY**: with trace gravel, grey, moist, soft Petroleum odour and black staining in sample											
3.0						RC1							3.0
3.05		**LIMESTONE**:											
3.5						RC2							3.5
4.0													4.0
4.5													4.5
4.75													

Project : 3636 INNES RD. LOGS.GPJ Report : WSP_EN_WELL-ENVIRONMENTAL 2019-09-03

Prepared by: Kathryn Maton
Reviewed by: Natalia Codoban

MONITORING WELL DRILLING RECORD : **MW19-5**

Project Number: **17M-01348-00**

3604-3646 Innes Road, Orleans, Ontario
3604-3646 Innes Road
Glenview Homes (Innes) Ltd. and Glenview Properties Inc.

DRILLING DETAILS

Date (Start):	2019-08-28
Date (End):	2019-08-28
Drilling Company:	OGS
Drilling Equipment:	CME 75
Drilling Method:	Hollow Stem Auger
Borehole Diameter:	200 mm / 96 mm
Drilling Fluid:	Water

SURVEY DETAILS

Easting:	5032384 m
Northing:	459383 m
Surface Elevation:	masl
Top of Well Elevation:	masl

ODOUR
L - Light
M - Medium
S - Strong

VISUAL
D - Dispersed with Product
S - Saturated with Product

SAMPLE TYPE
DC - Diamond Corer
SS - Split Spoon
MA - Manual Auger
TR - Trowel
ST - Shelby Tube
DT - Dual Tube
MC - Macro Core
NR - No Recovery

CHEMICAL ANALYSIS

Metals	Sb As Ba Be B Cd Cr Co Cu Pb Mo Ni Se Ag Tl U V Zn
Inorg.	Inorganic Compounds
PHC	Petroleum Hydrocarbons (F1-F4)
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
VOC	Volatile Organic Compounds
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
D/F	Dioxins & Furans
Phenol	Phenolic Compounds
GSA	Grain-size Analysis

(m) DEPTH / *ELEVATION* (masl)	LITHOLOGY / GEOLOGY: STRATIGRAPHY	DESCRIPTION	OBSERVATIONS: PID / *CGD* (ppm)	ODOUR L M S	VISUAL D S	SAMPLES: SAMPLE TYPE & No.	% RECOVERY	N (Blow/15cm)	CHEMICAL ANALYSIS	DUPLICATE	MONITORING WELL: DIAGRAM	DESCRIPTION	REMARKS
0.5 / 0.61		**SILTY CLAY**: some sand and gravel, brown, moist, compact	0 / *0*			SS1	46%	12				BENTONITE	
		CLAY: some silt and gravel, grey, moist, firm										RISER	
1.0			0 / *0*			SS2	100%	5				SAND	
1.5												WATER Depth: 1.69 m Date: 14/1/2020	
2.0			0 / *0*			SS3	100%	7					
2.5 / 2.84												SCREEN Length: 1.52 m Diam.: 51 mm Slot: #10	
		LIMESTONE:	0 / *0*			SS4	100%	5					
3.0						RC1						BENTONITE	
3.5 / 3.63													
4.0													
4.5													

Project : 3636 INNES RD. LOGS.GPJ Report : WSP_EN_WELL-ENVIRONMENTAL 2019-09-03

Prepared by: Andrey Belokurov
Reviewed by: Adrian Menyhart

Figure No. _____

LOG OF MONITORING WELL BH20-5D

Project No. **17M-01348-00**
Project: **Glenview Homes (Innes) Ltd. and Glenview Properties Inc.**
Location: **3604-3646 Innes Road, Ottawa, Ontario** Co-ordinates: **459416E, 5032602N**
Date Drilled: **November 23, 2021** Datum: **UTM NAD 83 Zone 17N**
Drill Type: **Geoprobe - 7822 DT** Logged By: **SW**
Drilling Contractor: **Strata** Checked By: **NC**

DEPTH (m bgs)	DEPTH (m asl)	SOIL DESCRIPTION	WELL	INSTALLATION DETAILS	SAMPLE ID	SOIL SAMPLE TEST	BLOW COUNTS	RECOVERY (%)	VOCs (ppm) 40 80 120 160 / Combustible Gases (ppm) 20 40 60 80
	88.92	SILTY CLAY FILL trace organics for top 0.3 m, brown, damp to dry		Bentonite	ST1A			97	
					ST1B			97	
1.52	87.4	NATIVE SILTY CLAY grey, damp to 2.44 m some sand , trace gravel, dampt to moist			ST2A			95	
2.31	86.61								
2.84	86.08	Refusal at 2.84 m. Continued with coring for well installation.			ST2B			95	
				Sand Screen					
8.84	80.08	End of borehole at 8.84 mbgs		Water measured on 11/26/2020 86.81 masl 2.31 mbgs Well Diameter: 51 mm Well Material: Schedule 40 PVC					

WSP MW REPORT VER.5 INNES2020MWS.GPJ GINT STD CANADA LAB.GDT 3/5/21

Figure No. _____

LOG OF MONITORING WELL BH20-5S

Project No. **17M-01348-00**
Project: **Glenview Homes (Innes) Ltd. and Glenview Properties Inc.**
Location: **3604-3646 Innes Road, Ottawa, Ontario** Co-ordinates: **459418E, 5032599N**
Date Drilled: **November 23, 2021** Datum: **UTM NAD 83 Zone 17N**
Drill Type: **Geoprobe - 7822 DT** Logged By: **SW**
Drilling Contractor: **Strata** Checked By: **NC**

DEPTH (mbgs)	(masl)	LITHOLOGY	SOIL DESCRIPTION	WELL	INSTALLATION DETAILS	SAMPLE ID	SOIL SAMPLE TEST	BLOW COUNTS	RECOVERY (%)	VOCs (ppm) 40 80 120 160 / Combustible Gases (ppm) 20 40 60 80
	88.85									
			SILTY CLAY FILL trace organics for top 0.15 m, brown, damp, very stiff		Bentonite Sand Screen	ST1A			91	
						ST1B			91	
1.78	87.07									
1.83	87.02		NATIVE SILTY CLAY brownsih, grey, damp from 1.83 to 2.59 m			ST2A			91	
			some sand and gravel till, moist from 2.59 to 2.90 m			ST2B			91	
2.90	85.95		Refusal at 2.90 m End of borehole at 2.90 mbgs		Water measured on 11/26/2020 87.07 masl 1.78 mbgs Well Diameter: 51 mm Well Material: Schedule 40 PVC					

WSP MW REPORT VER.5 INNES2020MWS.GPJ GINT STD CANADA LAB.GDT 3/5/21

APPENDIX

A-3 *CERTIFICATES OF ANALYSIS*

AGAT Laboratories

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

CLIENT NAME: WSP CANADA INC.
500, BOUL GREBER 3E ETAGE
GATINEAU, QC J8T7W3
(819) 243-2827

ATTENTION TO: Matthieu Rochon

PROJECT: 161-06382-00-101-980

AGAT WORK ORDER: 16Z101291

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jun 15, 2016

PAGES (INCLUDING COVER): 21

VERSION*: 2

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

*NOTES
VERSION 2: Revised report sent on June 15, 2016. Data for Inorganics has been added this report.

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

Member of: Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 16Z101291

PROJECT: 161-06382-00-101-980

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

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

DATE RECEIVED: 2016-06-03

DATE REPORTED: 2016-06-15

Parameter	Unit	G / S	RDL	BH16-1-1B Soil 6/1/2016 7608015	BH16-2-1B Soil 6/1/2016 7608030	BH16-3-1B Soil 6/1/2016 7608034	BH16-4-1B Soil 6/1/2016 7608053	BH16-5-1B Soil 6/1/2016 7608075	BH16-6-1B Soil 6/1/2016 7608096	BH16-7-1 Soil 6/1/2016 7608105	BH16-8-1 Soil 6/1/2016 7608133
Antimony	µg/g		0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g		1	1	1	2	1	1	3	2	2
Barium	µg/g		2	325	345	286	254	129	180	302	296
Beryllium	µg/g		0.5	0.9	1.0	0.9	0.8	0.6	0.6	1.0	0.9
Boron	µg/g		5	<5	<5	6	<5	<5	5	<5	<5
Boron (Hot Water Soluble)	µg/g		0.10	0.13	0.15	0.24	0.12	0.29	0.55	0.11	<0.10
Cadmium	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g		2	101	116	113	87	59	63	118	121
Cobalt	µg/g		0.5	19.7	22.0	21.6	16.3	11.2	12.4	22.4	25.9
Copper	µg/g		1	43	47	46	35	16	27	50	44
Lead	µg/g		1	7	8	7	6	8	9	8	9
Molybdenum	µg/g		0.5	<0.5	<0.5	<0.5	0.5	0.5	0.6	<0.5	0.5
Nickel	µg/g		1	58	64	65	47	27	34	67	67
Selenium	µg/g		0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g		0.4	0.4	0.5	<0.4	<0.4	<0.4	<0.4	0.5	0.4
Uranium	µg/g		0.5	0.6	0.7	0.6	1.0	0.9	0.6	0.8	0.9
Vanadium	µg/g		1	91	99	88	89	53	60	103	98
Zinc	µg/g		5	123	132	120	96	80	85	128	126
Chromium VI	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	µg/g		0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g		0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity	mS/cm		0.005	0.458	0.419	0.465	0.363	0.325	0.569	0.579	1.86
Sodium Adsorption Ratio	NA		NA	0.486	0.855	1.11	0.565	0.657	5.41	1.02	4.79
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.23	7.05	7.15	7.07	7.24	7.42	7.13	7.25

Certified By: Amanjot Bhela

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Certificate of Analysis

AGAT WORK ORDER: 16Z101291

PROJECT: 161-06382-00-101-980

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

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

DATE RECEIVED: 2016-06-03

DATE REPORTED: 2016-06-15

		SAMPLE DESCRIPTION:		BH16-9-1	BH16-10-1	BH16-11-2A	BH16-12-2A	BH16-13-2A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/2/2016	6/2/2016	6/2/2016	6/2/2016	6/2/2016
Parameter	Unit	G / S	RDL	7608148	7608156	7608164	7608171	7608178
Antimony	µg/g		0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g		1	2	2	2	2	2
Barium	µg/g		2	263	268	290	288	273
Beryllium	µg/g		0.5	0.9	0.8	0.8	0.7	0.8
Boron	µg/g		5	<5	<5	<5	<5	5
Boron (Hot Water Soluble)	µg/g		0.10	0.22	<0.10	0.25	0.37	0.34
Cadmium	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g		2	112	103	107	116	112
Cobalt	µg/g		0.5	19.3	18.7	23.7	24.2	22.2
Copper	µg/g		1	47	44	48	51	47
Lead	µg/g		1	8	7	7	8	7
Molybdenum	µg/g		0.5	0.6	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g		1	60	58	62	66	64
Selenium	µg/g		0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g		0.4	<0.4	<0.4	0.4	0.4	<0.4
Uranium	µg/g		0.5	1.0	0.8	1.0	1.2	0.9
Vanadium	µg/g		1	99	89	100	105	94
Zinc	µg/g		5	114	106	124	129	123
Chromium VI	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	µg/g		0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g		0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity	mS/cm		0.005	0.394	0.215	0.176	0.091	0.075
Sodium Adsorption Ratio	NA		NA	1.10	1.04	0.622	0.436	0.416
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.15	6.77	7.05	7.13	7.13

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T1(All)

7608015-7608178 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 CaCl2 extract prepared at 2:1 ratio.

Certified By: Amanjot Bhela

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AGAT WORK ORDER: 16Z101291

PROJECT: 161-06382-00-101-980

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2016-06-03

DATE REPORTED: 2016-06-15

Parameter	Unit	G / S	RDL	BH16-1-2A Soil 6/1/2016 7608016	BH16-1-2B Soil 6/1/2016 7608020	BH16-2-2A Soil 6/1/2016 7608023	BH16-2-2B Soil 6/1/2016 7608027	BH16-3-2A Soil 6/1/2016 7608038	BH16-3-3 Soil 6/1/2016 7608050	BH16-4-2B Soil 6/1/2016 7608062	BH16-4-102B Soil 6/1/2016 7608065
Antimony	µg/g		0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g		1	1	1	1	2	1	5	2	4
Boron	µg/g		5	<5	6	<5	8	5	9	8	9
Barium	µg/g		2	347	198	355	271	398	346	347	250
Beryllium	µg/g		0.5	1.0	0.7	0.9	0.8	0.9	<0.5	1.0	0.8
Cadmium	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g		2	108	45	99	65	111	26	70	57
Cobalt	µg/g		0.5	23.0	10.7	20.4	16.7	22.6	6.8	20.2	18.2
Copper	µg/g		1	48	28	47	33	48	15	35	35
Lead	µg/g		1	7	6	7	6	7	8	7	8
Molybdenum	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	<0.5
Nickel	µg/g		1	60	25	55	40	62	11	43	37
Selenium	µg/g		0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g		0.4	0.5	<0.4	0.4	<0.4	0.5	<0.4	0.4	<0.4
Uranium	µg/g		0.5	0.6	<0.5	0.6	0.6	0.7	0.6	0.6	0.6
Vanadium	µg/g		1	101	57	98	76	102	25	88	80
Zinc	µg/g		5	137	71	129	101	146	56	127	112

Certified By: Amanjot Bhela

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AGAT WORK ORDER: 16Z101291

PROJECT: 161-06382-00-101-980

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2016-06-03

DATE REPORTED: 2016-06-15

		SAMPLE DESCRIPTION:		BH16-5-101B	BH16-5-2B	BH16-6-2B	BH16-7-2B	BH16-8-2B	BH16-9-2B	BH16-9-4	BH16-10-2B
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/2/2016	6/2/2016	6/2/2016
Parameter	Unit	G / S	RDL	7608077	7608081	7608100	7608122	7608139	7608151	7608154	7608158
Antimony	µg/g		0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g		1	2	2	3	1	2	1	1	1
Boron	µg/g		5	6	8	9	6	8	<5	<5	<5
Barium	µg/g		2	266	412	285	338	524	304	84	303
Beryllium	µg/g		0.5	0.9	1.0	0.9	0.7	1.0	0.7	<0.5	0.8
Cadmium	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g		2	125	72	61	50	77	99	14	102
Cobalt	µg/g		0.5	22.2	19.1	18.4	15.1	22.7	20.0	5.4	22.6
Copper	µg/g		1	44	39	35	30	47	46	11	45
Lead	µg/g		1	8	8	8	6	9	6	4	6
Molybdenum	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.6	<0.5
Nickel	µg/g		1	66	43	37	32	49	56	10	59
Selenium	µg/g		0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g		0.4	<0.4	0.5	<0.4	<0.4	0.6	0.4	<0.4	0.4
Uranium	µg/g		0.5	1.0	0.6	0.6	0.6	0.7	0.9	<0.5	0.8
Vanadium	µg/g		1	94	93	83	68	101	102	21	96
Zinc	µg/g		5	109	134	118	94	149	126	21	123

Certified By: Amanjot Bhela

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AGAT WORK ORDER: 16Z101291

PROJECT: 161-06382-00-101-980

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2016-06-03

DATE REPORTED: 2016-06-15

		SAMPLE DESCRIPTION:		BH16-10-4A	BH16-11-3B	BH16-12-3B	BH16-13-3B	BH16-13-102A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6/2/2016	6/2/2016	6/2/2016	6/2/2016	6/2/2016
Parameter	Unit	G / S	RDL	7608161	7608167	7608174	7608185	7608670
Antimony	µg/g		0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g		1	2	1	1	2	2
Boron	µg/g		5	8	5	5	7	<5
Barium	µg/g		2	294	297	369	246	272
Beryllium	µg/g		0.5	0.7	0.7	0.7	0.7	0.7
Cadmium	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g		2	80	99	99	84	109
Cobalt	µg/g		0.5	19.6	21.1	23.2	18.2	22.4
Copper	µg/g		1	40	47	50	38	46
Lead	µg/g		1	7	6	7	6	7
Molybdenum	µg/g		0.5	1.0	0.7	1.0	0.9	<0.5
Nickel	µg/g		1	47	56	58	48	63
Selenium	µg/g		0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g		0.4	<0.4	<0.4	0.5	<0.4	<0.4
Uranium	µg/g		0.5	1.8	1.0	0.9	1.9	0.9
Vanadium	µg/g		1	87	94	114	82	93
Zinc	µg/g		5	117	123	141	108	120

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

Certified By: Amanjot Bhela

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AGAT WORK ORDER: 16Z101291

PROJECT: 161-06382-00-101-980

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

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

DATE RECEIVED: 2016-06-03

DATE REPORTED: 2016-06-15

		SAMPLE DESCRIPTION:		BH16-5-2B	BH16-7-1	BH16-8-1
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		6/1/2016	6/1/2016	6/1/2016
Parameter	**Unit**	**G / S**	**RDL**	**7608081**	**7608105**	**7608133**
Naphthalene	µg/g		0.05	0.06	<0.05	<0.05
Acenaphthylene	µg/g		0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g		0.05	<0.05	<0.05	<0.05
Fluorene	µg/g		0.05	0.11	<0.05	<0.05
Phenanthrene	µg/g		0.05	0.17	<0.05	<0.05
Anthracene	µg/g		0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g		0.05	<0.05	<0.05	<0.05
Pyrene	µg/g		0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g		0.05	<0.05	<0.05	<0.05
Chrysene	µg/g		0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g		0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g		0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g		0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g		0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g		0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g		0.05	<0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g		0.05	0.50	<0.05	<0.05
Moisture Content	%		0.1	17.1	26.3	27.7
Surrogate	**Unit**	**Acceptable Limits**				
Chrysene-d12	%	50-140		96	119	104

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

7608081-7608133 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.

Certified By: NPopnikolof

Results relate only to the items tested and to all the items tested

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AGAT WORK ORDER: 16Z101291

PROJECT: 161-06382-00-101-980

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

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

DATE RECEIVED: 2016-06-03

DATE REPORTED: 2016-06-15

		SAMPLE DESCRIPTION:		BH16-6-1B
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		6/1/2016
Parameter	**Unit**	**G / S**	**RDL**	**7608096**
Benzene	µg/g		0.02	<0.02
Toluene	µg/g		0.08	<0.08
Ethylbenzene	µg/g		0.05	<0.05
Xylene Mixture	µg/g		0.05	<0.05
F1 (C6 to C10)	µg/g		5	<5
F1 (C6 to C10) minus BTEX	µg/g		5	<5
F2 (C10 to C16)	µg/g		10	<10
F3 (C16 to C34)	µg/g		50	<50
F4 (C34 to C50)	µg/g		50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA
Moisture Content	%		0.1	29.7
Surrogate	**Unit**	**Acceptable Limits**		
Terphenyl	%	60-140		103

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

7608096 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.
The chromatogram has returned to baseline by the retention time of nC50.
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 with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Certified By: NPopnikolof

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AGAT WORK ORDER: 16Z101291

PROJECT: 161-06382-00-101-980

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

O. Reg. 153(511) - PHCs F1 - F4 (Soil) - F2-F4

DATE RECEIVED: 2016-06-03

DATE REPORTED: 2016-06-15

		SAMPLE DESCRIPTION:		BH16-4-1B	BH16-5-1B	BH16-5-101B
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		6/1/2016	6/1/2016	6/1/2016
Parameter	**Unit**	**G / S**	**RDL**	**7608053**	**7608075**	**7608077**
F2 (C10 to C16)	µg/g		10	<10	<10	<10
F3 (C16 to C34)	µg/g		50	<50	<50	<50
F4 (C34 to C50)	µg/g		50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA	NA	NA
Moisture Content	%		0.1	19.0	19.8	21.8
Surrogate	**Unit**	**Acceptable Limits**				
Terphenyl	%	60-140		92	116	99

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

7608053-7608077 Results are based on sample dry weight.
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.
The chromatogram has returned to baseline by the retention time of nC50.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
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 2-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Certified By: N Popnikolof

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PROJECT: 161-06382-00-101-980

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

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

DATE RECEIVED: 2016-06-03

DATE REPORTED: 2016-06-15

		SAMPLE DESCRIPTION:		BH16-5-2B	BH16-7-1	BH16-8-1
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		6/1/2016	6/1/2016	6/1/2016
Parameter	**Unit**	**G / S**	**RDL**	**7608081**	**7608105**	**7608133**
Benzene	µg/g		0.02	<0.02	<0.02	<0.02
Toluene	µg/g		0.08	<0.08	<0.08	<0.08
Ethylbenzene	µg/g		0.05	0.16	<0.05	<0.05
Xylene Mixture	µg/g		0.05	0.06	<0.05	<0.05
F1 (C6 to C10)	µg/g		5	11	<5	<5
F1 (C6 to C10) minus BTEX	µg/g		5	11	<5	<5
F2 (C10 to C16)	µg/g		10	34	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	34	<10	<10
F3 (C16 to C34)	µg/g		50	<50	<50	<50
F3 (C16 to C34) minus PAHs	µg/g		50	<50	<50	<50
F4 (C34 to C50)	µg/g		50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA	NA	NA
Moisture Content	%		0.1	17.1	26.3	27.7
Surrogate	**Unit**	**Acceptable Limits**				
Terphenyl	%	60-140		100	85	136

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

7608081-7608133 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.
The chromatogram has returned to baseline by the retention time of nC50.
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: N Popnikolof

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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z101291

PROJECT: 161-06382-00-101-980

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

Soil Analysis

RPT Date: Jun 15, 2016			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
O. Reg. 153(511) - Metals (Comprehensive) (Soil)															
Antimony	7608105	7608105	<0.8	<0.8	NA	< 0.8	108%	70%	130%	100%	80%	120%	102%	70%	130%
Arsenic	7608105	7608105	2	2	NA	< 1	105%	70%	130%	93%	80%	120%	95%	70%	130%
Boron	7608105	7608105	<5	5	NA	< 5	76%	70%	130%	91%	80%	120%	79%	70%	130%
Barium	7608105	7608105	302	309	2.3%	< 2	92%	70%	130%	85%	80%	120%	93%	70%	130%
Beryllium	7608105	7608105	1.0	0.9	NA	< 0.5	91%	70%	130%	97%	80%	120%	91%	70%	130%
Cadmium	7608105	7608105	<0.5	<0.5	NA	< 0.5	95%	70%	130%	105%	80%	120%	102%	70%	130%
Chromium	7608105	7608105	118	120	1.7%	< 2	80%	70%	130%	100%	80%	120%	108%	70%	130%
Cobalt	7608105	7608105	22.4	21.7	3.2%	< 0.5	91%	70%	130%	92%	80%	120%	90%	70%	130%
Copper	7608105	7608105	50	51	2.0%	< 1	87%	70%	130%	92%	80%	120%	90%	70%	130%
Lead	7608105	7608105	8	8	0.0%	< 1	101%	70%	130%	87%	80%	120%	85%	70%	130%
Molybdenum	7608105	7608105	<0.5	<0.5	NA	< 0.5	103%	70%	130%	100%	80%	120%	100%	70%	130%
Nickel	7608105	7608105	67	67	0.0%	< 1	90%	70%	130%	91%	80%	120%	92%	70%	130%
Selenium	7608105	7608105	<0.4	<0.4	NA	< 0.4	117%	70%	130%	95%	80%	120%	98%	70%	130%
Silver	7608105	7608105	<0.2	<0.2	NA	< 0.2	100%	70%	130%	102%	80%	120%	99%	70%	130%
Thallium	7608105	7608105	0.5	0.5	NA	< 0.4	93%	70%	130%	101%	80%	120%	99%	70%	130%
Uranium	7608105	7608105	0.8	0.8	NA	< 0.5	91%	70%	130%	84%	80%	120%	84%	70%	130%
Vanadium	7608105	7608105	103	106	2.9%	< 1	85%	70%	130%	89%	80%	120%	99%	70%	130%
Zinc	7608105	7608105	128	130	1.6%	< 5	99%	70%	130%	100%	80%	120%	103%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	7608015	7608015	<0.8	<0.8	NA	< 0.8	109%	70%	130%	104%	80%	120%	105%	70%	130%
Arsenic	7608015	7608015	1	1	NA	< 1	104%	70%	130%	94%	80%	120%	97%	70%	130%
Barium	7608015	7608015	325	342	5.1%	< 2	87%	70%	130%	86%	80%	120%	97%	70%	130%
Beryllium	7608015	7608015	0.9	1.0	NA	< 0.5	99%	70%	130%	108%	80%	120%	103%	70%	130%
Boron	7608015	7608015	<5	<5	NA	< 5	71%	70%	130%	99%	80%	120%	92%	70%	130%
Boron (Hot Water Soluble)	7617440		<0.10	<0.10	NA	< 0.10	85%	60%	140%	101%	70%	130%	104%	60%	140%
Cadmium	7608015	7608015	<0.5	<0.5	NA	< 0.5	91%	70%	130%	110%	80%	120%	103%	70%	130%
Chromium	7608015	7608015	101	105	3.9%	< 2	86%	70%	130%	95%	80%	120%	109%	70%	130%
Cobalt	7608015	7608015	19.7	20.1	2.0%	< 0.5	91%	70%	130%	94%	80%	120%	93%	70%	130%
Copper	7608015	7608015	43	45	4.5%	< 1	84%	70%	130%	93%	80%	120%	90%	70%	130%
Lead	7608015	7608015	7	7	0.0%	< 1	100%	70%	130%	90%	80%	120%	88%	70%	130%
Molybdenum	7608015	7608015	<0.5	<0.5	NA	< 0.5	101%	70%	130%	100%	80%	120%	102%	70%	130%
Nickel	7608015	7608015	58	60	3.4%	< 1	86%	70%	130%	92%	80%	120%	94%	70%	130%
Selenium	7608015	7608015	<0.4	<0.4	NA	< 0.4	91%	70%	130%	99%	80%	120%	101%	70%	130%
Silver	7608015	7608015	<0.2	<0.2	NA	< 0.2	99%	70%	130%	103%	80%	120%	99%	70%	130%
Thallium	7608015	7608015	0.4	0.4	NA	< 0.4	97%	70%	130%	103%	80%	120%	102%	70%	130%

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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z101291

PROJECT: 161-06382-00-101-980

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

Soil Analysis (Continued)

RPT Date: Jun 15, 2016			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
Uranium	7608015	7608015	0.6	0.6	NA	< 0.5	92%	70%	130%	86%	80%	120%	87%	70%	130%
Vanadium	7608015	7608015	91	93	2.2%	< 1	88%	70%	130%	90%	80%	120%	99%	70%	130%
Zinc	7608015	7608015	123	126	2.4%	< 5	100%	70%	130%	104%	80%	120%	103%	70%	130%
Chromium VI	7614373		<0.2	<0.2	NA	< 0.2	97%	70%	130%	92%	80%	120%	93%	70%	130%
Cyanide	7608015	7608015	<0.040	<0.040	NA	< 0.040	91%	70%	130%	103%	80%	120%	104%	70%	130%
Mercury	7608015	7608015	<0.10	<0.10	NA	< 0.10	97%	70%	130%	96%	80%	120%	89%	70%	130%
Electrical Conductivity	7608015	7608015	0.458	0.458	0.0%	< 0.005	99%	90%	110%	NA			NA		
Sodium Adsorption Ratio	7608015	7608015	0.486	0.470	3.3%	NA	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	7608156	7608156	6.77	6.86	1.3%	NA	101%	80%	120%	NA			NA		

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Certified By: Amanjot Bhela

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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z101291

PROJECT: 161-06382-00-101-980

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

Trace Organics Analysis

RPT Date: Jun 15, 2016			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
O. Reg. 153(511) - PHCs F1 - F4 (Soil) - F2-F4															
F2 (C10 to C16)	7608075	7608075	< 10	< 10	NA	< 10	102%	60%	130%	101%	80%	120%	70%	70%	130%
F3 (C16 to C34)	7608075	7608075	< 50	< 50	NA	< 50	105%	60%	130%	84%	80%	120%	100%	70%	130%
F4 (C34 to C50)	7608075	7608075	< 50	< 50	NA	< 50	100%	60%	130%	96%	80%	120%	100%	70%	130%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)															
Benzene	7607223		< 0.02	< 0.02	NA	< 0.02	105%	60%	130%	109%	60%	130%	115%	60%	130%
Toluene	7607223		< 0.08	< 0.08	NA	< 0.08	110%	60%	130%	106%	60%	130%	112%	60%	130%
Ethylbenzene	7607223		< 0.05	< 0.05	NA	< 0.05	119%	60%	130%	106%	60%	130%	112%	60%	130%
Xylene Mixture	7607223		< 0.05	< 0.05	NA	< 0.05	117%	60%	130%	108%	60%	130%	112%	60%	130%
F1 (C6 to C10)	7607223		< 5	< 5	NA	< 5	81%	60%	130%	95%	85%	115%	97%	70%	130%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	7599332		< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	112%	50%	140%	94%	50%	140%
Acenaphthylene	7599332		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	114%	50%	140%	94%	50%	140%
Acenaphthene	7599332		< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	111%	50%	140%	96%	50%	140%
Fluorene	7599332		< 0.05	< 0.05	NA	< 0.05	106%	50%	140%	113%	50%	140%	98%	50%	140%
Phenanthrene	7599332		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	107%	50%	140%	92%	50%	140%
Anthracene	7599332		< 0.05	< 0.05	NA	< 0.05	101%	50%	140%	112%	50%	140%	96%	50%	140%
Fluoranthene	7599332		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	110%	50%	140%	104%	50%	140%
Pyrene	7599332		< 0.05	< 0.05	NA	< 0.05	101%	50%	140%	110%	50%	140%	104%	50%	140%
Benz(a)anthracene	7599332		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	98%	50%	140%	93%	50%	140%
Chrysene	7599332		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	104%	50%	140%	95%	50%	140%
Benzo(b)fluoranthene	7599332		< 0.05	< 0.05	NA	< 0.05	100%	50%	140%	125%	50%	140%	108%	50%	140%
Benzo(k)fluoranthene	7599332		< 0.05	< 0.05	NA	< 0.05	122%	50%	140%	140%	50%	140%	125%	50%	140%
Benzo(a)pyrene	7599332		< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	129%	50%	140%	105%	50%	140%
Indeno(1,2,3-cd)pyrene	7599332		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	89%	50%	140%	83%	50%	140%
Dibenz(a,h)anthracene	7599332		< 0.05	< 0.05	NA	< 0.05	106%	50%	140%	91%	50%	140%	86%	50%	140%
Benzo(g,h,i)perylene	7599332		< 0.05	< 0.05	NA	< 0.05	101%	50%	140%	84%	50%	140%	81%	50%	140%
2-and 1-methyl Naphthalene	7599332		< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	100%	50%	140%	88%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:



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Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z101291

PROJECT: 161-06382-00-101-980

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

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	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 6010B	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER

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Method Summary

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ATTENTION TO: Matthieu Rochon

SAMPLING SITE:Phase Two ESA. Orleans GW Monitoring.

SAMPLED BY:Kathryn Maton

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-91-5106	EPA SW-846 3541 & 8270	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34) minus PAHs	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

Results relate only to the items tested and to all the items tested

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46 4442 / 46 4947
43 4952
3eg

5835 Coopers Avenue
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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Report Information:

Company: WSP Canada Inc.
Contact: Kathryn Maton / Matthew Rochon
Address: 5700 Gréber 3e etage
Gatineau QC
Phone: 613-617-9237 Fax: 613-243-2049
Reports to be sent to:
1. Email: Kathryn.Maton@WSPgroup.com
2. Email: Matthew.Rochon@WSPgroup.com

Project Information:

Project: Phase Two ESA.
Site Location: 3636 Innes Rd, Ottawa
Sampled By: K. Maton.
AGAT Quote #: PO:
Please note: if quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes [X] No [ ]
Company:
Contact:
Address: 161-06382-00-101-980
Email:

Regulatory Requirements:

[ ] No Regulatory Requirement
(Please check all applicable boxes)

[X] Regulation 153/04 Table ____ (Indicate One)
[ ] Ind/Com
[X] Res/Park
[ ] Agriculture
Soil Texture (Check One): [X] Coarse [ ] Fine

[ ] Sewer Use
[ ] Sanitary
[ ] Storm
Region ____ (Indicate One)

[ ] Regulation 558
[ ] CCME
[ ] Prov. Water Quality Objectives (PWQO)
[ ] Other ____ (Indicate One)

Is this submission for a **Record of Site Condition?** [X] Yes [ ] No

Report Guideline on Certificate of Analysis [X] Yes [ ] No

Laboratory Use Only

Work Order #: 16Z101291
Cooler Quantity: 3
Arrival Temperatures: 4.1 | 4.9 | 5.5 | 3.5 | 4.5 | 4.3
on ice 5.5 | 5.2 | 5.0
Custody Seal Intact: [ ] Yes [ ] No [ ] N/A
Notes:

Turn Around Time (TAT) Required:
Regular (Standard TAT):
Rush (Surcharges May Apply):
RUSH - 3 Day as per client email
[ ] 3 Business Days [ ] 2 Business Days [ ] 1 Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Metals and Inorganics (Check Applicable)	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: [ ] B-HWS [ ] Cl [ ] CN [ ] Cr6+ [ ] FOC [ ] NO2/NO3 [ ] EC [ ] Total N [ ] Hg [ ] pH [ ] SAR	Nutrients: [ ] P [ ] NH3 [ ] TKN [ ] NO2 [ ] NO3 [ ] NO2/NO3	Volatiles: [ ] VOC [ ] BTEX [ ] THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	153 METALS 93-101	F2-F4 71-107
BH16-1-1B	31/05/16	9:10am	4	Soil	1x250, 1x120, 2xvials	X															X	X
BH16-1-2A			4																		X	
BH16-1-2B			3		2xvials, 1x250																X	
BH16-2-2A			4		2xvials, 1x250, 1x120																X	
BH16-2-2B			3		1x250, 2xvials																X	
BH16-2-1B			4		1x250, 2vials, 1x120																X	
BH16-3-1B			4		1x250, 2vials, 1x120																X	
BH16-3-2A			4																		X	
BH16-3-2B			4																		X	
BH16-3-3			4																		X	
BH16-4-1B			4																		X	X

Sampler Relinquished By (Print Name and Sign): Kathryn Maton
Date: 31/05/16 Time: 7:30pm
Samples Received By (Print Name and Sign): Berthelet Bellemare
Date: 31-June-2016 Time: 8h00
Page 1 of 6

Sampler Relinquished By (Print Name and Sign):
Date: 1/06/16 Time:
Samples Received By (Print Name and Sign):
Date: 1/6/16 Time: 11:05
N°: T 018289

Document ID: DW-75-1551-010

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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only
Work Order #: 16Z101291
Cooler Quantity:
Arrival Temperatures:
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes:

Report Information:
Company: WSP
Contact: Kathryn Maton / Mathieu Rochon
Address: 500 Gréber, Gatineau, Qc
Phone: 613-617-9237 Fax:
Reports to be sent to:
1. Email: Kathryn.Maton@wspgroup.com
2. Email: Mathieu.Rochon@wspgroup.com

Project Information:
Project: Phase Two ESA
Site Location: 3636 Innes Rd, Ottawa
Sampled By: K.M.
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:
Bill To Same: Yes ☒ No ☐
Company:
Contact:
Address:
Email:

Regulatory Requirements:
☐ No Regulatory Requirement
(Please check all applicable boxes)

☒ Regulation 153/04 — Table ___ (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (Check One): ☒ Coarse ☐ Fine
☐ Sewer Use: ☐ Sanitary ☐ Storm
Region ___ (Indicate One)
☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other ___ (Indicate One)

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:
Regular TAT ☐ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ 1 Business Day
OR Date Required (Rush Surcharges May Apply): ___
Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

Sample Matrix Legend
B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ EC ☐ FOC ☐ NO_3/NO_2 ☐ Total N ☐ Hg ☐ pH ☐ SAR	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2/NO_3	Volatiles: ☐ VOC ☒ BTEX ☐ THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	153 Metals 73-101	F2-F4 91-107	CCME FI-F4 TBT+X	153 PAH 71-115
BH16-4-2A	31/05/16	10:20am	4	Soil	2xvials, 1x250, 1x120.															X	X	
BH16-4-2B			2		1vial, 1x250															X		
BH16-4-102B			2		↓															X		
BH16-4-2A			4		2xvials, 1x250, 1x120															X		
BH16-5-1B			2		1vial 1x250															X	X	
BH16-5-101B			2		1vial 1x120.															X	X	
BH16-5-2B			4		2vials, 1x120, 1x250															X	X	X	X
BH16-5-2A			4		↓.																	
BH16-6-2A																						
BH16-6-1B																				X	X	
BH16-6-2B	↓	↓	↓	↓	↓															X		

Samples Relinquished By (Print Name and Sign): Kathryn Maton
Date: 01/06/16 Time: 7:30pm
Samples Received By (Print Name and Sign): Mathieu Rochon
Date: 3-Jun-2016 Time: 8h02
Samples Relinquished By (Print Name and Sign): Simon
Date: 14/6/4 Time: 1105
Page 2 of 6
№: T 018590

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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only
Work Order #: 1672101291
Cooler Quantity:
Arrival Temperatures:
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: WSP Canada Inc.
Contact: Kathryn Maton / Matheu Rochon
Address: 300 Gréber
Gatineau, Q.C.
Phone: 613 617 9237 Fax:
Reports to be sent to:
1. Email: Kathryn.maton@wsp group.com
2. Email: Matheu.Rochon@wspgroup.com

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)
☒ Regulation 153/04 Table ☒ (Indicate One) ☐ Ind/Com ☒ Res/Park ☐ Agriculture
Soil Texture (Check One): ☒ Coarse ☐ Fine
☐ Sewer Use ☐ Sanitary ☐ Storm
Region: (Indicate One)
☐ Regulation 558 ☐ CCME ☐ Prov. Water Quality Objectives (PWQO) ☐ Other (Indicate One)

Turnaround Time (TAT) Required:
Regular TAT ☒ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ 1 Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

Project Information:
Project: Phase Two ESA
Site Location: 3636 Innes Rd, Ottawa
Sampled By: KM.
AGAT Quote #: PO:
Please note: if quotation number is not provided, client will be billed full price for analysis.

Is this submission for a Record of Site Condition? ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Invoice Information: Bill To Same: Yes ☒ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr6+ ☐EC ☐FOC ☐NO2/NO3 ☐Total N ☐Hg ☐pH ☐SAR	Nutrients: ☐TP ☐NH3 ☐TKN ☐NO2 ☐NO3 ☐NO2/NO3	Volatiles: ☐VOC ☐BTEX ☐THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	153 Metals 93-101	F2-F4 91-107	153 PAH 91-114	F1-F4 BTEX 91-314
BH16-7-1	31/05/16.	1pm.	3	Soil	2 vials, 1x120.															X		X	X
BH16-7-101			1		1x250.																		
BH16-7-2A			4		2 vials, 1x120, 1x250.																		
BH16-7-2B			4		2 vials 1x120 1x250															X			
BH16-7-3			3		1 vial, 1x120, 1x250																		
BH16-8-1			3		1 vial, 1x120, 1x250															X		X	X
BH16-8-2A			3																				
BH16-8-2B			3																	X			
BH16-8-3A			3																				
BH16-8-3B			3																				
BH16-9-1	01/06/16.	12pm	1		250.															X			

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Log	Temp
Matheu Rochon	01/06/16	7:30		3 Jun-16	8 deg
Kathryn Maton.				Date 16/6/16	Time 11:05

Page 3 of 6

№: T 013591

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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only
Work Order #: 1671012 91
Cooler Quantity:
Arrival Temperatures:
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: WSP
Contact: Kathryn Maton / Matthew Rochon
Address: 500 Greber
Gatineau, Qc.
Phone: 613-617-9237 Fax:
Reports to be sent to:
1. Email: Kathryn.Maton@wsp.com
2. Email: Matthew.Rochon@wsp.com

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)
☒ Regulation 153/04 Table ☐ (Indicate One) ☐ Ind/Com ☒ Res/Park ☐ Agriculture
Soil Texture (Check One): ☒ Coarse ☐ Fine
☐ Sewer Use ☐ Sanitary ☐ Storm
Region (Indicate One)
☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other (Indicate One)

Turnaround Time (TAT) Required:
Regular TAT ☒ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ 1 Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

Project Information:
Project: Phase Two ESA
Site Location: 3666 Innes Rd Ottawa
Sampled By: K. Maton
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Invoice Information:
Bill To Same: Yes ☒ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend
B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐BHWS ☐DI ☐CN ☐EC ☐FOC ☐NO_2/NO_3 ☐Total N ☐Hg ☐pH ☐BOD; Nutrients: ☐TP ☐NH_3 ☐TKN ☐NO_3 ☐NO_2 ☐NO_2/NO_3; Volatiles: ☐VOC ☐BTEX ☐THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	153 Metals 93-101
BH16-9-2A	01/06/16	8am.	1		250.													X
BH16-9-2B																		
BH16-9-3A																		
BH16-9-3B																		
BH16-9-4																		X
BH16-9-5																		
BH16-10-1																		X
BH16-10-2A																		
BH16-10-2B																		
BH16-10-3A																		X
BH16-10-3B																		

Samples Relinquished by (Print Name and Sign): Kathryn Maton
Date: 01/06/16 Time: 7:30pm
Samples Received by (Print Name and Sign): WSP
Date: 3-Jun-16 Time: 8h00
Samples Relinquished by (Print Name and Sign):
Date: 16/6/16 Time: 1105
Samples Received by (Print Name and Sign):

Page 4 of 6
N°: T 018332

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Document ID: DW 153 1 010

Date Issued: November 2, 2015

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Chain of Custody Record

If this is a **Drinking Water sample**, please use **Drinking Water Chain of Custody Form** (potable water intended for human consumption)

Laboratory Use Only
Work Order #: 1672101291
Cooler Quantity:
Arrival Temperatures:
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes:

Report Information:
Company: WSP
Contact: Kathryn Matson/Matteo Rochon
Address: 3636 Innes Rd - Ot
500 Gordon, Ottawa
Phone: 6136179237 Fax:
Reports to be sent to:
1. Email: Kathryn.Matson@WSPgroup.com
2. Email: matteo.Rochon@WSPgroup.com

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)
☒ Regulation 153/04 — Table ____ (Indicate One) — ☐ Ind/Com ☒ Res/Park ☐ Agriculture — Soil Texture (Check One): ☒ Coarse ☐ Fine
☐ Sewer Use — ☐ Sanitary ☐ Storm — Region ____ (Indicate One)
☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other ____ (Indicate One)

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:
Regular TAT ☒ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ 1 Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

Project Information:
Project: Phase Two ESA
Site Location: 3636 Innes Rd. Ott.
Sampled By: KM
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information: Bill To Same: Yes ☒ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend
B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐ B-HWS ☐ Cl ☐ GN; ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ NO_3/NO_2 ☐ SAR ☐ pH ☐ Total N ☐ Hg; Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_2 ☐ NO_3 ☐ NO_2/NO_3; Volatiles: ☐ VOC ☐ BTEX ☐ THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	153 Metals 93-101
BH16-10-1A	01/06/16	1pm	1	Soil													X	
BH16-10-1B																		
BH16-11-1																		
BH16-11-2A																	X	
BH16-11-2B																		
BH16-11-3A																		
BH16-11-3B																	X	
BH16-11-4A																		
BH16-11-4B																		
BH16-12-1																		
BH16-12-2A																	X	

Sample Relinquished By (Print Name and Sign): Kathryn Matson — Date: 01/06/16 — Time: 7:30pm
Sample Relinquished By (Print Name and Sign): — Date — Time
Sample Received By (Print Name and Sign): — Date: 3-Jan-16 — Time: 8h00
Sample Received By (Print Name and Sign): Simon — Date: 16/1/4 — Time: 11h05

Page 5 of 6

No: T 018578

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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only
Work Order #: 1671101291
Cooler Quantity:
Arrival Temperatures:
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information: WSP.
Company:
Contact: Kathryn Naton/Matheu Rochon
Address: 500 Gregory St Unit 1, Orleans, ON
Phone: 613-667-9237 Fax:
Reports to be sent to:
1. Email: kathryn.naton@wspgroup.com
2. Email: matheu.rochon@wspgroup.com

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)

☒ Regulation 153/04 — Table ___ (Indicate One) — ☐ Ind/Com ☒ Res/Park ☐ Agriculture — Soil Texture (Check One): ☒ Coarse ☐ Fine
☐ Sewer Use — ☐ Sanitary ☐ Storm — Region ___ (Indicate One)
☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other ___ (Indicate One)

Project Information:
Project: Phase II
Site Location: 35, 36 Lapes Rd, Ottawa ON
Sampled By:
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Is this submission for a Record of Site Condition? ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:
Regular TAT ☒ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ 1 Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

Invoice Information: Bill To Same: Yes ☒ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr** ☐ EC ☐ FOC ☐ NO_3/NO_2 ☐ Total N ☐ Hg ☐ pH ☐ SAR	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3/NO_2	Volatiles: ☐ VOC ☐ BTEX ☐ THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	153 Metals 92-161
BH16-12-2B	01/06/16	1PM	1	Soil																X	
BH16-12-3A																					
BH16-12-3B																				X	
BH16-12-4A																					
~~BH16-13~~																					
BH16-13-1																					
BH16-13-2A					+ BH16-13-102A															X	
BH16-13-2B																					
BH16-13-3A																					
BH16-13-3B																				X	
BH16-13-4																					

Samples Relinquished By (Print Name and Sign): Kathryn Naton.	Date: 01/06/16	Time: 7:30pm	Samples Received By (Print Name and Sign): DDS	Date: 3-Jun-16	Time: 8h00	Page 6 of 6	
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign): Simon	Date: 16/6/4	Time: 11h5	№ T018579	

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Date revised: November 2, 2015

AGAT Laboratories

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

CLIENT NAME: WSP CANADA INC.
500, BOUL GREBER 3E ETAGE
GATINEAU, QC J8T7W3
(819) 243-2827

ATTENTION TO: Matthieu Rochon

PROJECT: 161-06382-00 Phase Two ESA

AGAT WORK ORDER: 16Z102773

TRACE ORGANICS REVIEWED BY: Gyulhan Yalamova, Report Reviewer

WATER ANALYSIS REVIEWED BY: Mike Muneswar, BSc (Chem), Senior Inorganic Analyst

DATE REPORTED: Jun 13, 2016

PAGES (INCLUDING COVER): 10

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.

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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 16Z102773

PROJECT: 161-06382-00 Phase Two ESA

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road, Ottawa

SAMPLED BY:Kathryn Maton

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

DATE RECEIVED: 2016-06-07

DATE REPORTED: 2016-06-13

		SAMPLE DESCRIPTION:		MW16-3	MW16-5	MW16-8	MW16-108
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		6/7/2016	6/7/2016	6/7/2016	6/7/2016
Parameter	Unit	G / S	RDL	7615636	7615659	7615681	7615693
Naphthalene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Acenaphthylene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Acenaphthene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Fluorene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Phenanthrene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Pyrene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Benz(a)anthracene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Chrysene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b)fluoranthene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10
Benzo(k)fluoranthene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10
Benzo(a)pyrene	µg/L		0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Dibenz(a,h)anthracene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
2-and 1-methyl Naphthalene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits					
Chrysene-d12	%	50-140		118	92	103	116

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

7615636-7615693 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:



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AGAT WORK ORDER: 16Z102773

PROJECT: 161-06382-00 Phase Two ESA

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road, Ottawa

SAMPLED BY:Kathryn Maton

O. Reg. 153(511) - PHCs F1 - F4 (Water) - BTEX/F1

DATE RECEIVED: 2016-06-07

DATE REPORTED: 2016-06-13

		SAMPLE DESCRIPTION:		Trip Blank
		SAMPLE TYPE:		Water
		DATE SAMPLED:		5/25/2016
Parameter	Unit	G / S	RDL	7615703
Benzene	µg/L		0.20	<0.20
Toluene	µg/L		0.20	<0.20
Ethylbenzene	µg/L		0.10	<0.10
Xylene Mixture	µg/L		0.20	<0.20
F1 (C6 to C10)	µg/L		25	<25
F1 (C6 to C10) minus BTEX	µg/L		25	<25

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

7615703 The C6-C10 fraction is calculated using Toluene response factor.
Total C6-C10 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.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Certified By:



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AGAT WORK ORDER: 16Z102773

PROJECT: 161-06382-00 Phase Two ESA

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road, Ottawa

SAMPLED BY:Kathryn Maton

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

DATE RECEIVED: 2016-06-07

DATE REPORTED: 2016-06-13

		SAMPLE DESCRIPTION:		MW16-3	MW16-5	MW16-8	MW16-108
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		6/7/2016	6/7/2016	6/7/2016	6/7/2016
Parameter	Unit	G / S	RDL	7615636	7615659	7615681	7615693
Benzene	µg/L		0.20	<0.20	1.1	<0.20	<0.20
Toluene	µg/L		0.20	<0.20	0.39	<0.20	<0.20
Ethylbenzene	µg/L		0.10	<0.10	15	<0.10	<0.10
Xylene Mixture	µg/L		0.20	<0.20	4.2	<0.20	<0.20
F1 (C6 to C10)	µg/L		25	<25	380	<25	<25
F1 (C6 to C10) minus BTEX	µg/L		25	<25	360	<25	<25
F2 (C10 to C16)	µg/L		100	<100	530	<100	<100
F2 (C10 to C16) minus Naphthalene	µg/L		100	<100	530	<100	<100
F3 (C16 to C34)	µg/L		100	<100	390	<100	<100
F3 (C16 to C34) minus PAHs	µg/L		100	<100	390	<100	<100
F4 (C34 to C50)	µg/L		100	<100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L		500	NA	NA	NA	NA
Surrogate	Unit	Acceptable Limits					
Terphenyl	%	60-140		80	89	89	68

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

7615636-7615693 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.
The chromatogram has returned to baseline by the retention time of nC50.
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:

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AGAT WORK ORDER: 16Z102773

PROJECT: 161-06382-00 Phase Two ESA

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road, Ottawa

SAMPLED BY:Kathryn Maton

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

DATE RECEIVED: 2016-06-07

DATE REPORTED: 2016-06-13

		SAMPLE DESCRIPTION:		MW16-3	MW16-5	MW16-8	MW16-108
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		6/7/2016	6/7/2016	6/7/2016	6/7/2016
Parameter	Unit	G / S	RDL	7615636	7615659	7615681	7615693
Antimony	µg/L		1.0	<1.0	<1.0	<1.0	<1.0
Arsenic	µg/L		1.0	<1.0	1.9	<1.0	<1.0
Barium	µg/L		2.0	89.7	166	224	187
Beryllium	µg/L		0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/L		10.0	48.5	41.9	21.5	16.3
Cadmium	µg/L		0.2	<0.2	<0.2	<0.2	<0.2
Chromium	µg/L		2.0	2.4	4.9	2.6	5.0
Cobalt	µg/L		0.5	<0.5	3.3	0.9	0.8
Copper	µg/L		1.0	2.0	<1.0	1.1	<1.0
Lead	µg/L		0.5	<0.5	<0.5	<0.5	<0.5
Molybdenum	µg/L		0.5	0.6	1.2	<0.5	<0.5
Nickel	µg/L		1.0	1.3	<1.0	1.4	<1.0
Selenium	µg/L		1.0	1.6	<1.0	<1.0	<1.0
Silver	µg/L		0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L		0.3	<0.3	<0.3	<0.3	<0.3
Uranium	µg/L		0.5	1.3	5.0	4.4	3.7
Vanadium	µg/L		0.4	2.4	1.5	4.8	4.8
Zinc	µg/L		5.0	<5.0	<5.0	<5.0	<5.0
Mercury	µg/L		0.02	<0.02	<0.02	<0.02	<0.02
Chromium VI	µg/L		5	<5	<5	<5	<5
Cyanide	µg/L		2	<2	<2	<2	<2
Sodium	µg/L		2500	63200	65600	66900	65200
Chloride	µg/L		1000	133000	286000	341000	358000
Electrical Conductivity	uS/cm		2	1340	1940	1900	1970
pH	pH Units		NA	7.96	7.89	8.04	8.05

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

7615636-7615693 Elevated RDLs for Anions & Cations indicate the degree of dilution prior to analysis in order to keep analytes within the calibration range of the instruments and to reduce matrix interferences.

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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z102773

PROJECT: 161-06382-00 Phase Two ESA

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road, Ottawa

SAMPLED BY:Kathryn Maton

Trace Organics Analysis

RPT Date: Jun 13, 2016			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
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)															
Benzene	7615636	7515636	< 0.20	< 0.20	NA	< 0.20	109%	50%	140%	111%	60%	130%	113%	50%	140%
Toluene	7615636	7515636	< 0.20	< 0.20	NA	< 0.20	110%	50%	140%	104%	60%	130%	115%	50%	140%
Ethylbenzene	7615636	7515636	< 0.10	< 0.10	NA	< 0.10	116%	50%	140%	113%	60%	130%	115%	50%	140%
Xylene Mixture	7615636	7515636	< 0.20	< 0.20	NA	< 0.20	108%	50%	140%	109%	60%	130%	99%	50%	140%
F1 (C6 to C10)	7615636	7515636	< 25	< 25	NA	< 25	104%	60%	140%	118%	60%	140%	94%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	98%	60%	140%	65%	60%	140%	72%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	102%	60%	140%	92%	60%	140%	93%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	86%	60%	140%	71%	60%	140%	101%	60%	140%
O. Reg. 153(511) - PAHs (Water)															
Naphthalene		TW	< 0.20	< 0.20	NA	< 0.20	88%	50%	140%	115%	50%	140%	109%	50%	140%
Acenaphthylene		TW	< 0.20	< 0.20	NA	< 0.20	96%	50%	140%	115%	50%	140%	112%	50%	140%
Acenaphthene		TW	< 0.20	< 0.20	NA	< 0.20	100%	50%	140%	118%	50%	140%	113%	50%	140%
Fluorene		TW	< 0.20	< 0.20	NA	< 0.20	96%	50%	140%	114%	50%	140%	111%	50%	140%
Phenanthrene		TW	< 0.10	< 0.10	NA	< 0.10	95%	50%	140%	111%	50%	140%	106%	50%	140%
Anthracene		TW	< 0.10	< 0.10	NA	< 0.10	96%	50%	140%	114%	50%	140%	111%	50%	140%
Fluoranthene		TW	< 0.20	< 0.20	NA	< 0.20	100%	50%	140%	122%	50%	140%	116%	50%	140%
Pyrene		TW	< 0.20	< 0.20	NA	< 0.20	102%	50%	140%	125%	50%	140%	117%	50%	140%
Benz(a)anthracene		TW	< 0.20	< 0.20	NA	< 0.20	111%	50%	140%	121%	50%	140%	125%	50%	140%
Chrysene		TW	< 0.10	< 0.10	NA	< 0.10	124%	50%	140%	130%	50%	140%	127%	50%	140%
Benzo(b)fluoranthene		TW	< 0.10	< 0.10	NA	< 0.10	105%	50%	140%	113%	50%	140%	110%	50%	140%
Benzo(k)fluoranthene		TW	< 0.10	< 0.10	NA	< 0.10	123%	50%	140%	136%	50%	140%	129%	50%	140%
Benzo(a)pyrene		TW	< 0.01	< 0.01	NA	< 0.01	113%	50%	140%	129%	50%	140%	129%	50%	140%
Indeno(1,2,3-cd)pyrene		TW	< 0.20	< 0.20	NA	< 0.20	103%	50%	140%	105%	50%	140%	111%	50%	140%
Dibenz(a,h)anthracene		TW	< 0.20	< 0.20	NA	< 0.20	104%	50%	140%	109%	50%	140%	118%	50%	140%
Benzo(g,h,i)perylene		TW	< 0.20	< 0.20	NA	< 0.20	105%	50%	140%	110%	50%	140%	119%	50%	140%
2-and 1-methyl Naphthalene		TW	< 0.20	< 0.20	NA	< 0.20	110%	50%	140%	57%	50%	140%	60%	50%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:



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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z102773

PROJECT: 161-06382-00 Phase Two ESA

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road, Ottawa

SAMPLED BY:Kathryn Maton

Water Analysis

RPT Date: Jun 13, 2016			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
O. Reg. 153(511) - Metals & Inorganics (Water)															
Antimony	7615636	7615636	< 1.0	<1.0	NA	< 1.0	102%	70%	130%	91%	80%	120%	93%	70%	130%
Arsenic	7615636	7615636	< 1.0	<1.0	NA	< 1.0	105%	70%	130%	98%	80%	120%	101%	70%	130%
Barium	7615636	7615636	89.7	92.3	2.9%	< 2.0	104%	70%	130%	96%	80%	120%	97%	70%	130%
Beryllium	7615636	7615636	< 0.5	<0.5	NA	< 0.5	96%	70%	130%	100%	80%	120%	92%	70%	130%
Boron	7615636	7615636	48.5	46.1	NA	< 10.0	101%	70%	130%	100%	80%	120%	93%	70%	130%
Cadmium	7615636	7615636	< 0.2	<0.2	NA	< 0.2	102%	70%	130%	98%	80%	120%	97%	70%	130%
Chromium	7615636	7615636	2.4	2.7	NA	< 2.0	109%	70%	130%	100%	80%	120%	99%	70%	130%
Cobalt	7615636	7615636	< 0.5	<0.5	NA	< 0.5	107%	70%	130%	98%	80%	120%	99%	70%	130%
Copper	7615636	7615636	2.0	2.1	NA	< 1.0	107%	70%	130%	99%	80%	120%	98%	70%	130%
Lead	7615636	7615636	< 0.5	<0.5	NA	< 0.5	101%	70%	130%	92%	80%	120%	92%	70%	130%
Molybdenum	7615636	7615636	0.6	0.7	NA	< 0.5	103%	70%	130%	95%	80%	120%	96%	70%	130%
Nickel	7615636	7615636	1.3	1.2	NA	< 1.0	109%	70%	130%	104%	80%	120%	98%	70%	130%
Selenium	7615636	7615636	1.6	<1.0	NA	< 1.0	108%	70%	130%	99%	80%	120%	102%	70%	130%
Silver	7615636	7615636	< 0.2	<0.2	NA	< 0.2	104%	70%	130%	107%	80%	120%	104%	70%	130%
Thallium	7615636	7615636	< 0.3	<0.3	NA	< 0.3	108%	70%	130%	103%	80%	120%	102%	70%	130%
Uranium	7615636	7615636	1.3	1.4	NA	< 0.5	104%	70%	130%	95%	80%	120%	92%	70%	130%
Vanadium	7615636	7615636	2.4	2.5	4.1%	< 0.4	105%	70%	130%	98%	80%	120%	98%	70%	130%
Zinc	7615636	7615636	< 5.0	<5.0	NA	< 5.0	105%	70%	130%	98%	80%	120%	99%	70%	130%
Mercury	7615636	7615636	< 0.02	<0.02	NA	< 0.02	101%	70%	130%	100%	80%	120%	102%	70%	130%
Chromium VI	7615173		<5	<5	NA	< 5	102%	70%	130%	107%	80%	120%	106%	70%	130%
Cyanide	7615636		< 2	< 2	NA	< 2	105%	70%	130%	102%	80%	120%	102%	70%	130%
Sodium	7600828		95400	93000	2.5%	< 500	91%	70%	130%	90%	80%	120%	103%	70%	130%
Chloride	7615565		447000	442000	1.1%	< 100	106%	70%	130%	107%	70%	130%	95%	70%	130%
Electrical Conductivity	7615636	7615636	1340	1350	0.7%	< 2	106%	90%	110%	NA			NA		
pH	7615636	7615636	7.96	8.01	0.6%	NA	101%	90%	110%	NA			NA		

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Certified By:

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Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z102773

PROJECT: 161-06382-00 Phase Two ESA

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road, Ottawa

SAMPLED BY:Kathryn Maton

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluorene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Phenanthrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene-d12	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Toluene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10)	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Benzene	VOL-91-5010	MOE PHC E3421	(P&T)GC/MS
Toluene	VOL-91-5010	MOE PHC E3421	(P&T)GC/MS
Ethylbenzene	VOL-91-5010	MOE PHC E3421	(P&T)GC/MS
Xylene Mixture	VOL-91-5010	MOE PHC E3421	(P&T)GC/MS
F1 (C6 to C10)	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5010	MOE PHC E3421	GC/FID
F4 (C34 to C50)	VOL -91- 5010	MOE PHC- E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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

Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z102773

PROJECT: 161-06382-00 Phase Two ESA

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road, Ottawa

SAMPLED BY:Kathryn Maton

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Antimony	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Barium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Boron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Selenium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Silver	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Thallium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Uranium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Mercury	MET-93-6100	EPA SW-846 7470 & 245.1	CVAAS
Chromium VI	INOR-93-6034	SM 3500-Cr B	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE METHOD CN- 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Sodium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Chloride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Electrical Conductivity	INOR-93-6000	SM 2510 B	PC TITRATE
pH	INOR-93-6000	SM 4500-H+ B	PC TITRATE

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

16K

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Report Information:

Company: WSP Canada Inc.
Contact: Mathew Rochon / Kathryn Maton
Address: 500 de Gaspé Blvd, 3e etage
Gatineau, QC, J8T 7W3
Phone: 613-617-9237 Fax: 819-243-2019
Reports to be sent to:
1. Email: Mathew.Rochon@wspgroup.com
2. Email: Kathryn.Maton@wspgroup.com

Project Information:

Project: Phase Two ESA
Site Location: 3636 Innes Rd, Orleans
Sampled By: K.M.
AGAT Quote #: PO: 161-06382-00
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes [X] No [ ]
Company:
Contact:
Address:
Email:

Regulatory Requirements:

[ ] No Regulatory Requirement
(Please check all applicable boxes)

[X] Regulation 153/04
Table _____ *Indicate One*
[ ] Ind/Com
[X] Res/Park
[ ] Agriculture
Soil Texture *(Check One)*
[X] Coarse
[ ] Fine

[ ] Sewer Use
[ ] Sanitary
[ ] Storm
Region _____ *Indicate One*

[ ] Regulation 558
[ ] CCME
[ ] Prov. Water Quality Objectives (PWQO)
[ ] Other _____ *Indicate One*

Is this submission for a **Record of Site Condition?** [X] Yes [ ] No

Report Guideline on *Certificate of Analysis* [X] Yes [ ] No

Laboratory Use Only

Work Order #: 1621027773
Cooler Quantity:
Arrival Temperatures: 8.3 6.4 6.9
Custody Seal Intact: [ ] Yes [ ] No [✓] N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT [ ] 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
[X] 3 Business Days [ ] 2 Business Days [ ] 1 Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions
~~BARCODE~~			4	GW	
MW16-3	01/06/16	13:31	10		
MW16-5		13:50			
MW16-8		13:24			
MW16-105		13:24			
Trip Blank	25/05/16		2		

(Check Applicable)

Sample Identification	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: [ ] B-HWS [ ] Cl [ ] CN [ ] C^{tot} [ ] EC [ ] FOC [ ] NO_3/NO_2 [ ] Total N [ ] Hg [ ] pH [ ] SAR	Nutrients: [ ] TP [ ] NH_3 [ ] TKN [ ] NO_3 [ ] NO_2 [ ] NO_3/NO_2	Volatiles: [ ] VOC [ ] BTEX [ ] THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	CCME F1-F4+BTEX	Reg 153 PAHs	Reg 153 Metals	CCME F1 + BTEX
MW16-3																	X	X	X
MW16-5																	X	X	X
MW16-8																	X	X	X
MW16-105																	X	X	X
Trip Blank																			X

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Kathryn Maton	01/06/16	4:30pm	Shawnie	June 8/16	9:00
Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time

Page 1 of 1
No: T 018580

EXOVA OTTAWA

Certificate of Analysis

Client: Genivar INC.
500 Boul. Greber, 3rd Floor
Gatineau, QC
J8T 7W3
Attention: Ms. David Feghali
PO#:
Invoice to: Genivar Inc.

Report Number: 1313177
Date Submitted: 2013-06-28
Date Reported: 2013-07-10
Project: 131-13558-00-700
COC #: 157780

Dear David Feghali:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____

Lorna Wilson
Laboratory Supervisor, Inorganics

APPROVAL: _____

Charlie (Long) Qu
Laboratory Supervisor, Organics

Exova (Ottawa) is certified and accredited for specific parameters by:
CALA, Canadian Association for Laboratory Accreditation (to ISO 17025), OMAFRA, Ontario Ministry of Agriculture, Food and Rural Affairs (for farm soils), Licensed by Ontario MOE for specific tests in drinking water.

Exova (Mississauga) is certified and accredited for specific parameters by:
SCC, Standards Council of Canada (to ISO 17025)

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only.

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Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1037902 Soil 2013-06-27 P0-1 (0.61-0.86)	1037903 Soil 2013-06-27 F-09 (0-0.61)	1037904 Soil 2013-06-27 DUP-7	1037905 Soil 2013-06-27 F-02 (0.45-0.55)
Inorganics	Antimony	1	ug/g	STD-7.5		<1			<1
	Arsenic	1	ug/g	STD-18		2			2
	Barium	1	ug/g	STD-390		111			65
	Beryllium	1	ug/g	STD-4		<1			<1
	Boron (total)	10	ug/g	STD-120		20			20
	Cadmium	0.5	ug/g	STD-1.2		<0.5			<0.5
	Chromium Total	1	ug/g	STD-160		60			36
	Cobalt	1	ug/g	STD-22		11			8
	Copper	1	ug/g	STD-140		19			11
	Lead	1	ug/g	STD-120		7			4
	Molybdenum	1	ug/g	STD-6.9		<1			<1
	Nickel	1	ug/g	STD-100		29			19
	Selenium	1	ug/g	STD-2.4		<1			<1
	Silver	0.2	ug/g	STD-20		<0.2			<0.2
	Thallium	1	ug/g	STD-1		<1			<1
	Uranium	0.5	ug/g	STD-23		0.6			<0.5
	Vanadium	2	ug/g	STD-86		53			36
	Zinc	2	ug/g	STD-340		57			33
Moisture	Moisture	0.1	%			15.6	1.2	2.6	312.0
Petroleum Hydrocarbons	Petroleum Hydrocarbons F1	10	ug/g	STD-55		<10	<10	<10	20
	Petroleum Hydrocarbons F1-BTEX	10	ug/g			<10	<10	<10	
	Petroleum Hydrocarbons F2	10	ug/g	STD-98		<10	<10	<10	<10
	Petroleum Hydrocarbons F3	20	ug/g	STD-300		<20	60	120	<20
	Petroleum Hydrocarbons F4	20	ug/g	STD-2800		140	240	440	100
	Petroleum Hydrocarbons F4g	500	ug/g					1400	
Semi-Volatiles	Acenaphthene	0.05	ug/g	STD-7.9		<0.05	<0.05	<0.05	<0.05

Guideline = O.Reg 153-T7-Res/Park-Coarse *** = Guideline Exceedence**

**-Analysis completed in Mississauga
Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Certificate of Analysis

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Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1037902 Soil 2013-06-27 P0-1 (0.61-0.86)	1037903 Soil 2013-06-27 F-09 (0-0.61)	1037904 Soil 2013-06-27 DUP-7	1037905 Soil 2013-06-27 F-02 (0.45-0.55)
Semi-Volatiles	Acenaphthylene	0.05	ug/g	STD-0.15		<0.05	<0.05	<0.05	<0.05
	Anthracene	0.05	ug/g	STD-0.67		<0.05	<0.05	<0.05	<0.05
	Benz[a]anthracene	0.05	ug/g	STD-0.5		<0.05	<0.05	<0.05	<0.05
	Benzo[a]pyrene	0.05	ug/g	STD-0.3		<0.05	<0.05	<0.05	<0.05
	Benzo[b]fluoranthene	0.05	ug/g	STD-0.78		<0.05	<0.05	<0.05	<0.05
	Benzo[ghi]perylene	0.05	ug/g	STD-6.6		<0.05	<0.05	<0.05	<0.05
	Benzo[k]fluoranthene	0.05	ug/g	STD-0.78		<0.05	<0.05	<0.05	<0.05
	Chrysene	0.05	ug/g	STD-7		<0.05	<0.05	<0.05	<0.05
	Dibenz[a h]anthracene	0.05	ug/g	STD-0.1		<0.05	<0.05	<0.05	<0.05
	Fluoranthene	0.05	ug/g	STD-0.69		<0.05	<0.05	<0.05	<0.05
	Fluorene	0.05	ug/g	STD-62		<0.05	<0.05	<0.05	<0.05
	Indeno[1 2 3-cd]pyrene	0.05	ug/g	STD-0.38		<0.05	<0.05	<0.05	<0.05
	Methlynaphthalene, 1-	0.05	ug/g	STD-0.99		<0.05	<0.05	<0.05	<0.05
	Methlynaphthalene, 2-	0.05	ug/g	STD-0.99		<0.05	<0.05	<0.05	<0.05
	Naphthalene	0.05	ug/g	STD-0.6		<0.05	<0.05	<0.05	<0.05
	Phenanthrene	0.05	ug/g	STD-6.2		<0.05	<0.05	<0.05	<0.05
	Pyrene	0.05	ug/g	STD-78		<0.05	<0.05	<0.05	<0.05
VOCs	Benzene	0.02	ug/g	STD-0.21		<0.02	<0.02	<0.02	
	Ethylbenzene	0.05	ug/g	STD-2		<0.05	<0.05	<0.05	
	m/p-xylene	0.05	ug/g			<0.05	<0.05	<0.05	
	o-xylene	0.05	ug/g			<0.05	<0.05	<0.05	
	Toluene	0.20	ug/g	STD-2.3		<0.20	<0.20	<0.20	
	Xylene Mixture	0.05	ug/g	STD-3.1		<0.05	<0.05	<0.05	
VOCs Surrogates (%	Toluene-d8	0	%			98	99	97	

Guideline = O.Reg 153-T7-Res/Park-Coarse *** = Guideline Exceedence**

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Date Reported: 2013-07-10
Project: 131-13558-00-700
COC #: 157780

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1037906 Soil 2013-06-27 F-02 (0.55-0.75)	1037907 Soil 2013-06-27 F-01 (0.4-0.5)	1037908 Soil 2013-06-27 F-04 (0.61-1.22)	1037909 Soil 2013-06-27 F-03 (0.3-0.5)
Inorganics	Antimony	1	ug/g	STD-7.5		<1		<1	
	Arsenic	1	ug/g	STD-18		3		3	
	Barium	1	ug/g	STD-390		99		177	
	Beryllium	1	ug/g	STD-4		<1		<1	
	Boron (total)	10	ug/g	STD-120		20		20	
	Cadmium	0.5	ug/g	STD-1.2		<0.5		<0.5	
	Chromium Total	1	ug/g	STD-160		41		22	
	Cobalt	1	ug/g	STD-22		9		4	
	Copper	1	ug/g	STD-140		15		5	
	Lead	1	ug/g	STD-120		13		7	
	Molybdenum	1	ug/g	STD-6.9		<1		1	
	Nickel	1	ug/g	STD-100		23		16	
	Selenium	1	ug/g	STD-2.4		<1		<1	
	Silver	0.2	ug/g	STD-20		<0.2		<0.2	
	Thallium	1	ug/g	STD-1		<1		<1	
	Uranium	0.5	ug/g	STD-23		<0.5		0.6	
	Vanadium	2	ug/g	STD-86		39		10	
	Zinc	2	ug/g	STD-340		54		10	
Moisture	Moisture	0.1	%			14.8	15.5	15.7	3.6
Petroleum Hydrocarbons	Petroleum Hydrocarbons F1	10	ug/g	STD-55		<10	<10	<10	<10
	Petroleum Hydrocarbons F1-BTEX	10	ug/g			<10	<10	<10	<10
	Petroleum Hydrocarbons F2	10	ug/g	STD-98		<10	<10	<10	<10
	Petroleum Hydrocarbons F3	20	ug/g	STD-300		<20	<20	<20	<20
	Petroleum Hydrocarbons F4	20	ug/g	STD-2800		60	40	20	20
Semi-Volatiles	Acenaphthene	0.05	ug/g	STD-7.9		<0.05	<0.05	<0.05	<0.05
	Acenaphthylene	0.05	ug/g	STD-0.15		<0.05	<0.05	<0.05	<0.05

Guideline = O.Reg 153-T7-Res/Park-Coarse *** = Guideline Exceedence**

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Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1037906 Soil 2013-06-27 F-02 (0.55-0.75)	1037907 Soil 2013-06-27 F-01 (0.4-0.5)	1037908 Soil 2013-06-27 F-04 (0.61-1.22)	1037909 Soil 2013-06-27 F-03 (0.3-0.5)
Semi-Volatiles	Anthracene	0.05	ug/g	STD-0.67		<0.05	<0.05	<0.05	<0.05
	Benz[a]anthracene	0.05	ug/g	STD-0.5		<0.05	<0.05	<0.05	<0.05
	Benzo[a]pyrene	0.05	ug/g	STD-0.3		<0.05	<0.05	<0.05	<0.05
	Benzo[b]fluoranthene	0.05	ug/g	STD-0.78		<0.05	<0.05	<0.05	<0.05
	Benzo[ghi]perylene	0.05	ug/g	STD-6.6		<0.05	<0.05	<0.05	<0.05
	Benzo[k]fluoranthene	0.05	ug/g	STD-0.78		<0.05	<0.05	<0.05	<0.05
	Chrysene	0.05	ug/g	STD-7		<0.05	<0.05	<0.05	<0.05
	Dibenz[a h]anthracene	0.05	ug/g	STD-0.1		<0.05	<0.05	<0.05	<0.05
	Fluoranthene	0.05	ug/g	STD-0.69		<0.05	<0.05	<0.05	<0.05
	Fluorene	0.05	ug/g	STD-62		<0.05	<0.05	<0.05	<0.05
	Indeno[1 2 3-cd]pyrene	0.05	ug/g	STD-0.38		<0.05	<0.05	<0.05	<0.05
	Methlynaphthalene, 1-	0.05	ug/g	STD-0.99		<0.05	<0.05	<0.05	<0.05
	Methlynaphthalene, 2-	0.05	ug/g	STD-0.99		<0.05	<0.05	<0.05	<0.05
	Naphthalene	0.05	ug/g	STD-0.6		<0.05	<0.05	<0.05	<0.05
	Phenanthrene	0.05	ug/g	STD-6.2		<0.05	<0.05	<0.05	<0.05
	Pyrene	0.05	ug/g	STD-78		0.12	<0.05	0.16	<0.05
VOCs	Benzene	0.02	ug/g	STD-0.21		<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	0.05	ug/g	STD-2		<0.05	<0.05	<0.05	<0.05
	m/p-xylene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	o-xylene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Toluene	0.20	ug/g	STD-2.3		<0.20	<0.20	<0.20	<0.20
	Xylene Mixture	0.05	ug/g	STD-3.1		<0.05	<0.05	<0.05	<0.05
VOCs Surrogates (%	Toluene-d8	0	%			98	97	97	100

Guideline = O.Reg 153-T7-Res/Park-Coarse *** = Guideline Exceedence**

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Certificate of Analysis

Client: Genivar INC.
500 Boul. Greber, 3rd Floor
Gatineau, QC
J8T 7W3
Attention: Ms. David Feghali
PO#:
Invoice to: Genivar Inc.

Report Number: 1313177
Date Submitted: 2013-06-28
Date Reported: 2013-07-10
Project: 131-13558-00-700
COC #: 157780

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1037910 Soil 2013-06-27 F-03 (0.5-0.91)	1037911 Soil 2013-06-27 F-08 (0.10-0.61)	1037912 Soil 2013-06-27 F-07 (0.61-1.22)	1037913 Soil 2013-06-27 F-06 (0-0.61)
Inorganics	Antimony	1	ug/g	STD-7.5		<1			
	Arsenic	1	ug/g	STD-18		4			
	Barium	1	ug/g	STD-390		132			
	Beryllium	1	ug/g	STD-4		<1			
	Boron (total)	10	ug/g	STD-120		20			
	Cadmium	0.5	ug/g	STD-1.2		<0.5			
	Chromium Total	1	ug/g	STD-160		33			
	Cobalt	1	ug/g	STD-22		7			
	Copper	1	ug/g	STD-140		11			
	Lead	1	ug/g	STD-120		7			
	Molybdenum	1	ug/g	STD-6.9		<1			
	Nickel	1	ug/g	STD-100		21			
	Selenium	1	ug/g	STD-2.4		<1			
	Silver	0.2	ug/g	STD-20		<0.2			
	Thallium	1	ug/g	STD-1		<1			
	Uranium	0.5	ug/g	STD-23		0.5			
	Vanadium	2	ug/g	STD-86		32			
	Zinc	2	ug/g	STD-340		35			
Moisture	Moisture	0.1	%			14.1	3.8	26.8	3.2
Petroleum Hydrocarbons	Petroleum Hydrocarbons F1	10	ug/g	STD-55		<10	30	<10	<10
	Petroleum Hydrocarbons F1-BTEX	10	ug/g			<10	30	<10	<10
	Petroleum Hydrocarbons F2	10	ug/g	STD-98		<10	<10	<10	<10
	Petroleum Hydrocarbons F3	20	ug/g	STD-300		<20	80	<20	30
	Petroleum Hydrocarbons F4	20	ug/g	STD-2800		<20	30	<20	60
Semi-Volatiles	Acenaphthene	0.05	ug/g	STD-7.9		<0.05	<0.05	<0.05	<0.05
	Acenaphthylene	0.05	ug/g	STD-0.15		<0.05	<0.05	<0.05	<0.05

Guideline = O.Reg 153-T7-Res/Park-Coarse *** = Guideline Exceedence**

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Certificate of Analysis

Client: Genivar INC.
500 Boul. Greber, 3rd Floor
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J8T 7W3
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Project: 131-13558-00-700
COC #: 157780

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1037910 Soil 2013-06-27 F-03 (0.5-0.91)	1037911 Soil 2013-06-27 F-08 (0.10-0.61)	1037912 Soil 2013-06-27 F-07 (0.61-1.22)	1037913 Soil 2013-06-27 F-06 (0-0.61)
Semi-Volatiles	Anthracene	0.05	ug/g	STD-0.67		<0.05	<0.05	<0.05	<0.05
	Benz[a]anthracene	0.05	ug/g	STD-0.5		<0.05	<0.05	<0.05	<0.05
	Benzo[a]pyrene	0.05	ug/g	STD-0.3		<0.05	<0.05	<0.05	<0.05
	Benzo[b]fluoranthene	0.05	ug/g	STD-0.78		<0.05	<0.05	<0.05	<0.05
	Benzo[ghi]perylene	0.05	ug/g	STD-6.6		<0.05	<0.05	<0.05	<0.05
	Benzo[k]fluoranthene	0.05	ug/g	STD-0.78		<0.05	<0.05	<0.05	<0.05
	Chrysene	0.05	ug/g	STD-7		<0.05	<0.05	<0.05	<0.05
	Dibenz[a h]anthracene	0.05	ug/g	STD-0.1		<0.05	<0.05	<0.05	<0.05
	Fluoranthene	0.05	ug/g	STD-0.69		<0.05	<0.05	<0.05	<0.05
	Fluorene	0.05	ug/g	STD-62		<0.05	<0.05	<0.05	<0.05
	Indeno[1 2 3-cd]pyrene	0.05	ug/g	STD-0.38		<0.05	<0.05	<0.05	<0.05
	Methlynaphthalene, 1-	0.05	ug/g	STD-0.99		<0.05	<0.05	<0.05	<0.05
	Methlynaphthalene, 2-	0.05	ug/g	STD-0.99		<0.05	<0.05	<0.05	<0.05
	Naphthalene	0.05	ug/g	STD-0.6		<0.05	<0.05	<0.05	<0.05
	Phenanthrene	0.05	ug/g	STD-6.2		<0.05	<0.05	<0.05	<0.05
	Pyrene	0.05	ug/g	STD-78		<0.05	<0.05	<0.05	<0.05
VOCs	Benzene	0.02	ug/g	STD-0.21		<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	0.05	ug/g	STD-2		<0.05	<0.05	<0.05	<0.05
	m/p-xylene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	o-xylene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Toluene	0.20	ug/g	STD-2.3		<0.20	<0.20	<0.20	<0.20
	Xylene Mixture	0.05	ug/g	STD-3.1		<0.05	<0.05	<0.05	<0.05
VOCs Surrogates (%	Toluene-d8	0	%			97	96	100	99

Guideline = O.Reg 153-T7-Res/Park-Coarse *** = Guideline Exceedence**

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500 Boul. Greber, 3rd Floor
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J8T 7W3
Attention: Ms. David Feghali
PO#:
Invoice to: Genivar Inc.

Report Number: 1313177
Date Submitted: 2013-06-28
Date Reported: 2013-07-10
Project: 131-13558-00-700
COC #: 157780

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 0 **Analysis Date** 2013-07-08 **Method** CCME			
Petroleum Hydrocarbons F1-BTEX			
Xylene Mixture			
Run No 253766 **Analysis Date** 2013-07-08 **Method** C SM2540B			
Moisture	<0.1 %	102	80-120
Run No 253770 **Analysis Date** 2013-07-08 **Method** CCME			
Petroleum Hydrocarbons F2	<10 ug/g	83	50-120
Petroleum Hydrocarbons F3	<20 ug/g	83	50-120
Petroleum Hydrocarbons F4	<20 ug/g	83	50-120
Run No 253806 **Analysis Date** 2013-07-08 **Method** CCME			
Petroleum Hydrocarbons F4g	<500 ug/g		
Run No 253828 **Analysis Date** 2013-07-08 **Method** EPA 200.8			
Silver	<0.2 ug/g	87	70-130
Arsenic	<1 ug/g	103	70-130
Barium	<1 ug/g	103	70-130

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Beryllium	<1 ug/g	102	70-130
Cadmium	<0.5 ug/g	98	70-130
Cobalt	<1 ug/g	105	70-130
Chromium Total	<1 ug/g	103	70-130
Copper	<1 ug/g	108	70-130
Molybdenum	<1 ug/g	106	70-130
Nickel	<1 ug/g	106	70-130
Lead	<1 ug/g	92	70-130
Antimony	<1 ug/g	90	70-130
Selenium	<1 ug/g	103	70-130
Thallium	<1 ug/g	92	70-130
Uranium	<0.5 ug/g	87	70-130
Vanadium	<2 ug/g	114	70-130
Zinc	<2 ug/g	113	70-130
Run No 253831 **Analysis Date** 2013-07-05 **Method** V 8260B			
Benzene	<0.02 ug/g	96	80-120
Ethylbenzene	<0.05 ug/g	94	80-120

Guideline = O.Reg 153-T7-Res/Park-Coarse *** = Guideline Exceedence**

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
m/p-xylene	<0.05 ug/g	97	80-120
o-xylene	<0.05 ug/g	97	80-120
Toluene	<0.20 ug/g	99	80-120
Toluene-d8	92 %	101	
Run No 253832 **Analysis Date** 2013-07-05 **Method** CCME			
Petroleum Hydrocarbons F1	<10 ug/g		80-120
Run No 253841 **Analysis Date** 2013-07-05 **Method** CCME			
Petroleum Hydrocarbons F1	<10 ug/g	95	80-120
Run No 253842 **Analysis Date** 2013-07-05 **Method** CCME			
Petroleum Hydrocarbons F1-BTEX			
Run No 253843 **Analysis Date** 2013-07-05 **Method** CCME			
Petroleum Hydrocarbons F1	<10 ug/g	95	80-120
Run No 253857 **Analysis Date** 2013-07-08 **Method** M SM3120B-3050B			
Boron (total)	<10 ug/g	83	
Run No 254009 **Analysis Date** 2013-07-10 **Method** P 8270			
Methlynaphthalene, 1-	<0.05 ug/g	62	20-150
Methlynaphthalene, 2-	<0.05 ug/g	61	20-150

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Acenaphthene	<0.05 ug/g	63	20-150
Acenaphthylene	<0.05 ug/g	62	20-150
Anthracene	<0.05 ug/g	70	20-150
Benz[a]anthracene	<0.05 ug/g	77	20-150
Benzo[a]pyrene	<0.05 ug/g	76	20-150
Benzo[b]fluoranthene	<0.05 ug/g	77	20-150
Benzo[ghi]perylene	<0.05 ug/g	85	20-150
Benzo[k]fluoranthene	<0.05 ug/g	75	20-150
Chrysene	<0.05 ug/g	72	20-150
Dibenz[a h]anthracene	<0.05 ug/g	86	20-150
Fluoranthene	<0.05 ug/g	73	20-150
Fluorene	<0.05 ug/g	64	20-150
Indeno[1 2 3-cd]pyrene	<0.05 ug/g	86	20-150
Naphthalene	<0.05 ug/g	59	20-150
Phenanthrene	<0.05 ug/g	68	20-150
Pyrene	<0.05 ug/g	73	20-150

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Certificate of Analysis

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	Gatineau, QC
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Date Submitted: 2013-06-28
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COC #: 157780

Sample Comment Summary

Sample ID: 1037904 DUP-7 The result for F4 (C34-C50) gravimetric must be substituted if it is greater than the result for F4 (C34-C50).

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EXOVA OTTAWA

Certificate of Analysis

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J8T 7W3
Attention: Ms. David Feghali
PO#:
Invoice to: Genivar Inc.

Report Number: 1314739
Date Submitted: 2013-06-28
Date Reported: 2013-07-15
Project: 131-13558-00-700
COC #: 157780

Dear David Feghali:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____

Lorna Wilson
Laboratory Supervisor, Inorganics

APPROVAL: _____

Charlie (Long) Qu
Laboratory Supervisor, Organics

Exova (Ottawa) is certified and accredited for specific parameters by:
CALA, Canadian Association for Laboratory Accreditation (to ISO 17025), OMAFRA, Ontario Ministry of Agriculture, Food and Rural Affairs (for farm soils), Licensed by Ontario MOE for specific tests in drinking water.

Exova (Mississauga) is accredited for specific parameters by:
SCC, Standards Council of Canada (to ISO 17025)

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only.

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Date Submitted: 2013-06-28
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COC #: 157780

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1037930 Soil 2013-06-27 F-03 (1.01-1.11)	1037935 Soil 2013-06-27 F-05 (1.32-1.83)
General Chemistry	Moisture	0.1	%			12.2	30.0
Hydrocarbons	F1 (C6-C10)	10	ug/g			<10	<10
	F1-BTEX (C6-C10)	10	ug/g			<10	<10
	F2 (C10-C16)	10	ug/g			<10	<10
	F3 (C16-C34)	20	ug/g			<20	<20
	F4 (C34-C50)	20	ug/g			<20	<20
Metals	Ag	0.2	ug/g			<0.2	<0.2
	As	1	ug/g			2	1
	B	10	ug/g			20	40
	Ba	1	ug/g			61	421
	Be	1	ug/g			<1	<1
	Cd	0.5	ug/g			<0.5	<0.5
	Co	1	ug/g			7	27
	Cr	1	ug/g			18	112
	Cu	1	ug/g			15	61
	Mo	1	ug/g			<1	<1
	Ni	1	ug/g			16	70
	Pb	1	ug/g			6	8
	Sb	1	ug/g			<1	<1
	Se	1	ug/g			<1	<1
	Tl	1	ug/g			<1	<1
	U	0.5	ug/g			<0.5	0.6
	V	2	ug/g			27	105
	Zn	2	ug/g			24	140
Semi-Volatiles	1-methylnaphthalene	0.05	ug/g			<0.05	<0.05
	2-methylnaphthalene	0.05	ug/g			<0.05	<0.05

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COC #: 157780

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1037930 Soil 2013-06-27 F-03 (1.01-1.11)	1037935 Soil 2013-06-27 F-05 (1.32-1.83)
Semi-Volatiles	Acenaphthene	0.05	ug/g			<0.05	<0.05
	Acenaphthylene	0.05	ug/g			<0.05	<0.05
	Anthracene	0.05	ug/g			<0.05	<0.05
	Benzo(a)anthracene	0.05	ug/g			<0.05	<0.05
	Benzo(a)pyrene	0.05	ug/g			<0.05	<0.05
	Benzo(b)fluoranthene	0.05	ug/g			<0.05	<0.05
	Benzo(g,h,i)perylene	0.05	ug/g			<0.05	<0.05
	Benzo(k)fluoranthene	0.05	ug/g			<0.05	<0.05
	Chrysene	0.05	ug/g			<0.05	<0.05
	Dibenzo(a,h)anthracene	0.05	ug/g			<0.05	<0.05
	Fluoranthene	0.05	ug/g			<0.05	<0.05
	Fluorene	0.05	ug/g			<0.05	<0.05
	Indeno(1,2,3-c,d)pyrene	0.05	ug/g			<0.05	<0.05
	Naphthalene	0.05	ug/g			<0.05	<0.05
	Phenanthrene	0.05	ug/g			<0.05	<0.05
	Pyrene	0.05	ug/g			<0.05	<0.05
VOCs	Benzene	0.02	ug/g			<0.02	<0.02
	Ethylbenzene	0.05	ug/g			<0.05	<0.05
	m/p-xylene	0.05	ug/g			<0.05	<0.05
	o-xylene	0.05	ug/g			<0.05	<0.05
	Toluene	0.20	ug/g			<0.20	<0.20
	Toluene-d8	0	%			101	104
	Xylene; total	0.05	ug/g			<0.05	<0.05

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Client: Genivar INC.
500 Boul. Greber, 3rd Floor
Gatineau, QC
J8T 7W3
Attention: Ms. David Feghali
PO#:
Invoice to: Genivar Inc.

Report Number: 1314739
Date Submitted: 2013-06-28
Date Reported: 2013-07-15
Project: 131-13558-00-700
COC #: 157780

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 0 **Analysis Date** 2013-07-15 **Method** V 8260B			
Xylene; total			
Run No 254258 **Analysis Date** 2013-07-12 **Method** V 8260B			
Benzene	<0.02 ug/g	83	80-120
Ethylbenzene	<0.05 ug/g	100	80-120
m/p-xylene	<0.05 ug/g	106	80-120
o-xylene	<0.05 ug/g	110	80-120
Toluene	<0.20 ug/g	107	80-120
Toluene-d8	100 %	107	
Run No 254259 **Analysis Date** 2013-07-15 **Method** CCME			
F1 (C6-C10)	<10 ug/g	80	80-120
F1-BTEX (C6-C10)			
Run No 254297 **Analysis Date** 2013-07-12 **Method** P 8270			
1-methylnaphthalene	<0.05 ug/g	52	20-150
2-methylnaphthalene	<0.05 ug/g	51	20-150

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Acenaphthene	<0.05 ug/g	58	20-150
Acenaphthylene	<0.05 ug/g	54	20-150
Anthracene	<0.05 ug/g	72	20-150
Benzo(a)anthracene	<0.05 ug/g	84	20-150
Benzo(a)pyrene	<0.05 ug/g	81	20-150
Benzo(b)fluoranthene	<0.05 ug/g	81	20-150
Benzo(g,h,i)perylene	<0.05 ug/g	92	20-150
Benzo(k)fluoranthene	<0.05 ug/g	83	20-150
Chrysene	<0.05 ug/g	81	20-150
Dibenzo(a,h)anthracene	<0.05 ug/g	90	20-150
Fluoranthene	<0.05 ug/g	83	20-150
Fluorene	<0.05 ug/g	63	20-150
Indeno(1,2,3-c,d)pyrene	<0.05 ug/g	96	20-150
Naphthalene	<0.05 ug/g	47	20-150
Phenanthrene	<0.05 ug/g	73	20-150
Pyrene	<0.05 ug/g	84	20-150
Run No 254314	**Analysis Date** 2013-07-15	**Method** C SM2540B	

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Moisture	<0.1 %	102	80-120
Run No 254316 **Analysis Date** 2013-07-15 **Method** CCME			
F2 (C10-C16)	<10 ug/g	81	50-120
F3 (C16-C34)	<20 ug/g	81	50-120
F4 (C34-C50)	<20 ug/g	81	50-120
Run No 254336 **Analysis Date** 2013-07-15 **Method** EPA 200.8			
Ag	<0.2 ug/g	95	70-130
As	<1 ug/g	103	70-130
Ba	<1 ug/g	97	70-130
Be	<1 ug/g	102	70-130
Cd	<0.5 ug/g	101	70-130
Co	<1 ug/g	116	70-130
Cr	<1 ug/g	111	70-130
Cu	<1 ug/g	108	70-130
Mo	<1 ug/g	113	70-130
Ni	<1 ug/g	109	70-130
Pb	<1 ug/g	99	70-130

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Sb	<1 ug/g	99	70-130
Se	<1 ug/g	106	70-130
Tl	<1 ug/g	101	70-130
U	<0.5 ug/g	97	70-130
V	<2 ug/g	111	70-130
Zn	<2 ug/g	108	70-130
Run No 254339 **Analysis Date** 2013-07-15 **Method** M SM3120B-3050B			
B	<10 ug/g	83	

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EXOVA OTTAWA

Certificate of Analysis

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Report Number: 1313315
Date Submitted: 2013-07-02
Date Reported: 2013-07-11
Project: 131-13558-00
COC #: 144561

Dear David Feghali:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____

Lorna Wilson
Laboratory Supervisor, Inorganics

APPROVAL: _____

Charlie (Long) Qu
Laboratory Supervisor, Organics

Exova (Ottawa) is certified and accredited for specific parameters by:
CALA, Canadian Association for Laboratory Accreditation (to ISO 17025), OMAFRA, Ontario Ministry of Agriculture, Food and Rural Affairs (for farm soils), Licensed by Ontario MOE for specific tests in drinking water.

Exova (Mississauga) is accredited for specific parameters by:
SCC, Standards Council of Canada (to ISO 17025)

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only.

Certificate of Analysis

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Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1038273 Soil 2013-07-02 TE-01 (0.30-0.60)	1038274 Soil 2013-07-02 TE-02 (0 - 0.35)	1038275 Soil 2013-07-02 TE-02 (0.35 - 1.00)	1038276 Soil 2013-07-02 TE-02 (1.00-1.45)
General Chemistry	Moisture	0.1	%			23.2	11.7	15.3	26.1
Hydrocarbons	F1 (C6-C10)	10	ug/g			<10	<10	<10	<10
	F1-BTEX (C6-C10)	10	ug/g			<10	<10	<10	<10
	F2 (C10-C16)	10	ug/g			<10	20	<10	<10
	F3 (C16-C34)	20	ug/g			<20	31100	100	110
	F4 (C34-C50)	20	ug/g			70	10400	160	60
	F4 (C34-C50) gravimetric	500	ug/g				40400		
Metals	Ag	0.2	ug/g			<0.2	<0.2	<0.2	<0.2
	As	1	ug/g			3	5	6	2
	B	10	ug/g			10	20	30	40
	Ba	1	ug/g			153	98	150	347
	Be	1	ug/g			<1	<1	<1	<1
	Cd	0.5	ug/g			<0.5	<0.5	<0.5	<0.5
	Co	1	ug/g			10	7	10	18
	Cr	1	ug/g			59	41	62	111
	Cu	1	ug/g			21	19	24	50
	Mo	1	ug/g			<1	1	<1	<1
	Ni	1	ug/g			33	25	31	60
	Pb	1	ug/g			8	11	10	7
	Sb	1	ug/g			<1	<1	<1	<1
	Se	1	ug/g			<1	<1	<1	<1
	Tl	1	ug/g			<1	<1	<1	<1
	U	0.5	ug/g			<0.5	<0.5	0.6	0.9
	V	2	ug/g			45	38	52	98
	Zn	2	ug/g			58	138	80	113
Semi-Volatiles	1-methylnaphthalene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05

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J8T 7W3
Attention: Ms. David Feghali
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Report Number: 1313315
Date Submitted: 2013-07-02
Date Reported: 2013-07-11
Project: 131-13558-00
COC #: 144561

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1038273 Soil 2013-07-02 TE-01 (0.30-0.60)	1038274 Soil 2013-07-02 TE-02 (0 - 0.35)	1038275 Soil 2013-07-02 TE-02 (0.35 - 1.00)	1038276 Soil 2013-07-02 TE-02 (1.00-1.45)
Semi-Volatiles	2-methylnaphthalene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Acenaphthene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Acenaphthylene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Anthracene	0.05	ug/g			<0.05	0.15	<0.05	<0.05
	Benzo(a)anthracene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Benzo(a)pyrene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Benzo(b)fluoranthene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Benzo(g,h,i)perylene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Benzo(k)fluoranthene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Chrysene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Dibenzo(a,h)anthracene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Fluoranthene	0.05	ug/g			<0.05	0.17	<0.05	<0.05
	Fluorene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Indeno(1,2,3-c,d)pyrene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Naphthalene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Phenanthrene	0.05	ug/g			<0.05	0.07	<0.05	<0.05
	Pyrene	0.05	ug/g			<0.05	0.17	<0.05	<0.05
VOCs	Benzene	0.02	ug/g			<0.02	<0.02	<0.02	<0.02
	Ethylbenzene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	m/p-xylene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	o-xylene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Toluene	0.20	ug/g			<0.20	<0.20	<0.20	<0.20
	Toluene-d8	0	%			96	95	96	94
	Xylene; total	1.0	ug/L			<1.0	<1.0	<1.0	<1.0

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Report Number: 1313315
Date Submitted: 2013-07-02
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Project: 131-13558-00
COC #: 144561

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 253766 **Analysis Date** 2013-07-08 **Method** C SM2540B			
Moisture	<0.1 %	102	80-120
Run No 253770 **Analysis Date** 2013-07-08 **Method** CCME			
F2 (C10-C16)	<10 ug/g	83	50-120
F3 (C16-C34)	<20 ug/g	83	50-120
F4 (C34-C50)	<20 ug/g	83	50-120
Run No 253806 **Analysis Date** 2013-07-08 **Method** CCME			
F4 (C34-C50) gravimetric	<500 ug/g		
Run No 253828 **Analysis Date** 2013-07-08 **Method** EPA 200.8			
Ag	<0.2 ug/g	87	70-130
As	<1 ug/g	103	70-130
Ba	<1 ug/g	103	70-130
Be	<1 ug/g	102	70-130
Cd	<0.5 ug/g	101	70-130
Co	<1 ug/g	105	70-130

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Cr	<1 ug/g	103	70-130
Cu	<1 ug/g	108	70-130
Mo	<1 ug/g	106	70-130
Ni	<1 ug/g	106	70-130
Pb	<1 ug/g	92	70-130
Sb	<1 ug/g	90	70-130
Se	<1 ug/g	103	70-130
Tl	<1 ug/g	92	70-130
U	<0.5 ug/g	87	70-130
V	<2 ug/g	114	70-130
Zn	<2 ug/g	109	70-130
Run No 253852 **Analysis Date** 2013-07-06 **Method** V 8260B			
Benzene	<0.02 ug/g	96	80-120
Ethylbenzene	<0.05 ug/g	94	80-120
m/p-xylene	<0.05 ug/g	97	80-120
o-xylene	<0.05 ug/g	97	80-120
Toluene	<0.20 ug/g	99	80-120

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Toluene-d8	92 %	101	
Xylene; total			
Run No 253856 **Analysis Date** 2013-07-05 **Method** CCME			
F1 (C6-C10)	<10 ug/g	104	80-120
Run No 253857 **Analysis Date** 2013-07-08 **Method** M SM3120B-3050B			
B	<10 ug/g	83	
Run No 253859 **Analysis Date** 2013-07-05 **Method** CCME			
F1-BTEX (C6-C10)			
Run No 254078 **Analysis Date** 2013-07-11 **Method** P 8270			
1-methylnaphthalene	<0.05 ug/g	62	20-150
2-methylnaphthalene	<0.05 ug/g	61	20-150
Acenaphthene	<0.05 ug/g	63	20-150
Acenaphthylene	<0.05 ug/g	62	20-150
Anthracene	<0.05 ug/g	70	20-150
Benzo(a)anthracene	<0.05 ug/g	77	20-150
Benzo(a)pyrene	<0.05 ug/g	76	20-150
Benzo(b)fluoranthene	<0.05 ug/g	77	20-150

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Benzo(g,h,i)perylene	<0.05 ug/g	85	20-150
Benzo(k)fluoranthene	<0.05 ug/g	75	20-150
Chrysene	<0.05 ug/g	72	20-150
Dibenzo(a,h)anthracene	<0.05 ug/g	86	20-150
Fluoranthene	<0.05 ug/g	73	20-150
Fluorene	<0.05 ug/g	64	20-150
Indeno(1,2,3-c,d)pyrene	<0.05 ug/g	86	20-150
Naphthalene	<0.05 ug/g	59	20-150
Phenanthrene	<0.05 ug/g	68	20-150
Pyrene	<0.05 ug/g	73	20-150
Run No 254082 **Analysis Date** 2013-07-11 **Method** P 8270			
1-methylnaphthalene	<0.05 ug/g	62	20-150
2-methylnaphthalene	<0.05 ug/g	61	20-150
Acenaphthene	<0.05 ug/g	63	20-150
Acenaphthylene	<0.05 ug/g	62	20-150
Anthracene	<0.05 ug/g	70	20-150
Benzo(a)anthracene	<0.05 ug/g	77	20-150

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Benzo(a)pyrene	<0.05 ug/g	76	20-150
Benzo(b)fluoranthene	<0.05 ug/g	77	20-150
Benzo(g,h,i)perylene	<0.05 ug/g	85	20-150
Benzo(k)fluoranthene	<0.05 ug/g	75	20-150
Chrysene	<0.05 ug/g	72	20-150
Dibenzo(a,h)anthracene	<0.05 ug/g	86	20-150
Fluoranthene	<0.05 ug/g	73	20-150
Fluorene	<0.05 ug/g	64	20-150
Indeno(1,2,3-c,d)pyrene	<0.05 ug/g	86	20-150
Naphthalene	<0.05 ug/g	59	20-150
Phenanthrene	<0.05 ug/g	68	20-150
Pyrene	<0.05 ug/g	73	20-150

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Sample Comment Summary

Sample ID: 1038274 TE-02 (0 - 0.35) The result for F4 (C34-C50) gravimetric must be substituted if it is greater than the result for F4 (C34-C50).

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EXOVA OTTAWA

Certificate of Analysis

Client: Genivar INC.
500 Boul. Greber, 3rd Floor
Gatineau, QC
J8T 7W3
Attention: Ms. Catherine Tardy Laporte
PO#:
Invoice to: Genivar INC.

Report Number: 1314497
Date Submitted: 2013-07-11
Date Reported: 2013-07-15
Project: 131-13558-00
COC #: 144561

Dear Catherine Tardy Laporte:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____

Lorna Wilson
Laboratory Supervisor, Inorganics

Exova (Ottawa) is certified and accredited for specific parameters by:
CALA, Canadian Association for Laboratory Accreditation (to ISO 17025), OMAFRA, Ontario Ministry of Agriculture, Food and Rural Affairs (for farm soils), Licensed by Ontario MOE for specific tests in drinking water.

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SCC, Standards Council of Canada (to ISO 17025)

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only.

Client: Genivar INC.
500 Boul. Greber, 3rd Floor
Gatineau, QC
J8T 7W3
Attention: Ms. Catherine Tardy Laporte
PO#:
Invoice to: Genivar INC.

Report Number: 1314497
Date Submitted: 2013-07-11
Date Reported: 2013-07-15
Project: 131-13558-00
COC #: 144561

Group	Analyte	MRL	Units	Guideline	Lab I.D. 1041600 Sample Matrix Soil Sample Type Sampling Date 2013-07-02 Sample I.D. TE-02 (1.00-1.45)
Metals	Ag	0.2	ug/g		<0.2
	As	1	ug/g		2
	B	10	ug/g		40
	Ba	1	ug/g		383
	Be	1	ug/g		<1
	Cd	0.5	ug/g		<0.5
	Co	1	ug/g		20
	Cr	1	ug/g		122
	Cu	1	ug/g		65
	Mo	1	ug/g		<1
	Ni	1	ug/g		65
	Pb	1	ug/g		19
	Sb	1	ug/g		<1
	Se	1	ug/g		<1
	Tl	1	ug/g		<1
	U	0.5	ug/g		0.9
	V	2	ug/g		109
	Zn	2	ug/g		135

Guideline = *** = Guideline Exceedence**
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Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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J8T 7W3
Attention: Ms. Catherine Tardy Laporte
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Invoice to: Genivar INC.

Report Number: 1314497
Date Submitted: 2013-07-11
Date Reported: 2013-07-15
Project: 131-13558-00
COC #: 144561

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 254229 **Analysis Date** 2013-07-12 **Method** EPA 200.8			
Ag	<0.2 ug/g	90	70-130
As	<1 ug/g	96	70-130
Ba	<1 ug/g	101	70-130
Be	<1 ug/g	98	70-130
Cd	<0.5 ug/g	102	70-130
Co	<1 ug/g	97	70-130
Cr	<1 ug/g	98	70-130
Cu	<1 ug/g	102	70-130
Mo	<1 ug/g	100	70-130
Ni	<1 ug/g	99	70-130
Pb	<1 ug/g	90	70-130
Sb	<1 ug/g	87	70-130
Se	<1 ug/g	95	70-130
Tl	<1 ug/g	86	70-130

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500 Boul. Greber, 3rd Floor
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J8T 7W3
Attention: Ms. Catherine Tardy Laporte
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Invoice to: Genivar INC.

Report Number: 1314497
Date Submitted: 2013-07-11
Date Reported: 2013-07-15
Project: 131-13558-00
COC #: 144561

QC Summary

Analyte	Blank	QC % Rec	QC Limits
U	<0.5 ug/g	86	70-130
V	<2 ug/g	104	70-130
Zn	<2 ug/g	101	70-130
Run No 254302 **Analysis Date** 2013-07-15 **Method** M SM3120B-3050B			
B	<10 ug/g	93	

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EXOVA OTTAWA

Certificate of Analysis

Client: Genivar INC.
500 Boul. Greber, 3rd Floor
Gatineau, QC
J8T 7W3
Attention: Ms. David Feghali
PO#:
Invoice to: Genivar Inc.

Report Number: 1313316
Date Submitted: 2013-07-02
Date Reported: 2013-07-11
Project: 131-13558-00
COC #: 157046

Dear David Feghali:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____

Lorna Wilson
Laboratory Supervisor, Inorganics

APPROVAL: _____

Charlie (Long) Qu
Laboratory Supervisor, Organics

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Certificate of Analysis

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500 Boul. Greber, 3rd Floor
Gatineau, QC
J8T 7W3
Attention: Ms. David Feghali
PO#:
Invoice to: Genivar Inc.

Report Number: 1313316
Date Submitted: 2013-07-02
Date Reported: 2013-07-11
Project: 131-13558-00
COC #: 157046

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1038279 Soil 2013-07-02 TE-03 (0.30 - 1.00)	1038280 Soil 2013-07-02 TE-04 (1.00 - 2.30)	1038281 Soil 2013-07-02 TE-05 (0.15 - 2.30)	1038282 Soil 2013-07-02 DUP - 8
General Chemistry	Moisture	0.1	%			30.2	21.4	21.3	29.4
Hydrocarbons	F1 (C6-C10)	10	ug/g			<10	<10	<10	<10
	F2 (C10-C16)	10	ug/g			<10	<10	<10	<10
	F3 (C16-C34)	20	ug/g			<20	30	<20	<20
	F4 (C34-C50)	20	ug/g			<20	40	<20	<20
Metals	Ag	0.2	ug/g				<0.2		
	As	1	ug/g				3		
	B	10	ug/g				30		
	Ba	1	ug/g				175		
	Be	1	ug/g				<1		
	Cd	0.5	ug/g				<0.5		
	Co	1	ug/g				14		
	Cr	1	ug/g				82		
	Cu	1	ug/g				28		
	Mo	1	ug/g				<1		
	Ni	1	ug/g				39		
	Pb	1	ug/g				9		
	Sb	1	ug/g				<1		
	Se	1	ug/g				<1		
	Tl	1	ug/g				<1		
	U	0.5	ug/g				1.0		
	V	2	ug/g				72		
	Zn	2	ug/g				110		
Semi-Volatiles	1-methylnaphthalene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	2-methylnaphthalene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Acenaphthene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05

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Report Number: 1313316
Date Submitted: 2013-07-02
Date Reported: 2013-07-11
Project: 131-13558-00
COC #: 157046

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1038279 Soil 2013-07-02 TE-03 (0.30 - 1.00)	1038280 Soil 2013-07-02 TE-04 (1.00 - 2.30)	1038281 Soil 2013-07-02 TE-05 (0.15 - 2.30)	1038282 Soil 2013-07-02 DUP - 8
Semi-Volatiles	Acenaphthylene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Anthracene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Benzo(a)anthracene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Benzo(a)pyrene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Benzo(b)fluoranthene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Benzo(g,h,i)perylene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Benzo(k)fluoranthene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Chrysene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Dibenzo(a,h)anthracene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Fluoranthene	0.05	ug/g			<0.05	<0.05	0.05	<0.05
	Fluorene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Indeno(1,2,3-c,d)pyrene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Naphthalene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Phenanthrene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05
	Pyrene	0.05	ug/g			<0.05	<0.05	<0.05	<0.05

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Client: Genivar INC.
500 Boul. Greber, 3rd Floor
Gatineau, QC
J8T 7W3
Attention: Ms. David Feghali
PO#:
Invoice to: Genivar Inc.

Report Number: 1313316
Date Submitted: 2013-07-02
Date Reported: 2013-07-11
Project: 131-13558-00
COC #: 157046

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 253766 **Analysis Date** 2013-07-08 **Method** C SM2540B			
Moisture	<0.1 %	102	80-120
Run No 253770 **Analysis Date** 2013-07-08 **Method** CCME			
F2 (C10-C16)	<10 ug/g	83	50-120
F3 (C16-C34)	<20 ug/g	83	50-120
F4 (C34-C50)	<20 ug/g	83	50-120
Run No 253828 **Analysis Date** 2013-07-08 **Method** EPA 200.8			
Ag	<0.2 ug/g	87	70-130
As	<1 ug/g	103	70-130
Ba	<1 ug/g	103	70-130
Be	<1 ug/g	102	70-130
Cd	<0.5 ug/g	101	70-130
Co	<1 ug/g	105	70-130
Cr	<1 ug/g	103	70-130
Cu	<1 ug/g	108	70-130

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Report Number: 1313316
Date Submitted: 2013-07-02
Date Reported: 2013-07-11
Project: 131-13558-00
COC #: 157046

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Mo	<1 ug/g	106	70-130
Ni	<1 ug/g	106	70-130
Pb	<1 ug/g	92	70-130
Sb	<1 ug/g	90	70-130
Se	<1 ug/g	103	70-130
Tl	<1 ug/g	92	70-130
U	<0.5 ug/g	87	70-130
V	<2 ug/g	114	70-130
Zn	<2 ug/g	109	70-130
Run No 253856 **Analysis Date** 2013-07-05 **Method** CCME			
F1 (C6-C10)	<10 ug/g	104	80-120
Run No 253857 **Analysis Date** 2013-07-08 **Method** M SM3120B-3050B			
B	<10 ug/g	83	
Run No 253864 **Analysis Date** 2013-07-05 **Method** CCME			
F1 (C6-C10)	<10 ug/g	104	80-120
Run No 253953 **Analysis Date** 2013-07-09 **Method** CCME			
F1 (C6-C10)	<10 ug/g	90	80-120

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J8T 7W3
Attention: Ms. David Feghali
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Report Number: 1313316
Date Submitted: 2013-07-02
Date Reported: 2013-07-11
Project: 131-13558-00
COC #: 157046

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 254078 **Analysis Date** 2013-07-11 **Method** P 8270			
1-methylnaphthalene	<0.05 ug/g	62	20-150
2-methylnaphthalene	<0.05 ug/g	61	20-150
Acenaphthene	<0.05 ug/g	63	20-150
Acenaphthylene	<0.05 ug/g	62	20-150
Anthracene	<0.05 ug/g	70	20-150
Benzo(a)anthracene	<0.05 ug/g	77	20-150
Benzo(a)pyrene	<0.05 ug/g	76	20-150
Benzo(b)fluoranthene	<0.05 ug/g	77	20-150
Benzo(g,h,i)perylene	<0.05 ug/g	85	20-150
Benzo(k)fluoranthene	<0.05 ug/g	75	20-150
Chrysene	<0.05 ug/g	72	20-150
Dibenzo(a,h)anthracene	<0.05 ug/g	86	20-150
Fluoranthene	<0.05 ug/g	73	20-150
Fluorene	<0.05 ug/g	64	20-150
Indeno(1,2,3-c,d)pyrene	<0.05 ug/g	86	20-150
Naphthalene	<0.05 ug/g	59	20-150

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Report Number: 1313316
Date Submitted: 2013-07-02
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Project: 131-13558-00
COC #: 157046

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Phenanthrene	<0.05 ug/g	68	20-150
Pyrene	<0.05 ug/g	73	20-150

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EXOVA OTTAWA

Certificate of Analysis

Client: Genivar INC.
500 Boul. Greber, 3rd Floor
Gatineau, QC
J8T 7W3
Attention: Ms. Catherine Tardy Laporte
PO#:
Invoice to: Genivar INC.

Report Number: 1314097
Date Submitted: 2013-07-08
Date Reported: 2013-07-11
Project: 131-13558-00-700-001
COC #: 500429

Dear Catherine Tardy Laporte:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____

Lorna Wilson
Laboratory Supervisor, Inorganics

APPROVAL: _____

Charlie (Long) Qu
Laboratory Supervisor, Organics

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mark D'Arcy

Client PO: 21320
Project: PE3937
Custody:

Report Date: 20-Jan-2017
Order Date: 19-Jan-2017

Order #: 1703420

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1703420-01	TP1 G1
1703420-02	TP5 G1
1703420-03	TP6 G1
1703420-04	TP6 G2
1703420-05	TP9 G2
1703420-06	TP10 G1
1703420-07	TP11 G1

Approved By:

Mark Foto, M.Sc.
Lab Supervisor

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21320

Report Date: 20-Jan-2017
Order Date: 19-Jan-2017
Project Description: PE3937

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	20-Jan-17	20-Jan-17
PHC F1	CWS Tier 1 - P&T GC-FID	20-Jan-17	20-Jan-17
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	20-Jan-17	20-Jan-17
REG 153: Metals by ICP/OES, soil	based on MOE E3470, ICP-OES	20-Jan-17	20-Jan-17
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	20-Jan-17	20-Jan-17
Solids, %	Gravimetric, calculation	20-Jan-17	20-Jan-17

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21320

Report Date: 20-Jan-2017

Order Date: 19-Jan-2017

Project Description: PE3937

	Client ID:	TP1 G1	TP5 G1	TP6 G1	TP6 G2
	Sample Date:	18-Jan-17	18-Jan-17	18-Jan-17	18-Jan-17
	Sample ID:	1703420-01	1703420-02	1703420-03	1703420-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	90.4	83.4	81.2	83.7
Metals					
Antimony	1.0 ug/g dry	-	-	<1.0	-
Arsenic	1.0 ug/g dry	-	-	<1.0	-
Barium	1.0 ug/g dry	-	-	106	-
Beryllium	1.0 ug/g dry	-	-	<1.0	-
Boron	1.0 ug/g dry	-	-	8.0	-
Cadmium	0.5 ug/g dry	-	-	<0.5	-
Chromium	1.0 ug/g dry	-	-	48.1	-
Cobalt	1.0 ug/g dry	-	-	7.7	-
Copper	1.0 ug/g dry	-	-	21.9	-
Lead	1.0 ug/g dry	-	-	18.3	-
Molybdenum	1.0 ug/g dry	-	-	<1.0	-
Nickel	1.0 ug/g dry	-	-	20.1	-
Selenium	1.0 ug/g dry	-	-	<1.0	-
Silver	0.5 ug/g dry	-	-	<0.5	-
Thallium	1.0 ug/g dry	-	-	<1.0	-
Uranium	1.0 ug/g dry	-	-	<1.0	-
Vanadium	1.0 ug/g dry	-	-	36.6	-
Zinc	1.0 ug/g dry	-	-	68.3	-
Volatiles					
Benzene	0.02 ug/g dry	<0.02	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	-	-	-
o-Xylene	0.05 ug/g dry	<0.05	-	-	-
Xylenes, total	0.05 ug/g dry	<0.05	-	-	-
Toluene-d8	Surrogate	106%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g dry	47	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	411	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	46	-	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	-	<0.02	-	<0.02
Acenaphthylene	0.02 ug/g dry	-	<0.02	-	<0.02

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21320

Report Date: 20-Jan-2017

Order Date: 19-Jan-2017

Project Description: PE3937

	Client ID:	TP1 G1	TP5 G1	TP6 G1	TP6 G2
	Sample Date:	18-Jan-17	18-Jan-17	18-Jan-17	18-Jan-17
	Sample ID:	1703420-01	1703420-02	1703420-03	1703420-04
	MDL/Units	Soil	Soil	Soil	Soil
Anthracene	0.02 ug/g dry	-	<0.02	-	<0.02
Benzo [a] anthracene	0.02 ug/g dry	-	<0.02	-	0.02
Benzo [a] pyrene	0.02 ug/g dry	-	<0.02	-	0.03
Benzo [b] fluoranthene	0.02 ug/g dry	-	<0.02	-	0.04
Benzo [g,h,i] perylene	0.02 ug/g dry	-	<0.02	-	0.04
Benzo [k] fluoranthene	0.02 ug/g dry	-	<0.02	-	<0.02
Chrysene	0.02 ug/g dry	-	<0.02	-	0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	<0.02	-	<0.02
Fluoranthene	0.02 ug/g dry	-	<0.02	-	0.04
Fluorene	0.02 ug/g dry	-	<0.02	-	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	<0.02	-	0.02
1-Methylnaphthalene	0.02 ug/g dry	-	<0.02	-	<0.02
2-Methylnaphthalene	0.02 ug/g dry	-	<0.02	-	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	-	<0.04	-	<0.04
Naphthalene	0.01 ug/g dry	-	<0.01	-	<0.01
Phenanthrene	0.02 ug/g dry	-	<0.02	-	<0.02
Pyrene	0.02 ug/g dry	-	<0.02	-	0.03
2-Fluorobiphenyl	Surrogate	-	62.1%	-	77.4%
Terphenyl-d14	Surrogate	-	98.6%	-	97.1%

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21320

Report Date: 20-Jan-2017

Order Date: 19-Jan-2017

Project Description: PE3937

	Client ID:	TP9 G2	TP10 G1	TP11 G1	-
	Sample Date:	18-Jan-17	18-Jan-17	18-Jan-17	-
	Sample ID:	1703420-05	1703420-06	1703420-07	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	79.0	82.0	82.7	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Arsenic	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Barium	1.0 ug/g dry	146	160	140	-
Beryllium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Boron	1.0 ug/g dry	3.8	5.7	11.6	-
Cadmium	0.5 ug/g dry	<0.5	<0.5	<0.5	-
Chromium	1.0 ug/g dry	61.2	43.6	32.2	-
Cobalt	1.0 ug/g dry	14.3	9.6	7.6	-
Copper	1.0 ug/g dry	19.4	20.1	21.4	-
Lead	1.0 ug/g dry	13.3	16.5	20.0	-
Molybdenum	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Nickel	1.0 ug/g dry	29.6	23.9	20.0	-
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Silver	0.5 ug/g dry	<0.5	<0.5	<0.5	-
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Uranium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Vanadium	1.0 ug/g dry	55.9	43.0	30.8	-
Zinc	1.0 ug/g dry	67.7	53.4	57.5	-
Hydrocarbons					
F2 PHCs (C10-C16)	4 ug/g dry	-	-	<4	-
F3 PHCs (C16-C34)	8 ug/g dry	-	-	63	-
F4 PHCs (C34-C50)	6 ug/g dry	-	-	129	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	-	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	-	-	-
Anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	-	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	-	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Chrysene	0.02 ug/g dry	<0.02	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	-

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21320

Report Date: 20-Jan-2017

Order Date: 19-Jan-2017

Project Description: PE3937

	Client ID:	TP9 G2	TP10 G1	TP11 G1	-
	Sample Date:	18-Jan-17	18-Jan-17	18-Jan-17	-
	Sample ID:	1703420-05	1703420-06	1703420-07	-
	MDL/Units	Soil	Soil	Soil	-
Fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Fluorene	0.02 ug/g dry	<0.02	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	-
Naphthalene	0.01 ug/g dry	<0.01	-	-	-
Phenanthrene	0.02 ug/g dry	<0.02	-	-	-
Pyrene	0.02 ug/g dry	<0.02	-	-	-
2-Fluorobiphenyl	Surrogate	62.4%	-	-	-
Terphenyl-d14	Surrogate	105%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	1.0	ug/g						
Boron	ND	1.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	1.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	1.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	1.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.5	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	1.0	ug/g						
Zinc	ND	1.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.02*		*ug/g*		*76.2*	*50-140*			
Surrogate: Terphenyl-d14	*1.45*		*ug/g*		*108*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*3.49*		*ug/g*		*109*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Metals									
Antimony	ND	1.0	ug/g dry	ND				30	
Arsenic	ND	1.0	ug/g dry	ND				30	
Barium	273	10.0	ug/g dry	273			0.0	30	
Beryllium	ND	1.0	ug/g dry	ND			0.0	30	
Boron	10.2	1.0	ug/g dry	10.1			1.3	30	
Cadmium	ND	0.5	ug/g dry	ND				30	
Chromium	46.4	10.0	ug/g dry	46.4			0.0	30	
Cobalt	15.2	1.0	ug/g dry	15.2			0.0	30	
Copper	38.6	1.0	ug/g dry	37.6			2.5	30	
Lead	58.7	1.0	ug/g dry	71.1			19.1	30	
Molybdenum	ND	1.0	ug/g dry	ND			0.0	30	
Nickel	31.3	1.0	ug/g dry	31.5			0.8	30	
Selenium	ND	1.0	ug/g dry	ND			0.0	30	
Silver	ND	0.5	ug/g dry	ND			0.0	30	
Thallium	ND	1.0	ug/g dry	ND			0.0	30	
Uranium	ND	1.0	ug/g dry	ND				30	
Vanadium	66.0	1.0	ug/g dry	65.9			0.2	30	
Zinc	109	1.0	ug/g dry	108			0.7	30	
Physical Characteristics									
% Solids	72.7	0.1	% by Wt.	72.2			0.7	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				40	
Acenaphthylene	ND	0.02	ug/g dry	ND				40	
Anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND				40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND				40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND				40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND				40	
Chrysene	ND	0.02	ug/g dry	ND				40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				40	
Fluoranthene	ND	0.02	ug/g dry	ND				40	
Fluorene	ND	0.02	ug/g dry	ND				40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND				40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
Naphthalene	ND	0.01	ug/g dry	ND				40	
Phenanthrene	ND	0.02	ug/g dry	ND				40	
Pyrene	ND	0.02	ug/g dry	ND				40	
Surrogate: 2-Fluorobiphenyl	*1.06*		*ug/g dry*		*66.2*	*50-140*			
Surrogate: Terphenyl-d14	*1.51*		*ug/g dry*		*94.3*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: Toluene-d8	*2.69*		*ug/g dry*		*110*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	195	7	ug/g		97.4	80-120			
F2 PHCs (C10-C16)	125	4	ug/g	ND	94.4	60-140			
F3 PHCs (C16-C34)	249	8	ug/g	ND	90.8	60-140			
F4 PHCs (C34-C50)	175	6	ug/g	ND	95.5	60-140			
Metals									
Antimony	438		ug/L	ND	175	70-130			
Arsenic	336		ug/L	ND	134	70-130			
Barium	251		ug/L		100	70-130			
Beryllium	257		ug/L	4.64	101	70-130			
Boron	450		ug/L	202	99.1	70-130			
Cadmium	284		ug/L	ND	113	70-130			
Chromium	259		ug/L		104	70-130			
Cobalt	515		ug/L	304	84.5	70-130			
Copper	961		ug/L	753	83.1	70-130			
Lead	314		ug/L		126	70-130			
Molybdenum	230		ug/L	9.35	88.4	70-130			
Nickel	821		ug/L	630	76.1	70-130			
Selenium	224		ug/L	ND	89.8	70-130			
Silver	155		ug/L	0.97	61.8	70-130			QM-07
Thallium	187		ug/L		74.6	70-130			
Uranium	257		ug/L	ND	103	70-130			
Vanadium	1490		ug/L	1320	69.7	70-130			QM-07
Zinc	2280		ug/L	2170	45.5	70-130			QM-07
Semi-Volatiles									
Acenaphthene	0.190	0.02	ug/g	ND	95.2	50-140			
Acenaphthylene	0.175	0.02	ug/g	ND	87.5	50-140			
Anthracene	0.169	0.02	ug/g	ND	84.5	50-140			
Benzo [a] anthracene	0.171	0.02	ug/g	ND	85.6	50-140			
Benzo [a] pyrene	0.214	0.02	ug/g	ND	107	50-140			
Benzo [b] fluoranthene	0.227	0.02	ug/g	ND	113	50-140			
Benzo [g,h,i] perylene	0.174	0.02	ug/g	ND	87.0	50-140			
Benzo [k] fluoranthene	0.238	0.02	ug/g	ND	119	50-140			
Chrysene	0.192	0.02	ug/g	ND	96.2	50-140			
Dibenzo [a,h] anthracene	0.209	0.02	ug/g	ND	104	50-140			
Fluoranthene	0.190	0.02	ug/g	ND	95.1	50-140			
Fluorene	0.187	0.02	ug/g	ND	93.5	50-140			
Indeno [1,2,3-cd] pyrene	0.226	0.02	ug/g	ND	113	50-140			
1-Methylnaphthalene	0.151	0.02	ug/g	ND	75.4	50-140			
2-Methylnaphthalene	0.159	0.02	ug/g	ND	79.8	50-140			
Naphthalene	0.149	0.01	ug/g	ND	74.8	50-140			
Phenanthrene	0.161	0.02	ug/g	ND	80.8	50-140			
Pyrene	0.201	0.02	ug/g	ND	101	50-140			
Surrogate: 2-Fluorobiphenyl	*0.956*		*ug/g*		*59.8*	*50-140*			
Volatiles									
Benzene	3.77	0.02	ug/g		94.4	60-130			
Ethylbenzene	4.43	0.05	ug/g		111	60-130			
Toluene	3.92	0.05	ug/g		98.1	60-130			
m,p-Xylenes	8.59	0.05	ug/g		107	60-130			
o-Xylene	4.30	0.05	ug/g		108	60-130			

Qualifier Notes:

QC Qualifiers :

QM-07 : The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

QS-02 : Spike level outside of control limits. Analysis batch accepted based on other QC included in the batch.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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Chain of Custody
(Lab Use Only)

Page 1 of 1

Client Name:	Paterson Group	Project Reference:	PE3937
Contact Name:	Mark D'Arcy	Quote #	
Address:	154 Colonnade Rd. S.	PO #	21320
Telephone:	613-226-7381	Email Address:	MDarcy@Patersongroup.ca

Turnaround Time:
☒ 1 Day ☐ 3 Day
☐ 2 Day ☐ Regular
Date Required: _____

Criteria: ☒ O. Reg. 153/04 (As Amended) Table __ ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: _____ ☐ Other: _____

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

Paracel Order Number: 1703420.

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	PHCs (F2-F4)						
1	TP1 G1	S		2	18.Jan.17		X											120mL+Vial		
2	TP1 G3 (Hold)	S		1														120mL		
3	TP5 G1	S		1					X	X								250mL		
4	TP6 G1	S		1						X										
5	TP6 G2	S		1					X											
6	TP9 G2	S		1					X	X										
7	TP10 G1	S		1						X										
8	TP11 G1	S		1	▽					X				X				✓		
9																				
10																				

Comments: Hold TP1-G3

Method of Delivery: Paracel

Relinquished By (Sign):	Received by Driver/Depot: M. Jeause	Received at Lab: Rachel Subract	Verified By: Rachel Subract
Relinquished By (Print): Ryan Mathews	Date/Time: 19/01/17 4:05 PM	Date/Time: Jan 19/17	Date/Time: Jan 19/17
Date/Time: JAN 19, 2017 1 3pm	Temperature: ____ °C	Temperature: 15.8 °C 4:52	pH Verified ☒ By: N/A 5:11

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mark D'Arcy

Client PO: 21320
Project: PE3937
Custody:

Report Date: 23-Jan-2017
Order Date: 20-Jan-2017

Order #: 1703509

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1703509-01	TP1 G3

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21320

Report Date: 23-Jan-2017
Order Date: 20-Jan-2017
Project Description: PE3937

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	20-Jan-17	21-Jan-17
Solids, %	Gravimetric, calculation	21-Jan-17	21-Jan-17

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21320

Report Date: 23-Jan-2017

Order Date: 20-Jan-2017

Project Description: PE3937

	Client ID:	TP1 G3	-	-	-
	Sample Date:	18-Jan-17	-	-	-
	Sample ID:	1703509-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	88.2	-	-	-
Hydrocarbons					
F2 PHCs (C10-C16)	4 ug/g dry	<4	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	<8	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	<6	-	-	-

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21320

Report Date: 23-Jan-2017
Order Date: 20-Jan-2017
Project Description: PE3937

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21320

Report Date: 23-Jan-2017
Order Date: 20-Jan-2017
Project Description: PE3937

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F2 PHCs (C10-C16)	67	4	ug/g dry	71			6.8	30	
F3 PHCs (C16-C34)	54	8	ug/g dry	73			30.3	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	87.1	0.1	% by Wt.	88.2			1.3	25	

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21320

Report Date: 23-Jan-2017
Order Date: 20-Jan-2017
Project Description: PE3937

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F2 PHCs (C10-C16)	210	4	ug/g	71	127	60-140			
F3 PHCs (C16-C34)	327	8	ug/g	73	112	60-140			
F4 PHCs (C34-C50)	173	6	ug/g	ND	115	60-140			

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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Ottawa, Ontario K1G 4J8
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Chain of Custody (Lab Use Only)

Page 1 of 1

Client Name: Paterson Group	Project Reference: PE3937	Turnaround Time:	
Contact Name: Mark D'Arcy	Quote #:	☒ 1 Day	☐ 3 Day
Address: 154 Colonnade Rd. S.	PO #: 21320	☐ 2 Day	☐ Regular
Telephone: 613-226-1301	Email Address: MDarcy@Patersongroup.ca	Date Required:	

Criteria: ☒ O. Reg. 153/04 (As Amended) Table _ ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: _____ ☐ Other: _____

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

Paracel Order Number: 1703509. ~~1703420~~

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs (F1-BTEX)	VOCs	PAHs	Metals by ICP	HR	CrVI	B (HWS)	PHCs (F2-F4)	Revised Jan 2017 -RS.
1	TP1 G1	S		2	18-17		X								120mL+Vial.
2	TP1 G3 (Hold)	S		1										X	120mL
3	TP5 G1	S		1					X	X					250mL
4	TP6 G1	S		1						X					"
5	TP6 G2	S		1					X						"
6	TP9 G2	S		1					X	X					"
7	TP10 G1	S		1						X					"
8	TP11 G1	S		1	↓					X				X	✓
9															
10															

Comments: Hold TP1-G3

Method of Delivery: Paracel

Relinquished By (Sign): Ryan Matthews	Received by Driver/Depot: M. Tasse	Received at Lab: Rachel Subject	Verified By: Rachel Subject
Relinquished By (Print): Ryan Matthews	Date/Time: 19/01/17 4:05 PM	Date/Time: Jan 19 '17	Date/Time: Jan 19 '17
Date/Time: JAN 17, 2017 1 3pm	Temperature: °C	Temperature: 15.8°C 4:52	pH Verified ☒ By: N/A 5:11

Rachel Subject Jan 20 17. 4:43

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mark D'Arcy

Client PO: 21566
Project: PE3937
Custody: 31155

Report Date: 7-Feb-2017
Order Date: 2-Feb-2017

Order #: 1705341

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1705341-01	TP16-G1
1705341-02	TP17-G2
1705341-03	TP18-G1
1705341-04	TP19-G3
1705341-05	TP20-G2
1705341-06	TP21-G1
1705341-07	TP22-G1
1705341-08	TP23-G1

Approved By:



Mark Foto, M.Sc.
Lab Supervisor

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21566

Report Date: 07-Feb-2017
Order Date: 2-Feb-2017
Project Description: PE3937

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	3-Feb-17	5-Feb-17
PHC F1	CWS Tier 1 - P&T GC-FID	3-Feb-17	5-Feb-17
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	2-Feb-17	6-Feb-17
REG 153: Metals by ICP/OES, soil	based on MOE E3470, ICP-OES	6-Feb-17	6-Feb-17
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	3-Feb-17	4-Feb-17
Solids, %	Gravimetric, calculation	3-Feb-17	3-Feb-17

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21566

Report Date: 07-Feb-2017
Order Date: 2-Feb-2017
Project Description: PE3937

	Client ID:	TP16-G1	TP17-G2	TP18-G1	TP19-G3
	Sample Date:	01-Feb-17	01-Feb-17	01-Feb-17	01-Feb-17
	Sample ID:	1705341-01	1705341-02	1705341-03	1705341-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	91.3	92.7	80.2	74.8
Metals					
Antimony	1.0 ug/g dry	-	-	<1.0	-
Arsenic	1.0 ug/g dry	-	-	<1.0	-
Barium	1.0 ug/g dry	-	-	172	-
Beryllium	1.0 ug/g dry	-	-	<1.0	-
Boron	1.0 ug/g dry	-	-	11.3	-
Cadmium	0.5 ug/g dry	-	-	<0.5	-
Chromium	1.0 ug/g dry	-	-	17.9	-
Cobalt	1.0 ug/g dry	-	-	4.6	-
Copper	1.0 ug/g dry	-	-	15.6	-
Lead	1.0 ug/g dry	-	-	11.3	-
Molybdenum	1.0 ug/g dry	-	-	<1.0	-
Nickel	1.0 ug/g dry	-	-	11.0	-
Selenium	1.0 ug/g dry	-	-	<1.0	-
Silver	0.5 ug/g dry	-	-	<0.5	-
Thallium	1.0 ug/g dry	-	-	<1.0	-
Uranium	1.0 ug/g dry	-	-	<1.0	-
Vanadium	1.0 ug/g dry	-	-	21.6	-
Zinc	1.0 ug/g dry	-	-	47.2	-
Volatiles					
Benzene	0.02 ug/g dry	-	-	-	<0.02
Ethylbenzene	0.05 ug/g dry	-	-	-	<0.05
Toluene	0.05 ug/g dry	-	-	-	<0.05
m,p-Xylenes	0.05 ug/g dry	-	-	-	<0.05
o-Xylene	0.05 ug/g dry	-	-	-	<0.05
Xylenes, total	0.05 ug/g dry	-	-	-	<0.05
Toluene-d8	Surrogate	-	-	-	109%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	-	-	-	<7
F2 PHCs (C10-C16)	4 ug/g dry	13	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	55	28	51	<8
F4 PHCs (C34-C50)	6 ug/g dry	16	11	31	<6
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	-	-	-
Acenaphthylene	0.02 ug/g dry	<0.02	-	-	-

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21566

Report Date: 07-Feb-2017

Order Date: 2-Feb-2017

Project Description: PE3937

	Client ID:	TP16-G1	TP17-G2	TP18-G1	TP19-G3
	Sample Date:	01-Feb-17	01-Feb-17	01-Feb-17	01-Feb-17
	Sample ID:	1705341-01	1705341-02	1705341-03	1705341-04
	MDL/Units	Soil	Soil	Soil	Soil
Anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] anthracene	0.02 ug/g dry	<0.02	-	-	-
Benzo [a] pyrene	0.02 ug/g dry	<0.02	-	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	<0.02	-	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Chrysene	0.02 ug/g dry	<0.02	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	-
Fluoranthene	0.02 ug/g dry	<0.02	-	-	-
Fluorene	0.02 ug/g dry	<0.02	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	<0.02	-	-	-
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	-
Naphthalene	0.01 ug/g dry	<0.01	-	-	-
Phenanthrene	0.02 ug/g dry	<0.02	-	-	-
Pyrene	0.02 ug/g dry	<0.02	-	-	-
2-Fluorobiphenyl	Surrogate	58.2%	-	-	-
Terphenyl-d14	Surrogate	86.0%	-	-	-

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21566

Report Date: 07-Feb-2017
Order Date: 2-Feb-2017
Project Description: PE3937

	Client ID:	TP20-G2	TP21-G1	TP22-G1	TP23-G1
	Sample Date:	01-Feb-17	01-Feb-17	01-Feb-17	01-Feb-17
	Sample ID:	1705341-05	1705341-06	1705341-07	1705341-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	87.2	84.9	82.2	75.2
Metals					
Antimony	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Arsenic	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Barium	1.0 ug/g dry	-	141	122	64.4
Beryllium	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Boron	1.0 ug/g dry	-	11.1	5.5	14.1
Cadmium	0.5 ug/g dry	-	<0.5	<0.5	<0.5
Chromium	1.0 ug/g dry	-	31.5	47.7	14.0
Cobalt	1.0 ug/g dry	-	8.5	8.5	2.9
Copper	1.0 ug/g dry	-	30.9	23.9	14.8
Lead	1.0 ug/g dry	-	23.9	13.6	24.9
Molybdenum	1.0 ug/g dry	-	<1.0	<1.0	1.0
Nickel	1.0 ug/g dry	-	20.9	21.5	7.8
Selenium	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Silver	0.5 ug/g dry	-	<0.5	<0.5	<0.5
Thallium	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Uranium	1.0 ug/g dry	-	<1.0	<1.0	<1.0
Vanadium	1.0 ug/g dry	-	32.4	44.7	12.0
Zinc	1.0 ug/g dry	-	59.2	60.4	170
Hydrocarbons					
F2 PHCs (C10-C16)	4 ug/g dry	<4	5	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	314	72	56	133
F4 PHCs (C34-C50)	6 ug/g dry	591 [1]	92	46	106
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	0.02	0.30	-	<0.02
Acenaphthylene	0.02 ug/g dry	<0.02	0.03	-	<0.02
Anthracene	0.02 ug/g dry	0.04	0.70	-	<0.02
Benzo [a] anthracene	0.02 ug/g dry	0.15	1.69	-	<0.02
Benzo [a] pyrene	0.02 ug/g dry	0.19	1.85	-	<0.02
Benzo [b] fluoranthene	0.02 ug/g dry	0.21	1.95	-	<0.02
Benzo [g,h,i] perylene	0.02 ug/g dry	0.19	1.19	-	<0.02
Benzo [k] fluoranthene	0.02 ug/g dry	0.11	1.13	-	<0.02
Chrysene	0.02 ug/g dry	0.15	1.83	-	<0.02
Dibenzo [a,h] anthracene	0.02 ug/g dry	0.04	0.37	-	<0.02

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21566

Report Date: 07-Feb-2017

Order Date: 2-Feb-2017

Project Description: PE3937

	Client ID:	TP20-G2	TP21-G1	TP22-G1	TP23-G1
	Sample Date:	01-Feb-17	01-Feb-17	01-Feb-17	01-Feb-17
	Sample ID:	1705341-05	1705341-06	1705341-07	1705341-08
	MDL/Units	Soil	Soil	Soil	Soil
Fluoranthene	0.02 ug/g dry	0.40	4.24	-	<0.02
Fluorene	0.02 ug/g dry	0.03	0.32	-	<0.02
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.14	1.19	-	<0.02
1-Methylnaphthalene	0.02 ug/g dry	<0.02	0.05	-	<0.02
2-Methylnaphthalene	0.02 ug/g dry	<0.02	0.05	-	<0.02
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	0.11	-	<0.04
Naphthalene	0.01 ug/g dry	0.01	0.07	-	<0.01
Phenanthrene	0.02 ug/g dry	0.22	2.79	-	<0.02
Pyrene	0.02 ug/g dry	0.31	3.31	-	<0.02
2-Fluorobiphenyl	Surrogate	56.9%	56.3%	-	54.9%
Terphenyl-d14	Surrogate	74.3%	75.8%	-	76.9%

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Metals									
Antimony	ND	1.0	ug/g						
Arsenic	ND	1.0	ug/g						
Barium	ND	1.0	ug/g						
Beryllium	ND	1.0	ug/g						
Boron	ND	1.0	ug/g						
Cadmium	ND	0.5	ug/g						
Chromium	ND	1.0	ug/g						
Cobalt	ND	1.0	ug/g						
Copper	ND	1.0	ug/g						
Lead	ND	1.0	ug/g						
Molybdenum	ND	1.0	ug/g						
Nickel	ND	1.0	ug/g						
Selenium	ND	1.0	ug/g						
Silver	ND	0.5	ug/g						
Thallium	ND	1.0	ug/g						
Uranium	ND	1.0	ug/g						
Vanadium	ND	1.0	ug/g						
Zinc	ND	1.0	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*0.939*		*ug/g*		*70.4*	*50-140*			
Surrogate: Terphenyl-d14	*1.32*		*ug/g*		*98.7*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*3.80*		*ug/g*		*119*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Metals									
Antimony	ND	1.0	ug/g dry	ND			0.0	30	
Arsenic	ND	1.0	ug/g dry	ND				30	
Barium	50.3	1.0	ug/g dry	50.7			0.8	30	
Beryllium	ND	1.0	ug/g dry	ND			0.0	30	
Boron	7.40	1.0	ug/g dry	7.56			2.2	30	
Cadmium	ND	0.5	ug/g dry	ND			0.0	30	
Chromium	12.7	1.0	ug/g dry	12.5			1.5	30	
Cobalt	4.47	1.0	ug/g dry	4.53			1.3	30	
Copper	13.0	1.0	ug/g dry	11.4			13.0	30	
Lead	7.40	1.0	ug/g dry	8.38			12.4	30	
Molybdenum	ND	1.0	ug/g dry	ND			0.0	30	
Nickel	8.95	1.0	ug/g dry	9.22			3.0	30	
Selenium	ND	1.0	ug/g dry	ND			0.0	30	
Silver	ND	0.5	ug/g dry	ND			0.0	30	
Thallium	ND	1.0	ug/g dry	ND				30	
Uranium	ND	1.0	ug/g dry	ND				30	
Vanadium	21.4	1.0	ug/g dry	21.6			0.7	30	
Zinc	20.8	1.0	ug/g dry	21.9			5.4	30	
Physical Characteristics									
% Solids	89.0	0.1	% by Wt.	89.4			0.5	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				40	
Acenaphthylene	ND	0.02	ug/g dry	ND				40	
Anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND				40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND				40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND			0.0	40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND				40	
Chrysene	ND	0.02	ug/g dry	ND				40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				40	
Fluoranthene	ND	0.02	ug/g dry	ND			0.0	40	
Fluorene	ND	0.02	ug/g dry	ND				40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND			0.0	40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
Naphthalene	ND	0.01	ug/g dry	ND				40	
Phenanthrene	ND	0.02	ug/g dry	ND			0.0	40	
Pyrene	ND	0.02	ug/g dry	ND			0.0	40	
Surrogate: 2-Fluorobiphenyl	*0.999*		*ug/g dry*		*68.4*	*50-140*			
Surrogate: Terphenyl-d14	*1.28*		*ug/g dry*		*87.4*	*50-140*			
Volatiles									
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: Toluene-d8	*2.24*		*ug/g dry*		*117*	*50-140*			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21566

Report Date: 07-Feb-2017
Order Date: 2-Feb-2017
Project Description: PE3937

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	189	7	ug/g		94.5	80-120			
F2 PHCs (C10-C16)	132	4	ug/g	ND	128	60-140			
F3 PHCs (C16-C34)	295	8	ug/g	ND	138	60-140			
F4 PHCs (C34-C50)	193	6	ug/g	ND	135	60-140			
Metals									
Antimony	302		ug/L	15.9	115	70-130			
Arsenic	0.00		ug/L	ND		70-130			
Barium	1240		ug/L	1010	89.0	70-130			
Beryllium	272		ug/L	1.04	108	70-130			
Boron	418		ug/L	151	107	70-130			
Cadmium	267		ug/L	6.31	104	70-130			
Chromium	486		ug/L	250	94.3	70-130			
Cobalt	317		ug/L	90.5	90.5	70-130			
Copper	509		ug/L	227	113	70-130			
Lead	397		ug/L	168	91.8	70-130			
Molybdenum	241		ug/L	5.01	94.2	70-130			
Nickel	401		ug/L	184	86.6	70-130			
Selenium	274		ug/L	ND	110	70-130			
Silver	247		ug/L	ND	98.7	70-130			
Thallium	196		ug/L	ND	78.4	70-130			
Uranium	329		ug/L	ND	131	70-130			
Vanadium	667		ug/L	432	94.1	70-130			
Zinc	624		ug/L	438	74.1	70-130			
Semi-Volatiles									
Acenaphthene	0.170	0.02	ug/g	ND	93.4	50-140			
Acenaphthylene	0.157	0.02	ug/g	ND	86.2	50-140			
Anthracene	0.152	0.02	ug/g	ND	83.0	50-140			
Benzo [a] anthracene	0.163	0.02	ug/g	ND	89.3	50-140			
Benzo [a] pyrene	0.182	0.02	ug/g	ND	99.9	50-140			
Benzo [b] fluoranthene	0.208	0.02	ug/g	ND	114	50-140			
Benzo [g,h,i] perylene	0.185	0.02	ug/g	ND	101	50-140			
Benzo [k] fluoranthene	0.202	0.02	ug/g	ND	111	50-140			
Chrysene	0.175	0.02	ug/g	ND	95.6	50-140			
Dibenzo [a,h] anthracene	0.187	0.02	ug/g	ND	103	50-140			
Fluoranthene	0.185	0.02	ug/g	ND	101	50-140			
Fluorene	0.146	0.02	ug/g	ND	80.2	50-140			
Indeno [1,2,3-cd] pyrene	0.204	0.02	ug/g	ND	112	50-140			
1-Methylnaphthalene	0.198	0.02	ug/g	ND	108	50-140			
2-Methylnaphthalene	0.216	0.02	ug/g	ND	118	50-140			
Naphthalene	0.191	0.01	ug/g	ND	105	50-140			
Phenanthrene	0.145	0.02	ug/g	ND	79.2	50-140			
Pyrene	0.186	0.02	ug/g	ND	102	50-140			
Surrogate: 2-Fluorobiphenyl	*0.996*		*ug/g*		*68.2*	*50-140*			
Volatiles									
Benzene	5.16	0.02	ug/g		129	60-130			
Ethylbenzene	4.55	0.05	ug/g		114	60-130			
Toluene	4.02	0.05	ug/g		100	60-130			
m,p-Xylenes	8.74	0.05	ug/g		109	60-130			
o-Xylene	4.48	0.05	ug/g		112	60-130			

Qualifier Notes:

Sample Qualifiers :

1 : GC-FID signal did not return to baseline by C50

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

Paracel ID: 1705341

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Chain of Custody (Lab Use Only) № 31155

Page 1 of 1

Client Name: Paterson	Project Reference: PE3937	**Turnaround Time:**
Contact Name: Mark D'Arcy	Quote #:	☐ 1 Day ☑ 3 Day
Address:	PO #: 21566	☐ 2 Day ☐ Regular
Telephone: 226-7381	Email Address:	Date Required:

Criteria: ☑ O. Reg. 153/04 (As Amended) Table 1 ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: ☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Paracel Order Number: 1705341

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PAHs	F2-F4	Metals + ICP + Hg	13 PCB + F1-F4							Required Analyses
1	TP16-G1	S	-	1	Feb 1/17	11:00am	✓	✓									250mL
2	TP17-G2	"	"	"	"	11:20		✓									120mL
3	TP18-G1	"	"	"	"	11:40		✓	✓								250mL
4	TP19-G1 MISSING	"	"	"	"	11:55	✓	✓									
5	TP19-G3	"	"	"	"	11:55				✓							120+Vial
6	TP20-G2	"	"	"	"	12:15	✓	✓									250mL
7	TP21-G1	"	"	"	"	12:30	✓	✓	✓								↓
8	TP22-G1	"	"	"	"	12:45		✓	✓								
9	TP23-G1	"	"	"	1	1pm	✓	✓	✓								
10																	

Comments: Cancel Missing SAMPLE TP19-G1 NOW

Method of Delivery: Swift

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Mark D'Arcy	#1200	Rachel Subject	Rachel Subject
Relinquished By (Print):	Date/Time:	Date/Time: Feb 2/17	Date/Time: Feb 2/17
Date/Time: Feb 2 3pm	Temperature: °C	Temperature: 22.1 °C 3:36.	pH Verified ☐ By: N/A 5:01

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mark D'Arcy

Client PO: 21566
Project: PE3937
Custody: 31155

Report Date: 8-Feb-2017
Order Date: 7-Feb-2017

Order #: 1706130

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1706130-01	TP19-G1

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21566

Report Date: 08-Feb-2017
Order Date: 7-Feb-2017
Project Description: PE3937

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	7-Feb-17	7-Feb-17
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	6-Feb-17	8-Feb-17
Solids, %	Gravimetric, calculation	8-Feb-17	8-Feb-17

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21566

Report Date: 08-Feb-2017

Order Date: 7-Feb-2017

Project Description: PE3937

	Client ID:	TP19-G1	-	-	-
	Sample Date:	01-Feb-17	-	-	-
	Sample ID:	1706130-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	87.1	-	-	-
Hydrocarbons					
F2 PHCs (C10-C16)	4 ug/g dry	<200 [1]	-	-	-
F3 PHCs (C16-C34)	8 ug/g dry	1740	-	-	-
F4 PHCs (C34-C50)	6 ug/g dry	6330 [3]	-	-	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	9.70	-	-	-
Acenaphthylene	0.02 ug/g dry	0.85 [2]	-	-	-
Anthracene	0.02 ug/g dry	28.1	-	-	-
Benzo [a] anthracene	0.02 ug/g dry	40.7	-	-	-
Benzo [a] pyrene	0.02 ug/g dry	35.8	-	-	-
Benzo [b] fluoranthene	0.02 ug/g dry	39.8	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g dry	19.4	-	-	-
Benzo [k] fluoranthene	0.02 ug/g dry	23.3	-	-	-
Chrysene	0.02 ug/g dry	38.8	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	6.52	-	-	-
Fluoranthene	0.02 ug/g dry	116	-	-	-
Fluorene	0.02 ug/g dry	12.1	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	19.9	-	-	-
1-Methylnaphthalene	0.02 ug/g dry	2.02	-	-	-
2-Methylnaphthalene	0.02 ug/g dry	1.93	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g dry	3.95	-	-	-
Naphthalene	0.01 ug/g dry	3.49	-	-	-
Phenanthrene	0.02 ug/g dry	94.2	-	-	-
Pyrene	0.02 ug/g dry	86.9	-	-	-
2-Fluorobiphenyl	Surrogate	82.5%	-	-	-
Terphenyl-d14	Surrogate	77.3%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g						
Acenaphthylene	ND	0.02	ug/g						
Anthracene	ND	0.02	ug/g						
Benzo [a] anthracene	ND	0.02	ug/g						
Benzo [a] pyrene	ND	0.02	ug/g						
Benzo [b] fluoranthene	ND	0.02	ug/g						
Benzo [g,h,i] perylene	ND	0.02	ug/g						
Benzo [k] fluoranthene	ND	0.02	ug/g						
Chrysene	ND	0.02	ug/g						
Dibenzo [a,h] anthracene	ND	0.02	ug/g						
Fluoranthene	ND	0.02	ug/g						
Fluorene	ND	0.02	ug/g						
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g						
1-Methylnaphthalene	ND	0.02	ug/g						
2-Methylnaphthalene	ND	0.02	ug/g						
Methylnaphthalene (1&2)	ND	0.04	ug/g						
Naphthalene	ND	0.01	ug/g						
Phenanthrene	ND	0.02	ug/g						
Pyrene	ND	0.02	ug/g						
Surrogate: 2-Fluorobiphenyl	*1.08*		*ug/g*		*81.4*	*50-140*			
Surrogate: Terphenyl-d14	*1.22*		*ug/g*		*91.5*	*50-140*			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21566

Report Date: 08-Feb-2017
Order Date: 7-Feb-2017
Project Description: PE3937

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	75.5	0.1	% by Wt.	78.5			4.0	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g dry	ND				40	
Acenaphthylene	ND	0.02	ug/g dry	ND				40	
Anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] anthracene	ND	0.02	ug/g dry	ND				40	
Benzo [a] pyrene	ND	0.02	ug/g dry	ND				40	
Benzo [b] fluoranthene	ND	0.02	ug/g dry	ND				40	
Benzo [g,h,i] perylene	ND	0.02	ug/g dry	ND				40	
Benzo [k] fluoranthene	ND	0.02	ug/g dry	ND				40	
Chrysene	ND	0.02	ug/g dry	ND				40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g dry	ND				40	
Fluoranthene	ND	0.02	ug/g dry	ND				40	
Fluorene	ND	0.02	ug/g dry	ND				40	
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g dry	ND				40	
1-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
2-Methylnaphthalene	ND	0.02	ug/g dry	ND				40	
Naphthalene	ND	0.01	ug/g dry	ND				40	
Phenanthrene	ND	0.02	ug/g dry	ND				40	
Pyrene	ND	0.02	ug/g dry	ND			0.0	40	
Surrogate: 2-Fluorobiphenyl	*1.05*		*ug/g dry*		*39.8*	*50-140*			*S-04*
Surrogate: Terphenyl-d14	*2.35*		*ug/g dry*		*89.0*	*50-140*			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21566

Report Date: 08-Feb-2017
Order Date: 7-Feb-2017
Project Description: PE3937

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F2 PHCs (C10-C16)	99	4	ug/g	ND	99.6	60-140			
F3 PHCs (C16-C34)	234	8	ug/g	ND	114	60-140			
F4 PHCs (C34-C50)	152	6	ug/g	ND	111	60-140			
Semi-Volatiles									
Acenaphthene	0.301	0.02	ug/g	ND	91.1	50-140			
Acenaphthylene	0.259	0.02	ug/g	ND	78.4	50-140			
Anthracene	0.303	0.02	ug/g	ND	91.7	50-140			
Benzo [a] anthracene	0.258	0.02	ug/g	ND	78.1	50-140			
Benzo [a] pyrene	0.336	0.02	ug/g	ND	102	50-140			
Benzo [b] fluoranthene	0.307	0.02	ug/g	ND	92.9	50-140			
Benzo [g,h,i] perylene	0.336	0.02	ug/g	ND	102	50-140			
Benzo [k] fluoranthene	0.384	0.02	ug/g	ND	116	50-140			
Chrysene	0.308	0.02	ug/g	ND	93.1	50-140			
Dibenzo [a,h] anthracene	0.340	0.02	ug/g	ND	103	50-140			
Fluoranthene	0.290	0.02	ug/g	ND	87.6	50-140			
Fluorene	0.274	0.02	ug/g	ND	82.8	50-140			
Indeno [1,2,3-cd] pyrene	0.347	0.02	ug/g	ND	105	50-140			
1-Methylnaphthalene	0.248	0.02	ug/g	ND	75.2	50-140			
2-Methylnaphthalene	0.243	0.02	ug/g	ND	73.4	50-140			
Naphthalene	0.197	0.01	ug/g	ND	59.7	50-140			
Phenanthrene	0.257	0.02	ug/g	ND	77.9	50-140			
Pyrene	0.300	0.02	ug/g	ND	90.8	50-140			
Surrogate: 2-Fluorobiphenyl	*0.703*		*ug/g*		*26.6*	*50-140*			*S-04*

Qualifier Notes:

Sample Qualifiers :

1 : Elevated detection limit due to dilution required because of high target analyte concentration.

2 : Elevated detection limits due to the nature of the sample matrix.

3 : GC-FID signal did not return to baseline by C50

QC Qualifiers :

S-04 : The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

Paracel ID: 1706130

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Chain of Custody (Lab Use Only)
№ 31155

Page 1 of 1

Client Name: Rokesoy
Contact Name: Mark D'Arcy
Address:
Telephone: 226-7381

Project Reference: PE3931
Quote #:
PO #: 215660
Email Address:

Turnaround Time:
☐ 1 Day ☑ 3 Day
☐ 2 Day ☐ Regular
Date Required:

Criteria: O.Reg 153/04 (As Amended) Table 1 ☐ RSC Filing ☐ O.Reg 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality ☐ Other

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

Received Feb 7/17. -RS.

Paracel Order Number: 1706130. ~~1705341~~

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PAHs	Fr 1-4	Naphthalene	BTEX						
1	TP16-G1	S	-	1	Feb 1/17	11:00am	✓	✓								250mL
2	TP17-G2	"	"	"	"	11:20		✓	✓							125mL
3	TP18-G1	"	"	"	"	11:40		✓	✓							250mL
4	TP19-G1 Missing	"	"	"	"	11:55	✓	✓								250mL.
5	TP19-G3	"	"	"	"	11:55				✓						125mL Vial
6	TP20-G2	"	"	"	"	12:15	✓	✓								250mL
7	TP21-G1	"	"	"	"	12:30	✓	✓	✓							↓
8	TP22-G1	"	"	"	"	12:45	✓	✓	✓							
9	TP23-G1	"	"	"	1	1pm	✓	✓	✓							
10																

Comments: Cancel Missing Sample TP19-G1 Now

Method of Delivery: Staff

Rachel Subject Feb 7/17. 12:51.

Relinquished By (Sign):	Received by Driver/Depot:	Received at Lab:	Verified By:
Mark D'Arcy		Rachel Subject	Rachel Subject
Relinquished By (Print):	Date/Time:	Date/Time: Feb 2/17	Date/Time: Feb 2/17
Date/Time: Feb 1 3pm	Temperature: °C	Temperature: 22.1°C 3.36	pH Verified By: N/A

Chain of Custody (Blank) - Rev 0.4 Feb 2016

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mark D'Arcy

Client PO: 21484
Project: PE3937
Custody: 109838

Report Date: 7-Feb-2017
Order Date: 1-Feb-2017

Order #: 1705260

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1705260-01	BH1-SS2
1705260-02	BH3-SS5
1705260-03	BH5-AU1
1705260-04	BH5-SS4/5

Approved By: Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21484

Report Date: 07-Feb-2017
Order Date: 1-Feb-2017
Project Description: PE3937

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	3-Feb-17	4-Feb-17
PHC F1	CWS Tier 1 - P&T GC-FID	3-Feb-17	4-Feb-17
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	2-Feb-17	2-Feb-17
Solids, %	Gravimetric, calculation	2-Feb-17	2-Feb-17

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21484

Report Date: 07-Feb-2017

Order Date: 1-Feb-2017

Project Description: PE3937

	Client ID:	BH1-SS2	BH3-SS5	BH5-AU1	BH5-SS4/5
	Sample Date:	31-Jan-17	31-Jan-17	31-Jan-17	31-Jan-17
	Sample ID:	1705260-01	1705260-02	1705260-03	1705260-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	83.9	76.6	80.5	80.5
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	-	<0.02
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	-	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Toluene-d8	Surrogate	122%	117%	-	113%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	<7	<7	-	<7
F2 PHCs (C10-C16)	4 ug/g dry	<4	<4	<4	<4
F3 PHCs (C16-C34)	8 ug/g dry	<8	<8	149	<8
F4 PHCs (C34-C50)	6 ug/g dry	<6	<6	364 [1]	<6

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21484

Report Date: 07-Feb-2017
Order Date: 1-Feb-2017
Project Description: PE3937

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g						
F2 PHCs (C10-C16)	ND	4	ug/g						
F3 PHCs (C16-C34)	ND	8	ug/g						
F4 PHCs (C34-C50)	ND	6	ug/g						
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*3.80*		*ug/g*		*119*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND				30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND				30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND				30	
Physical Characteristics									
% Solids	76.2	0.1	% by Wt.	70.5			7.7	25	
Volatiles									
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: Toluene-d8	*2.24*		*ug/g dry*		*117*	*50-140*			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21484

Report Date: 07-Feb-2017
Order Date: 1-Feb-2017
Project Description: PE3937

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	189	7	ug/g		94.5	80-120			
F2 PHCs (C10-C16)	103	4	ug/g	ND	97.2	60-140			
F3 PHCs (C16-C34)	207	8	ug/g	ND	94.3	60-140			
F4 PHCs (C34-C50)	155	6	ug/g	ND	106	60-140			
Volatiles									
Benzene	5.16	0.02	ug/g		129	60-130			
Ethylbenzene	4.55	0.05	ug/g		114	60-130			
Toluene	4.02	0.05	ug/g		100	60-130			
m,p-Xylenes	8.74	0.05	ug/g		109	60-130			
o-Xylene	4.48	0.05	ug/g		112	60-130			
Surrogate: Toluene-d8	*2.83*		*ug/g*		*88.3*	*50-140*			

Qualifier Notes:

Sample Qualifiers :

1 : GC-FID signal did not return to baseline by C50

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

Paracel ID: 1705260

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Chain of Custody (Lab Use Only) № 109838

Page 1 of 1

Client Name: PATERSON GROUP INC.	Project Reference: PE3937		
Contact Name: MARK D'ARCY	Quote #		
Address: 154 COLONNADE ROAD SOUTH	PO #: 21484		
Telephone: 613 226 7381	Email Address: MDARCY@PATERSONGROUP.CA		

Turnaround Time: ☐ 1 Day ☐ 3 Day ☐ 2 Day ☒ Regular Date Required: _____

Criteria: ☒ O. Reg. 153/04 (As Amended) Table 3 ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: _____ ☐ Other: _____

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

Paracel Order Number: 1705260.

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	PHCs (F2-F4)						
1	BH1-SS2	S		2	Jan 31, 2017		X										120+Vial			
2	BH3-SS5	↓		2	↓		X										11			
3	BH5-All	↓		1	↓									X			120			
4	BH5-SS4/5	↓		2	↓		X										120+Vial			
5																				
6																				
7																				
8																				
9																				
10																				

Comments:

Method of Delivery: Paracel.

Relinquished By (Sign):	Received by Driver/Depot: T. Jewis	Received at Lab: Rachel Sibert	Verified By: Rachel Sibert
Relinquished By (Print): DEAN MacGILLIVRAY	Date/Time: 01/02/17 3:30 PM	Date/Time: Feb 1/17.	Date/Time: Feb 2/17.
Date/Time: Feb 1, 2017 9 AM	Temperature: _____ °C	Temperature: 14.5°C 5:04	pH Verified (X) By: N/A. 9:39

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mark D'Arcy

Client PO: 21606
Project: PE3937
Custody: 31157

Report Date: 7-Feb-2017
Order Date: 6-Feb-2017

Order #: 1706064

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1706064-01	BH1-GW1
1706064-02	BH2-GW1
1706064-03	BH3-GW1
1706064-04	BH4-GW1
1706064-05	BH5-GW1
1706064-06	BH6-GW1

Approved By:

Mark Foto, M.Sc.
Lab Supervisor

Any use of these results implies your agreement that our total liabilty in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21606

Report Date: 07-Feb-2017
Order Date: 6-Feb-2017
Project Description: PE3937

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	7-Feb-17	7-Feb-17
PHC F1	CWS Tier 1 - P&T GC-FID	6-Feb-17	7-Feb-17
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	6-Feb-17	6-Feb-17
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	6-Feb-17	7-Feb-17

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21606

Report Date: 07-Feb-2017

Order Date: 6-Feb-2017

Project Description: PE3937

	Client ID:	BH1-GW1	BH2-GW1	BH3-GW1	BH4-GW1
	Sample Date:	06-Feb-17	06-Feb-17	06-Feb-17	06-Feb-17
	Sample ID:	1706064-01	1706064-02	1706064-03	1706064-04
	MDL/Units	Ground Water	Ground Water	Ground Water	Ground Water
Volatiles					
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Toluene-d8	Surrogate	91.4%	90.6%	88.6%	91.2%
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	<100
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	<100
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100
F1 + F2 PHCs	125 ug/L	<125	<125	<125	<125
F3 + F4 PHCs	200 ug/L	<200	<200	<200	<200
Semi-Volatiles					
Acenaphthene	0.05 ug/L	-	-	<0.05	<0.05
Acenaphthylene	0.05 ug/L	-	-	<0.05	<0.05
Anthracene	0.01 ug/L	-	-	<0.01	<0.01
Benzo [a] anthracene	0.01 ug/L	-	-	<0.01	<0.01
Benzo [a] pyrene	0.01 ug/L	-	-	<0.01	<0.01
Benzo [b] fluoranthene	0.05 ug/L	-	-	<0.05	<0.05
Benzo [g,h,i] perylene	0.05 ug/L	-	-	<0.05	<0.05
Benzo [k] fluoranthene	0.05 ug/L	-	-	<0.05	<0.05
Chrysene	0.05 ug/L	-	-	<0.05	<0.05
Dibenzo [a,h] anthracene	0.05 ug/L	-	-	<0.05	<0.05
Fluoranthene	0.01 ug/L	-	-	<0.01	<0.01
Fluorene	0.05 ug/L	-	-	<0.05	<0.05
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	-	<0.05	<0.05
1-Methylnaphthalene	0.05 ug/L	-	-	<0.05	<0.05
2-Methylnaphthalene	0.05 ug/L	-	-	<0.05	<0.05
Methylnaphthalene (1&2)	0.10 ug/L	-	-	<0.10	<0.10
Naphthalene	0.05 ug/L	-	-	<0.05	<0.05
Phenanthrene	0.05 ug/L	-	-	<0.05	<0.05
Pyrene	0.01 ug/L	-	-	<0.01	<0.01
2-Fluorobiphenyl	Surrogate	-	-	93.9%	99.2%
Terphenyl-d14	Surrogate	-	-	121%	115%

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 21606

Report Date: 07-Feb-2017

Order Date: 6-Feb-2017

Project Description: PE3937

	Client ID:	BH5-GW1	BH6-GW1	-	-
	Sample Date:	06-Feb-17	06-Feb-17	-	-
	Sample ID:	1706064-05	1706064-06	-	-
	MDL/Units	Ground Water	Ground Water	-	-
Volatiles					
Benzene	0.5 ug/L	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-
Toluene-d8	Surrogate	89.0%	91.5%	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-
F1 + F2 PHCs	125 ug/L	<125	<125	-	-
F3 + F4 PHCs	200 ug/L	<200	<200	-	-
Semi-Volatiles					
Acenaphthene	0.05 ug/L	-	<0.05	-	-
Acenaphthylene	0.05 ug/L	-	<0.05	-	-
Anthracene	0.01 ug/L	-	<0.01	-	-
Benzo [a] anthracene	0.01 ug/L	-	<0.01	-	-
Benzo [a] pyrene	0.01 ug/L	-	<0.01	-	-
Benzo [b] fluoranthene	0.05 ug/L	-	<0.05	-	-
Benzo [g,h,i] perylene	0.05 ug/L	-	<0.05	-	-
Benzo [k] fluoranthene	0.05 ug/L	-	<0.05	-	-
Chrysene	0.05 ug/L	-	<0.05	-	-
Dibenzo [a,h] anthracene	0.05 ug/L	-	<0.05	-	-
Fluoranthene	0.01 ug/L	-	<0.01	-	-
Fluorene	0.05 ug/L	-	<0.05	-	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	<0.05	-	-
1-Methylnaphthalene	0.05 ug/L	-	<0.05	-	-
2-Methylnaphthalene	0.05 ug/L	-	<0.05	-	-
Methylnaphthalene (1&2)	0.10 ug/L	-	<0.10	-	-
Naphthalene	0.05 ug/L	-	<0.05	-	-
Phenanthrene	0.05 ug/L	-	<0.05	-	-
Pyrene	0.01 ug/L	-	<0.01	-	-
2-Fluorobiphenyl	Surrogate	-	94.6%	-	-

	Client ID:	BH5-GW1	BH6-GW1	-	-
	Sample Date:	06-Feb-17	06-Feb-17	-	-
	Sample ID:	1706064-05	1706064-06	-	-
	MDL/Units	Ground Water	Ground Water	-	-
Terphenyl-d14	Surrogate	-	119%	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L						
F2 PHCs (C10-C16)	ND	100	ug/L						
F3 PHCs (C16-C34)	ND	100	ug/L						
F4 PHCs (C34-C50)	ND	100	ug/L						
Semi-Volatiles									
Acenaphthene	ND	0.05	ug/L						
Acenaphthylene	ND	0.05	ug/L						
Anthracene	ND	0.01	ug/L						
Benzo [a] anthracene	ND	0.01	ug/L						
Benzo [a] pyrene	ND	0.01	ug/L						
Benzo [b] fluoranthene	ND	0.05	ug/L						
Benzo [g,h,i] perylene	ND	0.05	ug/L						
Benzo [k] fluoranthene	ND	0.05	ug/L						
Chrysene	ND	0.05	ug/L						
Dibenzo [a,h] anthracene	ND	0.05	ug/L						
Fluoranthene	ND	0.01	ug/L						
Fluorene	ND	0.05	ug/L						
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L						
1-Methylnaphthalene	ND	0.05	ug/L						
2-Methylnaphthalene	ND	0.05	ug/L						
Methylnaphthalene (1&2)	ND	0.10	ug/L						
Naphthalene	ND	0.05	ug/L						
Phenanthrene	ND	0.05	ug/L						
Pyrene	ND	0.01	ug/L						
Surrogate: 2-Fluorobiphenyl	*18.5*		*ug/L*		*92.7*	*50-140*			
Surrogate: Terphenyl-d14	*25.2*		*ug/L*		*126*	*50-140*			
Volatiles									
Benzene	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: Toluene-d8	*71.9*		*ug/L*		*89.9*	*50-140*			

Certificate of Analysis
Client: Paterson Group Consulting Engineers
Client PO: 21606

Report Date: 07-Feb-2017
Order Date: 6-Feb-2017
Project Description: PE3937

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND				30	
Volatiles									
Benzene	ND	0.5	ug/L	ND				30	
Ethylbenzene	ND	0.5	ug/L	ND				30	
Toluene	ND	0.5	ug/L	ND				30	
m,p-Xylenes	ND	0.5	ug/L	ND				30	
o-Xylene	ND	0.5	ug/L	ND				30	
Surrogate: Toluene-d8	*72.4*		*ug/L*		*90.4*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1940	25	ug/L		97.2	68-117			
F2 PHCs (C10-C16)	1600	100	ug/L		89.1	60-140			
F3 PHCs (C16-C34)	3670	100	ug/L		98.8	60-140			
F4 PHCs (C34-C50)	2660	100	ug/L		107	60-140			
Semi-Volatiles									
Acenaphthene	4.87	0.05	ug/L		97.4	50-140			
Acenaphthylene	4.51	0.05	ug/L		90.1	50-140			
Anthracene	4.30	0.01	ug/L		86.0	50-140			
Benzo [a] anthracene	3.51	0.01	ug/L		70.2	50-140			
Benzo [a] pyrene	4.81	0.01	ug/L		96.3	50-140			
Benzo [b] fluoranthene	4.61	0.05	ug/L		92.2	50-140			
Benzo [g,h,i] perylene	4.80	0.05	ug/L		96.0	50-140			
Benzo [k] fluoranthene	5.30	0.05	ug/L		106	50-140			
Chrysene	4.02	0.05	ug/L		80.4	50-140			
Dibenzo [a,h] anthracene	5.58	0.05	ug/L		112	50-140			
Fluoranthene	4.61	0.01	ug/L		92.1	50-140			
Fluorene	4.27	0.05	ug/L		85.5	50-140			
Indeno [1,2,3-cd] pyrene	5.47	0.05	ug/L		109	50-140			
1-Methylnaphthalene	4.35	0.05	ug/L		86.9	50-140			
2-Methylnaphthalene	4.59	0.05	ug/L		91.8	50-140			
Naphthalene	4.52	0.05	ug/L		90.3	50-140			
Phenanthrene	4.10	0.05	ug/L		82.0	50-140			
Pyrene	4.68	0.01	ug/L		93.6	50-140			
Surrogate: 2-Fluorobiphenyl	*17.7*		*ug/L*		*88.7*	*50-140*			
Volatiles									
Benzene	34.1	0.5	ug/L	ND	85.2	50-140			
Ethylbenzene	35.1	0.5	ug/L	ND	87.8	50-140			
Toluene	31.7	0.5	ug/L	ND	79.4	50-140			
m,p-Xylenes	66.8	0.5	ug/L	ND	83.5	50-140			
o-Xylene	34.8	0.5	ug/L	ND	87.0	50-140			

Qualifier Notes:

None

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

Paracel ID: 1706064

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Page 1 of 1

Client Name: Paterson Group.	Project Reference: PE3937
Contact Name: Mark D'Arcy	Quote #
Address: 154 Colonnade Rd. S.	PO # 21606
Telephone: 613-226-7381	Email Address: MDarcy@PatersonGroup.ca

Turnaround Time:
☒ 1 Day ☐ 3 Day
☐ 2 Day ☐ Regular
Date Required: _____

Criteria: ☒ O. Reg. 153/04 (As Amended) Table _ ☐ RSC Filing ☐ O. Reg. 558/00 ☐ PWQO ☐ CCME ☐ SUB (Storm) ☐ SUB (Sanitary) Municipality: _____ ☐ Other: _____

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analyses

	Paracel Order Number: 1706064 / Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHC's (F1-F4) + BTEX	PAH's
1	BH1-GW1	GW		3	Feb.6.17		X	
2	BH2-GW1	GW		3			X	
3	BH3-GW1	GW		4			X	X
4	BH4-GW1	GW		4			X	X
5	BH5-GW1	GW		3			X	
6	BH6-GW1	GW		4			X	X
7								
8								
9								
10								

Comments:

Method of Delivery: Walkin

Relinquished By (Sign): Ryan Mathesa	Received by Driver/Depot:	Received at Lab:	Verified By: Rachel Subject
Relinquished By (Print): Ryan Mathesa	Date/Time:	Date/Time: Feb 6/17	Date/Time: Feb 6 '17
Date/Time: Feb.6.17 / 2:20 pm	Temperature: ___ °C	Temperature: 7.4 °C 2.25p	All Verified [X] By: N/A 3:06

AGAT Laboratories

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

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Kathryn Maton

PROJECT: GW REM

AGAT WORK ORDER: 18Z305132

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jan 29, 2018

PAGES (INCLUDING COVER): 7

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 18Z305132

PROJECT: GW REM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLING SITE:3636 Innes Rd. Orleans

SAMPLED BY:K. Maton

O. Reg. 153(511) - BTEX (Water)

DATE RECEIVED: 2018-01-24

DATE REPORTED: 2018-01-29

				SAMPLE DESCRIPTION:	Trip Blank
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2018-01-23
Parameter	Unit	G / S	RDL		9028177
Benzene	µg/L	5.0	0.20		<0.20
Toluene	µg/L	24	0.20		<0.20
Ethylbenzene	µg/L	2.4	0.10		<0.10
m & p-Xylene	µg/L		0.20		<0.20
o-Xylene	µg/L		0.10		<0.10
Xylene Mixture	µg/L	300	0.20		<0.20
Surrogate	Unit	Acceptable Limits			
Toluene-d8	% Recovery	50-140			98
4-Bromofluorobenzene	% Recovery	50-140			92

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9028177 Results relate only to the items tested.
Dilution factor=
The sample was diluted to keep the target compounds in the calibration range of the instrument and avoid contaminating the Purge and Trap system. The method detection limit has been corrected for the dilution factor used.

Certified By: NPopnikolof

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 18Z305132

PROJECT: GW REM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLING SITE:3636 Innes Rd. Orleans

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-01-24

DATE REPORTED: 2018-01-29

		SAMPLE DESCRIPTION:		MW17-5	MW17-105
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2018-01-23	2018-01-23
Parameter	Unit	G / S	RDL	9028201	9028209
Benzene	µg/L	5.0	0.20	3.7	4.2
Toluene	µg/L	24	0.20	<0.20	<0.20
Ethylbenzene	µg/L	2.4	0.10	7.5	9.2
Xylene Mixture	µg/L	300	0.20	1.6	2.1
F1 (C6 to C10)	µg/L	750	25	150	160
F1 (C6 to C10) minus BTEX	µg/L	750	25	140	140
F2 (C10 to C16)	µg/L	150	100	130	130
F3 (C16 to C34)	µg/L	500	100	110	120
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		96	103

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9028201-9028209 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.
The chromatogram has returned to baseline by the retention time of nC50.
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 with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Certified By: N Popnikolof

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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http://www.agatlabs.com

Guideline Violation

AGAT WORK ORDER: 18Z305132

PROJECT: GW REM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9028201	MW17-5	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Ethylbenzene	µg/L	2.4	7.5
9028209	MW17-105	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Ethylbenzene	µg/L	2.4	9.2

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Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: GW REM
SAMPLING SITE:3636 Innes Rd. Orleans

AGAT WORK ORDER: 18Z305132
ATTENTION TO: Kathryn Maton
SAMPLED BY:K. Maton

Trace Organics Analysis

RPT Date: Jan 29, 2018			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
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	9026721		< 0.20	< 0.20	NA	< 0.20	70%	50%	140%	78%	60%	130%	73%	50%	140%
Toluene	9026721		< 0.20	< 0.20	NA	< 0.20	72%	50%	140%	78%	60%	130%	74%	50%	140%
Ethylbenzene	9026721		< 0.10	< 0.10	NA	< 0.10	75%	50%	140%	71%	60%	130%	77%	50%	140%
Xylene Mixture	9026721		< 0.20	< 0.20	NA	< 0.20	74%	50%	140%	74%	60%	130%	72%	50%	140%
F1 (C6 to C10)	9026721		< 25	< 25	NA	< 25	89%	60%	140%	87%	60%	140%	76%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	99%	60%	140%	75%	60%	140%	67%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	103%	60%	140%	94%	60%	140%	105%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	84%	60%	140%	85%	60%	140%	94%	60%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

O. Reg. 153(511) - BTEX (Water)															
Benzene	9022884		< 0.20	< 0.20	NA	< 0.20	87%	50%	140%	97%	60%	130%	72%	50%	140%
Toluene	9022884		< 0.20	< 0.20	NA	< 0.20	111%	50%	140%	120%	60%	130%	95%	50%	140%
Ethylbenzene	9022884		< 0.10	< 0.10	NA	< 0.10	106%	50%	140%	99%	60%	130%	96%	50%	140%
m & p-Xylene	9022884		< 0.20	< 0.20	NA	< 0.20	123%	50%	140%	112%	60%	130%	83%	50%	140%
o-Xylene	9022884		< 0.10	< 0.10	NA	< 0.10	130%	50%	140%	117%	60%	130%	90%	50%	140%

Certified By: N Popnikolof

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Results relate only to the items tested and to all the items tested

AGAT Laboratories

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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 18Z305132

PROJECT: GW REM

ATTENTION TO: Kathryn Maton

SAMPLING SITE:3636 Innes Rd. Orleans

SAMPLED BY:K. Maton

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Benzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Toluene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10)	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID

Results relate only to the items tested and to all the items tested

AGAT Laboratories

1 sm

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Mississauga, Ontario L4Z 1Y2
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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only
Work Order #: 1823051 32
Cooler Quantity: 1
Arrival Temperatures: 7.1 | 7.2 | 7.3
7.6 | 6.9 | 6.4
Custody Seal Intact: ☐ Yes ☐ No ☒ N/A
Notes: ice

Report Information:
Company: WSP Canada Inc.
Contact: Kathryn Maton
Address: 2611-Queensview Dr. Suite 300. Ottawa, ON K2B 0C1
Phone: 613-617-9237 Fax:
Reports to be sent to:
1. Email: Kathryn.maton@wsp.com
2. Email:

Regulatory Requirements:
☐ No Regulatory Requirement
(Please check all applicable boxes)

☒ Regulation 153/04 — Table 2 (Indicate One) ☐ Ind/Com ☒ Res/Park ☐ Agriculture
Soil Texture (Check One): ☒ Coarse ☐ Fine

☐ Sewer Use — ☐ Sanitary ☐ Storm — Region: (Indicate One)

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Turnaround Time (TAT) Required:
Regular TAT ☐ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☒ 3 Business Days ☐ 2 Business Days ☐ 1 Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

Project Information:
Project: GW Rem
Site Location: 3636 Innes Rd. Orleans
Sampled By: K. Maton
AGAT Quote #: PO: 18-17M-01348-00
Please note: if quotation number is not provided, client will be billed full price for analysis.

Invoice Information:
Bill To Same: Yes ☐ No ☐
Company: WSP Canada Inc.
Contact: Nate Payables
Address:
Email: payables.ontario@wsp.com

Sample Matrix Legend
B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐ B-HWS ☐ Cl⁻ ☐ CN⁻ ☐ EC ☐ FOC ☐ NO_3/NO_2 ☐ Total N ☐ Hg ☐ pH ☐ SAR	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3/NO_2	Volatiles: ☐ VOC ☒ BTEX ☐ THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use
Trip Blank	23/01/18		3	GW									X	X							
MW17-5	24/01/18	11pm	4	GW									X	X							
MW17-105	↓	↓	4	↓									X	X							

Samples Relinquished By (Print Name and Sign): Kathryn Maton — Date: 24/01/18 — Time: 13:16
Samples Received By (Print Name and Sign): Jeff Jones — Date: 24-Jan-18 — Time: 1330
Samples Relinquished By (Print Name and Sign): — Date: — Time:
Samples Received By (Print Name and Sign): — Date: — Time: 926
Page 1 of 1
N°: T 028836

Document ID: DW-19-1033
Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT
Date Issued: Feb 18, 2015

AGAT Laboratories

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CANADA L4Z 1Y2
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http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Kathryn Maton

PROJECT: GW Rem

AGAT WORK ORDER: 18Z310954

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Feb 16, 2018

PAGES (INCLUDING COVER): 7

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 18Z310954

PROJECT: GW Rem

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLING SITE:3636 Innes Rd., Orleans

SAMPLED BY:K. Maton

O. Reg. 153(511) - BTEX (Water)

DATE RECEIVED: 2018-02-13

DATE REPORTED: 2018-02-16

		SAMPLE DESCRIPTION:		Trip Blank
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2018-02-09
Parameter	Unit	G / S	RDL	9064404
Benzene	µg/L	5.0	0.20	<0.20
Toluene	µg/L	24	0.20	<0.20
Ethylbenzene	µg/L	2.4	0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20
o-Xylene	µg/L		0.10	<0.10
Xylene Mixture	µg/L	300	0.20	<0.20
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		71
4-Bromofluorobenzene	% Recovery	50-140		96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9064404 Results relate only to the items tested.
Dilution factor=
The sample was diluted to keep the target compounds in the calibration range of the instrument and avoid contaminating the Purge and Trap system. The method detection limit has been corrected for the dilution factor used.

Certified By: N Popnikolof

Results relate only to the items tested and to all the items tested

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Certificate of Analysis

AGAT WORK ORDER: 18Z310954

PROJECT: GW Rem

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLING SITE:3636 Innes Rd., Orleans

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-02-13

DATE REPORTED: 2018-02-16

		SAMPLE DESCRIPTION:		MW17-5	MW17-105-2
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2018-02-13	2018-02-13
Parameter	Unit	G / S	RDL	9064406	9064409
Benzene	µg/L	5.0	0.20	2.3	2.4
Toluene	µg/L	24	0.20	<0.20	<0.20
Ethylbenzene	µg/L	2.4	0.10	5.6	5.8
Xylene Mixture	µg/L	300	0.20	1.8	1.9
F1 (C6 to C10)	µg/L	750	25	120	120
F1 (C6 to C10) minus BTEX	µg/L	750	25	110	110
F2 (C10 to C16)	µg/L	150	100	130	130
F3 (C16 to C34)	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		78	82

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9064406-9064409 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.
The chromatogram has returned to baseline by the retention time of nC50.
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 with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Certified By: N Popnikolof

Results relate only to the items tested and to all the items tested

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http://www.agatlabs.com

Guideline Violation

AGAT WORK ORDER: 18Z310954

PROJECT: GW Rem

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9064406	MW17-5	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Ethylbenzene	µg/L	2.4	5.6
9064409	MW17-105-2	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Ethylbenzene	µg/L	2.4	5.8

Results relate only to the items tested and to all the items tested

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Quality Assurance

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 18Z310954

PROJECT: GW Rem

ATTENTION TO: Kathryn Maton

SAMPLING SITE:3636 Innes Rd., Orleans

SAMPLED BY:K. Maton

Trace Organics Analysis

RPT Date: Feb 16, 2018			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
O. Reg. 153(511) - BTEX (Water)															
Benzene	9052821		< 0.20	< 0.20	NA	< 0.20	72%	50%	140%	74%	60%	130%	72%	50%	140%
Toluene	9052821		< 0.20	< 0.20	NA	< 0.20	75%	50%	140%	80%	60%	130%	97%	50%	140%
Ethylbenzene	9052821		< 0.10	< 0.10	NA	< 0.10	75%	50%	140%	74%	60%	130%	75%	50%	140%
m & p-Xylene	9052821		< 0.20	< 0.20	NA	< 0.20	73%	50%	140%	70%	60%	130%	89%	50%	140%
o-Xylene	9052821		< 0.10	< 0.10	NA	< 0.10	77%	50%	140%	75%	60%	130%	93%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	9057505		< 0.20	< 0.20	NA	< 0.20	107%	50%	140%	94%	60%	130%	115%	50%	140%
Toluene	9057505		< 0.20	< 0.20	NA	< 0.20	106%	50%	140%	94%	60%	130%	116%	50%	140%
Ethylbenzene	9057505		< 0.10	< 0.10	NA	< 0.10	108%	50%	140%	95%	60%	130%	113%	50%	140%
Xylene Mixture	9057505		< 0.20	< 0.20	NA	< 0.20	106%	50%	140%	96%	60%	130%	110%	50%	140%
F1 (C6 to C10)	9057505		< 25	< 25	NA	< 25	89%	60%	140%	93%	60%	140%	95%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	101%	60%	140%	63%	60%	140%	73%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	106%	60%	140%	93%	60%	140%	118%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	82%	60%	140%	92%	60%	140%	67%	60%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popnikolof

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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 18Z310954

PROJECT: GW Rem

ATTENTION TO: Kathryn Maton

SAMPLING SITE:3636 Innes Rd., Orleans

SAMPLED BY:K. Maton

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Benzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Toluene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10)	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 18Z310954

Cooler Quantity: one on ice

Arrival Temperatures: 5.6 | 5.7 | 5.7

LT - 4.3 | 4.1 | 4.0

Custody Seal Intact: ☐ Yes ☐ No ☒ N/A

Notes:

Report Information:

Company: WSP Canada Inc.
Contact: Kathryn Maton
Address: 2611 Queensview Drive, Suite 300
Ottawa, ON K2B 0C1
Phone: 613-617-9237 Fax:
Reports to be sent to:
1. Email: Kathryn.Maton@wsp.com
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 2 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (Check One)
☒ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☒ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: GWRem
Site Location: 3636 Innes Rd, Orleans
Sampled By: K. Maton
AGAT Quote #: PO: 17M-01348-CC, GWREM

Please note: If quotation number is not provided, clients will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company: WSP Canada
Contact: Payables
Address:
Email: Payables.Ontario@wsp.com

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (incl. Hydrides); ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR; Full Metals Scan; Regulation/Custom Metals; Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_2 ☐ NO_3 ☐ NO_2+NO_3; Volatiles: ☐ VOC ☒ BTEX ☐ THM; PHCs F1 - F4; ABNs; PAHs; PCBs: ☐ Total ☐ Aroclors; Organochlorine Pesticides; TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs; Sewer Use
Trip Blank	9-02-18			GW			Volatiles: X
MW17-5	13-02-18	12:00	4	GW			Volatiles: X; PHCs F1 - F4: X
MW17-105-2	13-02-18	12:00	4	GW			Volatiles: X; PHCs F1 - F4: X

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Kathryn Maton	13/02/18	13:00	CBerthelet	13-Feb-18	13h19
UPS/TOI to FedEx	13-Feb-18	16h00	Shermin SS	Feb 14/18	9:00a
Samples Relinquished By (Print Name and Sign):	Date	Time			

Page 1 of 1

N°: T 066925

Document ID: DIV 78-152-1-014

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

Date Issued: January 22, 2017

AGAT Laboratories

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

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Kathryn Maton

PROJECT: GWREM

AGAT WORK ORDER: 18Z315552

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Mar 05, 2018

PAGES (INCLUDING COVER): 7

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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MISSISSAUGA, ONTARIO
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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 18Z315552

PROJECT: GWREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - BTEX (Water)

DATE RECEIVED: 2018-02-27

DATE REPORTED: 2018-03-05

		SAMPLE DESCRIPTION:		Trip Blank
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2018-02-02
Parameter	Unit	G / S	RDL	9092309
Benzene	µg/L	5.0	0.20	<0.20
Toluene	µg/L	24	0.20	<0.20
Ethylbenzene	µg/L	2.4	0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20
o-Xylene	µg/L		0.10	<0.10
Xylene Mixture	µg/L	300	0.20	<0.20
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		96
4-Bromofluorobenzene	% Recovery	50-140		98

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9092309 Results relate only to the items tested.

Certified By: N Popnikolof

Results relate only to the items tested and to all the items tested

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Certificate of Analysis

AGAT WORK ORDER: 18Z315552

PROJECT: GWREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-02-27

DATE REPORTED: 2018-03-05

		SAMPLE DESCRIPTION:		MW17-5	MW17-105-3
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2018-02-27	2018-02-27
Parameter	Unit	G / S	RDL	9092310	9092429
Benzene	µg/L	5.0	0.20	5.0	5.6
Toluene	µg/L	24	0.20	0.23	0.22
Ethylbenzene	µg/L	2.4	0.10	14	15
Xylene Mixture	µg/L	300	0.20	3.7	3.6
F1 (C6 to C10)	µg/L	750	25	120	120
F1 (C6 to C10) minus BTEX	µg/L	750	25	97	100
F2 (C10 to C16)	µg/L	150	100	110	130
F3 (C16 to C34)	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		86	83

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9092310-9092429 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.
The chromatogram has returned to baseline by the retention time of nC50.
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 with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Certified By: N Popnikolof

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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http://www.agatlabs.com

Guideline Violation

AGAT WORK ORDER: 18Z315552

PROJECT: GWREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9092310	MW17-5	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Ethylbenzene	µg/L	2.4	14
9092429	MW17-105-3	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Benzene	µg/L	5.0	5.6
9092429	MW17-105-3	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Ethylbenzene	µg/L	2.4	15

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CANADA L4Z 1Y2
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http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 18Z315552

PROJECT: GWREM

ATTENTION TO: Kathryn Maton

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Mar 05, 2018			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
O. Reg. 153(511) - BTEX (Water)															
Benzene	9092559		< 0.20	< 0.20	NA	< 0.20	73%	50%	140%	85%	60%	130%	95%	50%	140%
Toluene	9092559		< 0.20	< 0.20	NA	< 0.20	74%	50%	140%	94%	60%	130%	102%	50%	140%
Ethylbenzene	9092559		< 0.10	< 0.10	NA	< 0.10	71%	50%	140%	93%	60%	130%	99%	50%	140%
m & p-Xylene	9092559		< 0.20	< 0.20	NA	< 0.20	83%	50%	140%	103%	60%	130%	111%	50%	140%
o-Xylene	9092559		< 0.10	< 0.10	NA	< 0.10	92%	50%	140%	109%	60%	130%	93%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	9094041		< 0.20	< 0.20	NA	< 0.20	89%	50%	140%	104%	60%	130%	110%	50%	140%
Toluene	9094041		< 0.20	< 0.20	NA	< 0.20	80%	50%	140%	98%	60%	130%	100%	50%	140%
Ethylbenzene	9094041		< 0.10	< 0.10	NA	< 0.10	88%	50%	140%	101%	60%	130%	114%	50%	140%
Xylene Mixture	9094041		< 0.20	< 0.20	NA	< 0.20	79%	50%	140%	96%	60%	130%	114%	50%	140%
F1 (C6 to C10)	9094041		< 25	< 25	NA	< 25	84%	60%	140%	110%	60%	140%	96%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	109%	60%	140%	63%	60%	140%	71%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	110%	60%	140%	67%	60%	140%	73%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	93%	60%	140%	66%	60%	140%	68%	60%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:



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http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 18Z315552

PROJECT: GWREM

ATTENTION TO: Kathryn Maton

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Benzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Toluene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10)	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID

Results relate only to the items tested and to all the items tested

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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only
Work Order #: 18T315552
Cooler Quantity: one-on ice
Arrival Temperatures: 2.6 | 2.1 | 3.1 / 4.6 5 5.1
Custody Seal Intact: ☒ Yes ☐ No ☐ N/A
Notes: on ice

Report Information:
Company: WSP Canada Inc.
Contact: Kathryn Maton
Address: 300-2611 Queensview Dr. Ottawa ON K2B 8K2
Phone: 613-617-9237 Fax:
Reports to be sent to:
1. Email: kathryn.maton@wsp.com
2. Email:

Project Information:
Project: GWREM.
Site Location: 3636 Innes Rd.
Sampled By: K Maton
AGAT Quote #: PO: 17M-01348-00
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:
Bill To Same: Yes ☐ No ☒
Company: WSP Canada Inc.
Contact: Payables Oakville ON
Address:
Email: Ontario.payables@wsp.com

Regulatory Requirements:
☐ No Regulatory Requirement
(Please check all applicable boxes)

☒ Regulation 153/04
Table 2 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (Check One)
☒ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region _____ (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Turnaround Time (TAT) Required:
Regular TAT ☐ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☒ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*
For 'Same Day' analysis, please contact your AGAT CPM

Sample Matrix Legend
B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI Y/N	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (incl. Hydrides))	O. Reg 153: ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	O. Reg 153: Full Metals Scan	O. Reg 153: Regulation/Custom Metals	O. Reg 153: Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	O. Reg 153: Volatiles: ☐ VOC ☒ BTEX ☐ THM	O. Reg 153: PHCs F1 - F4	O. Reg 153: ABNs	O. Reg 153: PAHs	O. Reg 153: PCBs: ☐ Total ☐ Aroclors	O. Reg 153: Organochlorine Pesticides	O. Reg 153: TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 153: Sewer Use
Trip Blank	27/02/18		3	GW		N						X						
MW17-5	27/02/18	11:2m	4	↓		↓						X	X					
MW17-105-3	↓	11:2m	4	↓		↓						X	X					

Samples Relinquished By (Print Name and Sign): K Maton
Date: 27/02/18 Time: 5:30pm
Samples Received By (Print Name and Sign): [illegible]
Date: 28-Feb-18 Time: 8:32
Samples Relinquished By (Print Name and Sign): GIO to FedEx
Date: 28-Feb-18 Time: 10:00
Samples Received By (Print Name and Sign): Sima
Date: 18/3/1 Time: 10:05
Samples Relinquished By (Print Name and Sign):
Date: Time:
Samples Received By (Print Name and Sign):
Date: Time:

Page 1 of 1
No: T 063291

Document ID: 131778-2611-013

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AGAT Laboratories

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TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Kathryn Maton

PROJECT: 17M-01348-00-GW REM

AGAT WORK ORDER: 18Z319613

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Mar 16, 2018

PAGES (INCLUDING COVER): 7

VERSION*: 1

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

*NOTES

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AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 18Z319613

PROJECT: 17M-01348-00-GW REM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLING SITE:

SAMPLED BY:K.Maton

O. Reg. 153(511) - BTEX (Water)

DATE RECEIVED: 2018-03-13

DATE REPORTED: 2018-03-16

				SAMPLE DESCRIPTION:	Trip Blank
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2018-03-07
Parameter	Unit	G / S	RDL		9121745
Benzene	µg/L	5.0	0.20		<0.20
Toluene	µg/L	24	0.20		<0.20
Ethylbenzene	µg/L	2.4	0.10		<0.10
m & p-Xylene	µg/L		0.20		<0.20
o-Xylene	µg/L		0.10		<0.10
Xylene Mixture	µg/L	300	0.20		<0.20
Surrogate	Unit	Acceptable Limits			
Toluene-d8	% Recovery	50-140			101
4-Bromofluorobenzene	% Recovery	50-140			84

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9121745 Results relate only to the items tested.
Dilution factor=
The sample was diluted to keep the target compounds in the calibration range of the instrument and avoid contaminating the Purge and Trap system. The method detection limit has been corrected for the dilution factor used.

Certified By: N Popnikolof

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 COOPERS AVENUE
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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 18Z319613

PROJECT: 17M-01348-00-GW REM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLING SITE:

SAMPLED BY:K.Maton

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

DATE RECEIVED: 2018-03-13

DATE REPORTED: 2018-03-16

		SAMPLE DESCRIPTION:		MW17-5	MW17-105-4
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2018-03-13	2018-03-13
Parameter	Unit	G / S	RDL	9121705	9121707
Benzene	µg/L	5.0	0.20	10	11
Toluene	µg/L	24	0.20	0.89	0.89
Ethylbenzene	µg/L	2.4	0.10	24	24
Xylene Mixture	µg/L	300	0.20	8.4	8.4
F1 (C6 to C10)	µg/L	750	25	270	270
F1 (C6 to C10) minus BTEX	µg/L	750	25	230	230
F2 (C10 to C16)	µg/L	150	100	190	200
F3 (C16 to C34)	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		93	90

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9121705-9121707 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.
The chromatogram has returned to baseline by the retention time of nC50.
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 with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Certified By: N Popnikolof

Results relate only to the items tested and to all the items tested

AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 18Z319613

PROJECT: 17M-01348-00-GW REM

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CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9121705	MW17-5	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Benzene	µg/L	5.0	10
9121705	MW17-5	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Ethylbenzene	µg/L	2.4	24
9121705	MW17-5	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	F2 (C10 to C16)	µg/L	150	190
9121707	MW17-105-4	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Benzene	µg/L	5.0	11
9121707	MW17-105-4	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Ethylbenzene	µg/L	2.4	24
9121707	MW17-105-4	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	F2 (C10 to C16)	µg/L	150	200

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Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 17M-01348-00-GW REM
SAMPLING SITE:

AGAT WORK ORDER: 18Z319613
ATTENTION TO: Kathryn Maton
SAMPLED BY:K.Maton

Trace Organics Analysis

RPT Date: Mar 16, 2018			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
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	9121367		< 0.20	< 0.20	NA	< 0.20	102%	50%	140%	101%	60%	130%	95%	50%	140%
Toluene	9121367		< 0.20	< 0.20	NA	< 0.20	88%	50%	140%	105%	60%	130%	97%	50%	140%
Ethylbenzene	9121367		< 0.10	< 0.10	NA	< 0.10	86%	50%	140%	99%	60%	130%	104%	50%	140%
Xylene Mixture	9121367		< 0.20	< 0.20	NA	< 0.20	88%	50%	140%	95%	60%	130%	111%	50%	140%
F1 (C6 to C10)	9121367		< 25	< 25	NA	< 25	86%	60%	140%	88%	60%	140%	81%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	107%	60%	140%	63%	60%	140%	60%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	110%	60%	140%	82%	60%	140%	79%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	82%	60%	140%	86%	60%	140%	91%	60%	140%
O. Reg. 153(511) - BTEX (Water)															
Benzene	9112375		< 0.20	< 0.20	NA	< 0.20	77%	50%	140%	86%	60%	130%	90%	50%	140%
Toluene	9112375		< 0.20	< 0.20	NA	< 0.20	91%	50%	140%	114%	60%	130%	83%	50%	140%
Ethylbenzene	9112375		< 0.10	< 0.10	NA	< 0.10	70%	50%	140%	97%	60%	130%	99%	50%	140%
m & p-Xylene	9112375		< 0.20	< 0.20	NA	< 0.20	83%	50%	140%	108%	60%	130%	77%	50%	140%
o-Xylene	9112375		< 0.10	< 0.10	NA	< 0.10	87%	50%	140%	112%	60%	130%	79%	50%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popnikolof

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 18Z319613

PROJECT: 17M-01348-00-GW REM

ATTENTION TO: Kathryn Maton

SAMPLING SITE:

SAMPLED BY:K.Maton

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Benzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Toluene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10)	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only
Work Order #: 1873196 13
Cooler Quantity: one-on ice.
Arrival Temperatures: 5.1 | 4.7 | 4.8
CT- 3.6 | 4.0 | 4.2
Custody Seal Intact: ☐ Yes ☐ No ☒ N/A
Notes:

Report Information:
Company: WSP Canada Inc.
Contact: Kathryn Maton
Address: 300-2611 Queensview Dr.
Ottawa, ON K2B 8K2
Phone: 613-617-9237 Fax:
Reports to be sent to:
1. Email: Kathryn.maton@gmail.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)
☒ Regulation 153/04 — Table 2 (Indicate One) — ☐ Ind/Com ☒ Res/Park ☐ Agriculture
Soil Texture (Check One) ☒ Coarse ☐ Fine
☐ Sewer Use — ☐ Sanitary ☐ Storm — Region ____ (Indicate One) — ☐ MISA
☐ Regulation 558 ☐ CCME ☐ Prov. Water Quality Objectives (PWQO) ☐ Other ____ (Indicate One)

Is this submission for a Record of Site Condition? ☒ Yes ☐ No
Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:
Regular TAT ☒ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☒ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply): RUSH!!
Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays
For 'Same Day' analysis, please contact your AGAT CPM

Project Information:
Project: GW REM
Site Location:
Sampled By: K. Maton
AGAT Quote #: PO: 17M-01348-00
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information: Bill To Same: Yes ☐ No ☒
Company: WSP Canada Inc
Contact: Payables Oakville, ON
Address:
Email: Ontario.Payables@wsp.com

Sample Matrix Legend
B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (incl. Hydrides))	O. Reg 153: ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	O. Reg 153: Full Metals Scan	O. Reg 153: Regulation/Custom Metals	O. Reg 153: Nutrients: ☐ TP ☐ NH₄ ☐ TKN ☐ NO₃ ☐ NO₂ ☐ NO₃+NO₂	O. Reg 153: Volatiles: ☐ VOC ☒ BTEX ☐ THM	O. Reg 153: PHCs F1 - F4	O. Reg 153: ABNs	O. Reg 153: PAHs	O. Reg 153: PCBs: ☐ Total ☐ Aroclors	O. Reg 153: Organochlorine Pesticides	O. Reg 153: TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 153: Sewer Use
MW17-5	13/03/18	2pm	4	GW								X	X						
MW17-105-4	↓	↓	↓	↓								X	X						
Trip Blank	7/03/18		3	GW								X							

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
K Maton K Maton (COD) to FedEx	13/03/18	2:52 pm	C Berthelet	13-Mar-18	14h50
Samples Relinquished By (Print Name and Sign)	13-Mar-18	16h00			
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign): Shaumin	mar 14/18	9:00am

Page 1 of 1
No: T 067884

Document ID: DW 78-1511-014
Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT
Date Revised: February 22, 2017

AGAT Laboratories

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http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Kathryn Maton

PROJECT: GWREM

AGAT WORK ORDER: 18Z324250

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Apr 03, 2018

PAGES (INCLUDING COVER): 7

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 18Z324250

PROJECT: GWREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLING SITE:3636 Innes Rd. Orleans

SAMPLED BY:

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

DATE RECEIVED: 2018-03-28

DATE REPORTED: 2018-04-03

		SAMPLE DESCRIPTION:		MW17-5	MW17-105-5
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2018-03-28	2018-03-28
Parameter	Unit	G / S	RDL	9153939	9153942
Benzene	µg/L	5.0	0.20	14	13
Toluene	µg/L	24	0.20	0.82	0.92
Ethylbenzene	µg/L	2.4	0.10	24	23
Xylene Mixture	µg/L	300	0.20	8	8
F1 (C6 to C10)	µg/L	750	25	200	180
F1 (C6 to C10) minus BTEX	µg/L	750	25	150	140
F2 (C10 to C16)	µg/L	150	100	120	120
F3 (C16 to C34)	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		88	99

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9153939-9153942 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.
The chromatogram has returned to baseline by the retention time of nC50.
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 with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Certified By: N Popnikolof

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 18Z324250

PROJECT: GWREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLING SITE:3636 Innes Rd. Orleans

SAMPLED BY:

O. Reg. 153(511) - PHCs F1/BTEX (Water)

DATE RECEIVED: 2018-03-28

DATE REPORTED: 2018-04-03

		SAMPLE DESCRIPTION:		TRIP BLANK
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2018-03-07
Parameter	Unit	G / S	RDL	9153944
Benzene	µg/L	5.0	0.20	<0.20
Toluene	µg/L	24	0.20	<0.20
Ethylbenzene	µg/L	2.4	0.10	<0.10
Xylene Mixture	µg/L	300	0.20	<0.20
F1 (C6 to C10)	µg/L	750	25	<25
F1 (C6 to C10) minus BTEX	µg/L	750	25	<25

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9153944 The C6-C10 fraction is calculated using Toluene response factor.
Total C6-C10 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.
Extraction and holding times were met for this sample.
NA = Not Applicable

Certified By: NPopnikolof

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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Guideline Violation

AGAT WORK ORDER: 18Z324250

PROJECT: GWREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9153939	MW17-5	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Benzene	µg/L	5.0	14
9153939	MW17-5	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Ethylbenzene	µg/L	2.4	24
9153942	MW17-105-5	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Benzene	µg/L	5.0	13
9153942	MW17-105-5	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Ethylbenzene	µg/L	2.4	23

Results relate only to the items tested and to all the items tested

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Quality Assurance

CLIENT NAME: WSP CANADA INC
AGAT WORK ORDER: 18Z324250
PROJECT: GWREM
ATTENTION TO: Kathryn Maton
SAMPLING SITE:3636 Innes Rd. Orleans
SAMPLED BY:

Trace Organics Analysis

RPT Date: Apr 03, 2018			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
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	9146705		< 0.20	< 0.20	NA	< 0.20	85%	50%	140%	96%	60%	130%	114%	50%	140%
Toluene	9146705		< 0.20	< 0.20	NA	< 0.20	77%	50%	140%	90%	60%	130%	115%	50%	140%
Ethylbenzene	9146705		< 0.10	< 0.10	NA	< 0.10	77%	50%	140%	93%	60%	130%	119%	50%	140%
Xylene Mixture	9146705		< 0.20	< 0.20	NA	< 0.20	78%	50%	140%	101%	60%	130%	108%	50%	140%
F1 (C6 to C10)	9146705		< 25	< 25	NA	< 25	105%	60%	140%	93%	60%	140%	104%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	96%	60%	140%	66%	60%	140%	63%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	98%	60%	140%	80%	60%	140%	63%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	96%	60%	140%	93%	60%	140%	105%	60%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popnikolof

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Results relate only to the items tested and to all the items tested

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

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 18Z324250

PROJECT: GWREM

ATTENTION TO: Kathryn Maton

SAMPLING SITE:3636 Innes Rd. Orleans

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Toluene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10)	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5623 Dundas Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
www.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 18Z D24250

Cooler Quantity: one cooler

Arrival Temperatures: 4.9 / 10.0

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes:

Report Information:

Company: WSP Canada Group Limited

Contact: Kathryn Melon

Address: 610 Chartwell Rd, Suite 300
Oakville, Ontario L6J 4A5

Phone: 613-619-6923 Fax:

Reports to be sent to:
1. Email: Kathryn.melon@wsp.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement

Please check all applicable boxes

☒ Regulation 153/04 — ☐ Sewer Use — ☐ Regulation 558
Table 3 (Indicate one)
☐ Res/Park ☐ Agricultural ☐ Coarse — ☐ Storm — ☐ CCME
☒ Res/Park ☐ Agricultural ☐ Coarse — ☐ Prov. Water Quality Objectives (PWQO)
Soil Texture (check one) ☒ Coarse ☐ Fine — Other: ☐ MISA — ☐ Other

Is this submission for a Record of Site Condition? ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Please provide prior notification) RUSH!

☒ 3 Business Days — ☐ 2 Business Days — ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: GWMEM

Site Location: 3636 Innes Rd, Gloucester

Sampled By:

AGAT Quote #: PO: 17M-013548-00, backup

Please note that quotation number is required by the laboratory for invoicing purposes

Invoice Information: Bill To Same: Yes ☒ No ☐

Company:

Contact:

Address:

Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments / Special Instructions	Field Filtered - Metals, Hg, CrVI	Metals and Inorganics	Hardness (CaCO3)	Organics	Other	Regulated Drinking Water Chemicals	Volatiles	PHCs F1-F4	BTEX	VOCs	Metals	Hg	CrVI	DOC	Chloride	Nitrate	Nitrite	Sample ID
MW17-5	28/03/18	10:09	4	GW								X	X										
MW17-105-5	↓	10:09	4									X	X										
Trip blank	07/03/18	—	3	↓								X											

Relinquished by (Print name and sign)	Date	Time	Received by (Print name and sign)	Date	Time
Kathryn Melon	28/03/2018	12:03	Be Mercier/Dollimont	28-Mar-18	12:08
Courier Name and Tracking Number: Canpar to FedEx	28 Mar-18	16:00			

Page 1 of 1

T 063397

White Copy - Client | Yellow Copy - AGAT | Pink Copy - AGAT

AGAT Laboratories

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

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Kathryn Maton

PROJECT: 17M-01348-00-GWREM

AGAT WORK ORDER: 18Z338813

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: May 23, 2018

PAGES (INCLUDING COVER): 6

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 18Z338813

PROJECT: 17M-01348-00-GWREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLING SITE:3636 Innes Rd, Ottawa

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-05-14

DATE REPORTED: 2018-05-23

				SAMPLE DESCRIPTION:	MW17-5
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2018-05-14 13:30
Parameter	Unit	G / S	RDL		9241141
Benzene	µg/L	5.0	0.20		5.0
Toluene	µg/L	24	0.20		0.43
Ethylbenzene	µg/L	2.4	0.10		10
Xylene Mixture	µg/L	300	0.20		4.0
F1 (C6 to C10)	µg/L	0.75	25		150
F1 (C6 to C10) minus BTEX	µg/L	750	25		130
F2 (C10 to C16)	µg/L	150	100		150
F3 (C16 to C34)	µg/L	500	100		<100
F4 (C34 to C50)	µg/L	500	100		<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500		NA
Surrogate	Unit	Acceptable Limits			
Terphenyl	%	60-140			96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9241141 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.
The chromatogram has returned to baseline by the retention time of nC50.
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 with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Certified By: N Popnikolof

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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

Guideline Violation

AGAT WORK ORDER: 18Z338813

PROJECT: 17M-01348-00-GWREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9241141	MW17-5	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	Ethylbenzene	µg/L	2.4	10
9241141	MW17-5	ON T2 PGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	F1 (C6 to C10)	µg/L	0.75	150

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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

Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 17M-01348-00-GWREM
SAMPLING SITE:3636 Innes Rd, Ottawa

AGAT WORK ORDER: 18Z338813
ATTENTION TO: Kathryn Maton
SAMPLED BY:K. Maton

Trace Organics Analysis

RPT Date: May 23, 2018

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			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) - PHCs F1 - F4 (Water)															
Benzene	9241141	9241141	5.0	4.7	6.2%	< 0.20	91%	50%	140%	90%	60%	130%	104%	50%	140%
Toluene	9241141	9241141	0.43	0.37	NA	< 0.20	97%	50%	140%	96%	60%	130%	103%	50%	140%
Ethylbenzene	9241141	9241141	10	9.9	1.0%	< 0.10	98%	50%	140%	98%	60%	130%	103%	50%	140%
Xylene Mixture	9241141	9241141	4.0	4.0	0.0%	< 0.20	96%	50%	140%	98%	60%	130%	104%	50%	140%
F1 (C6 to C10)	9241141	9241141	150	140	6.9%	< 25	85%	60%	140%	100%	60%	140%	98%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	92%	60%	140%	67%	60%	140%	78%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	91%	60%	140%	84%	60%	140%	106%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	82%	60%	140%	90%	60%	140%	94%	60%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: NPopnikolof

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Results relate only to the items tested and to all the items tested

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

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 18Z338813

PROJECT: 17M-01348-00-GWREM

ATTENTION TO: Kathryn Maton

SAMPLING SITE:3636 Innes Rd, Ottawa

SAMPLED BY:K. Maton

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Toluene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10)	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only

Work Order #: 1873388813

Cooler Quantity: One-onice

Arrival Temperatures: 5.1 | 5.0 | 5.2
7.3 | 6.9 | 7.4

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes:

Report Information:

Company: WSP Canada Inc Group Limited
Contact: Kathryn Maton / Natalia Codoban
Address: 610 Chartwell Road, Suites 300.
Oakville ON L6J 4A5.
Phone: 289-835-2458 Fax:
Reports to be sent to:
1. Email: Kathryn.maton@wsp.com.
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☒ Regulation 153/04
Table 2. (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture

Soil Texture (Check One)
☐ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm

Region _____ (Indicate One)

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other

_____ (Indicate One)

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply): _____

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: GWREM.
Site Location: 3636 Innes Rd, Ottawa.
Sampled By: K. Maton
AGAT Quote #: _____ PO: 17M-01348-00
Please note: If quotation number is not provided, client will be billed full price for analysis.

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company: WSP Canada Group Limited
Contact: Natalia Codoban
Address:
Email: natalia.codoban@wsp.com

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals)	ORPs: ☐ B-HWS ☐ Cr ☐ CN ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☒ BTEX ☐ THM	CCME Fractions 1 to 4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use
MW7-5	13/05/18	13:30.	3	GW								XX							

Samples Relinquished By (Print Name and Sign): Matto / Kathryn Maton — Date: 13/05/18. — Time: 14:00.
Samples Received By (Print Name and Sign): Ube Amelit / Sim — Date: 18/05/14 — Time: 16h00
Samples Relinquished By (Print Name and Sign): CB/BD to FedEx — Date: 18/05/14 — Time: 16h00
Samples Received By (Print Name and Sign): 18/5/15 — Date: 18/05/14 — Time: 8h15 / 1035

Page 1 of 1

№: T 068654

Document ID: BIV 78-1511 013

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

Date Issued: September 5, 2016

AGAT Laboratories

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

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Kathryn Maton

PROJECT: Phase II ESA

AGAT WORK ORDER: 18Z422689

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

DATE REPORTED: Dec 27, 2018

PAGES (INCLUDING COVER): 6

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 18Z422689

PROJECT: Phase II ESA

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2018-12-19

DATE REPORTED: 2018-12-27

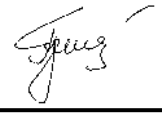
		SAMPLE DESCRIPTION:		MW17-5
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2018-12-19
Parameter	Unit	G / S	RDL	9801363
Benzene	µg/L	44	0.20	17
Toluene	µg/L	18000	0.20	1.7
Ethylbenzene	µg/L	2300	0.10	21
Xylene Mixture	µg/L	4200	0.20	13
F1 (C6 - C10)	µg/L	750	25	250
F1 (C6 to C10) minus BTEX	µg/L	750	25	200
F2 (C10 to C16)	µg/L	150	100	830
F3 (C16 to C34)	µg/L	500	100	1000
F4 (C34 to C50)	µg/L	500	100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA
Surrogate	Unit	Acceptable Limits		
Terphenyl	%	60-140		97

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Non-Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9801363 The C6-C10 fraction is calculated using Toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene + o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contribution.
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 with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Results relate only to the items tested and to all the items tested

AGAT Laboratories

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

Guideline Violation

AGAT WORK ORDER: 18Z422689

PROJECT: Phase II ESA

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Kathryn Maton

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
9801363	MW17-5	ON T3 NPGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	F2 (C10 to C16)	µg/L	150	830
9801363	MW17-5	ON T3 NPGW CT	O. Reg. 153(511) - PHCs F1 - F4 (Water)	F3 (C16 to C34)	µg/L	500	1000

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Quality Assurance

CLIENT NAME: WSP CANADA INC
AGAT WORK ORDER: 18Z422689
PROJECT: Phase II ESA
ATTENTION TO: Kathryn Maton
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis

RPT Date: Dec 27, 2018

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			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) - PHCs F1 - F4 (Water)															
Benzene	9799462		< 0.20	< 0.20	NA	< 0.20	92%	50%	140%	86%	60%	130%	85%	50%	140%
Toluene	9799462		< 0.20	< 0.20	NA	< 0.20	90%	50%	140%	83%	60%	130%	81%	50%	140%
Ethylbenzene	9799462		< 0.10	< 0.10	NA	< 0.10	84%	50%	140%	82%	60%	130%	80%	50%	140%
Xylene Mixture	9799462		< 0.20	< 0.20	NA	< 0.20	91%	50%	140%	85%	60%	130%	85%	50%	140%
F1 (C6 - C10)	9799462		< 25	< 25	NA	< 25	85%	60%	140%	87%	60%	140%	79%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	89%	60%	140%	107%	60%	140%	73%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	96%	60%	140%	94%	60%	140%	80%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	92%	60%	140%	86%	60%	140%	94%	60%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Results relate only to the items tested and to all the items tested

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

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 18Z422689

PROJECT: Phase II ESA

ATTENTION TO: Kathryn Maton

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Toluene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 - C10)	VOL-91- 5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 18242689

Cooler Quantity:

Arrival Temperatures: 8.6 | 7.9 | 7.8

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: on ice

Report Information:

Company: WSP Canada Group Ltd.
Contact: Kathryn Maton
Address: 300-2611 Queensview
Ottawa ON
Phone: 613-617-9237 Fax:
Reports to be sent to:
1. Email: Kathryn.maton@wsp.com
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 3 (Indicate One)
☒ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (Check One)
☒ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region: (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: Phase II ESA
Site Location: 3636 Innes Ottawa
Sampled By: K. Maton
AGAT Quote #: PO: 17M-01345-00

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

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email: payables.ontario@wsp.com

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (incl. Hydrides))	O. Reg 153: ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	O. Reg 153: Full Metals Scan	O. Reg 153: Regulation/Custom Metals	O. Reg 153: Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	O. Reg 153: Volatiles: ☐ VOC ☒ BTEX ☐ THM	O. Reg 153: PHCs F1 - F4	O. Reg 153: ABNs	O. Reg 153: PAHs	O. Reg 153: PCBs: ☐ Total ☐ Aroclors	O. Reg 153: Organochlorine Pesticides	O. Reg 153: TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ BiapP ☐ PCBs	O. Reg 153: Sewer Use
MW17-5	9/12/18	10:30	4	GW								X	X					

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Kathryn Maton	19/12/18	11:30am	Rebecca Gilroy	19	11:33 am
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	18/2/20	10:00
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

Page 1 of 1

N°: T078089

Document ID: DIV 76-1511.015

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)299-2000
FAX (403)299-2010
http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC.
500, BOUL GREBER 3E ETAGE
GATINEAU, QC J8T7W3
(819) 243-2827

ATTENTION TO: Matthieu Rochon

PROJECT: 161-06382-00

AGAT WORK ORDER: 16Z156062

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Nov 08, 2016

PAGES (INCLUDING COVER): 7

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (403) 299-2000

*NOTES

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

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 16Z156062

PROJECT: 161-06382-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road - Phase Two ESA

SAMPLED BY:Kathryn Maton

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

DATE RECEIVED: 2016-11-03

DATE REPORTED: 2016-11-08

		SAMPLE DESCRIPTION:		TP 16-5 SA1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2016-11-02
Parameter	Unit	G / S	RDL	7980762
Electrical Conductivity	mS/cm	1.4	0.005	0.906

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Industrial/Commercial/Community Property Use - Coarse Textured Soils

7980762 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).

Certified By: Amanjot Bhela

Results relate only to the items tested and to all the items tested

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Certificate of Analysis

AGAT WORK ORDER: 16Z156062

PROJECT: 161-06382-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road - Phase Two ESA

SAMPLED BY:Kathryn Maton

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

DATE RECEIVED: 2016-11-03

DATE REPORTED: 2016-11-08

		SAMPLE DESCRIPTION:		TP 16-6 SA1	TP 16-6 SA101
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2016-11-02	2016-11-02
Parameter	Unit	G / S	RDL	7980748	7980755
Benzene	µg/g	0.32	0.02	<0.02	<0.02
Toluene	µg/g	6.4	0.08	<0.08	<0.08
Ethylbenzene	µg/g	1.1	0.05	<0.05	<0.05
Xylene Mixture	µg/g	26	0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5
F2 (C10 to C16)	µg/g	230	10	<10	<10
F3 (C16 to C34)	µg/g	1700	50	130	160
F4 (C34 to C50)	µg/g	3300	50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	3300	50	NA	NA
Moisture Content	%		0.1	23.3	20.4
Surrogate	Unit	Acceptable Limits			
Terphenyl	%	60-140		110	100

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Industrial/Commercial/Community Property Use - Coarse Textured Soils

7980748-7980755 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.
The chromatogram has returned to baseline by the retention time of nC50.
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 with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Certified By: 

Results relate only to the items tested and to all the items tested

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)299-2000
FAX (403)299-2010
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z156062

PROJECT: 161-06382-00

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road - Phase Two ESA

SAMPLED BY:Kathryn Maton

Soil Analysis

RPT Date: Nov 08, 2016			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
O. Reg. 153(511) - ORPs (Soil) - EC															
Electrical Conductivity	7980762	7980762	0.906	0.903	0.3%	< 0.005	102%	90%	110%	NA			NA		

Comments: NA signifies Not Applicable.

Certified By: Amanjot Bhela

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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z156062

PROJECT: 161-06382-00

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road - Phase Two ESA

SAMPLED BY:Kathryn Maton

Trace Organics Analysis

RPT Date: Nov 08, 2016			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
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	7980755	7980755	< 0.02	< 0.02	NA	< 0.02	94%	60%	130%	95%	60%	130%	94%	60%	130%
Toluene	7980755	7980755	< 0.08	< 0.08	NA	< 0.08	99%	60%	130%	99%	60%	130%	99%	60%	130%
Ethylbenzene	7980755	7980755	< 0.05	< 0.05	NA	< 0.05	98%	60%	130%	98%	60%	130%	97%	60%	130%
Xylene Mixture	7980755	7980755	< 0.05	< 0.05	NA	< 0.05	93%	60%	130%	93%	60%	130%	92%	60%	130%
F1 (C6 to C10)	7980755	7980755	< 5	< 5	NA	< 5	81%	60%	130%	108%	85%	115%	105%	70%	130%
F2 (C10 to C16)	7961471		< 10	< 10	NA	< 10	100%	60%	130%	91%	80%	120%	86%	70%	130%
F3 (C16 to C34)	7961471		< 50	< 50	NA	< 50	103%	60%	130%	91%	80%	120%	88%	70%	130%
F4 (C34 to C50)	7961471		< 50	< 50	NA	< 50	99%	60%	130%	92%	80%	120%	86%	70%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).performed with this batch.

Certified By:



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Results relate only to the items tested and to all the items tested

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CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)299-2000
FAX (403)299-2010
http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z156062

PROJECT: 161-06382-00

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road - Phase Two ESA

SAMPLED BY:Kathryn Maton

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Trace Organics Analysis			
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

Results relate only to the items tested and to all the items tested

AGAT Laboratories

RUSH!

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only

Work Order #: 16Z156062

Cooler Quantity: one

Arrival Temperatures: 8.4 | 8.6 | 9.1

LT- 7.3 | 7.4 | 6.9

Custody Seal Intact: ☐ Yes ☐ No ☒ N/A

Notes: on ice

Report Information:

Company: WSP Canada.
Contact: Kathryn Maton.
Address: 2611 Queensview Drive. Ottawa, ON
Phone: 613-617-9237 Fax:
Reports to be sent to:
1. Email: Kathryn.Maton@WSPgroup.com
2. Email: Mathieu.Rochon@WSPgroup.com

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 2 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (Check One) ☒ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region _____ (Indicate One)

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
_____ (Indicate One)

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☒ 3 Business Days ☐ 2 Business Days ☐ 1 Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

Project Information:

Project: Phase Two ESA
Site Location: 3636 Innes Rd.
Sampled By: K. Maton.
AGAT Quote #: _____ PO: 161-12[illegible]0263-00

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

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Invoice Information:

Bill To Same: Yes ☐ No ☒

Company: WSP
Contact: Mathieu Rochon.
Address: 200-450 Boul. de la Cité, Gatineau, QC.
Email: Mathieu.Rochon@WSPgroup.com

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ EC ☐ FOC ☐ NO_3/NO_2 ☐ SAR ☐ Cr^{VI} ☐ Total N ☐ Hg ☐ pH	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_2 ☐ NO_3/NO_2	Volatiles: ☐ VOC ☒ BTEX ☐ THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	Conductivity
TP16-6 SA1	02/11/16	2:30pm	2	S								X	X	X								X
TP16-6 SA101	↓	↓	↓	↓								X	X	X								
TP16-5 SA1	↓	1:30	1	S																		X

Samples Relinquished By (Print Name and Sign): K. Maton / [signature]	Date: 03/11/16	Time: 9:17	Samples Received By (Print Name and Sign): [signature]	Date: 3 Nov 16	Time: 9h43
Samples Relinquished By (Print Name and Sign): UPS courier	Date: 3 Nov 16	Time: 16h30	Samples Received By (Print Name and Sign): Sharmin NOV 4/16	Date: 9:30am	Time:
Samples Relinquished By (Print Name and Sign):	Date:	Time:			

Page 1 of 1

N°: T 028834

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

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CLIENT NAME: WSP CANADA INC.
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GATINEAU, QC J8T7W3
(819) 243-2827

ATTENTION TO: Matthieu Rochon

PROJECT: 161-06382-00

AGAT WORK ORDER: 16Z156073

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Nov 08, 2016

PAGES (INCLUDING COVER): 5

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 17M-01348-00-SLREM

AGAT WORK ORDER: 19T483538

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Supervisor

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jun 28, 2019

PAGES (INCLUDING COVER): 15

VERSION*: 1

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*NOTES

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Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

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Certificate of Analysis

AGAT WORK ORDER: 19T483538

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-21

DATE REPORTED: 2019-06-28

				SAMPLE DESCRIPTION:	AREA6-E8
				SAMPLE TYPE:	Soil
				DATE SAMPLED:	2019-06-21
Parameter	Unit	G / S	RDL	296784	
Sodium Adsorption Ratio	NA	5	NA	1.26	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

296784 SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Results relate only to the items tested. Results apply to samples as received.

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AGAT WORK ORDER: 19T483538

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-21

DATE REPORTED: 2019-06-28

		SAMPLE DESCRIPTION:		AREA1-B1	AREA1-B2	AREA1-B3	AREA1-B4	AREA1-B5	AREA1-B6	AREA1-B7	AREA1-B8
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21
Parameter	Unit	G / S	RDL	296831	296832	296833	296834	296835	296836	296837	296838
Naphthalene	µg/g	0.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	7.9	0.05	<0.05	0.18	<0.05	<0.05	<0.05	<0.05	0.11	0.07
Fluorene	µg/g	62	0.05	<0.05	0.10	<0.05	<0.05	<0.05	<0.05	0.15	0.08
Phenanthrene	µg/g	6.2	0.05	<0.05	1.1	0.36	0.07	0.24	<0.05	0.94	0.57
Anthracene	µg/g	0.67	0.05	<0.05	0.58	0.19	<0.05	0.12	<0.05	0.38	0.31
Fluoranthene	µg/g	0.69	0.05	<0.05	2.6	1.5	0.13	0.63	<0.05	1.3	1.3
Pyrene	µg/g	78	0.05	<0.05	4.1	1.5	0.12	0.64	<0.05	1.2	1.3
Benz(a)anthracene	µg/g	0.5	0.05	<0.05	3.9	1.4	0.10	0.49	<0.05	1.0	1.0
Chrysene	µg/g	7	0.05	<0.05	1.4	0.98	0.07	0.37	<0.05	0.68	0.72
Benzo(b)fluoranthene	µg/g	0.78	0.05	<0.05	1.2	1.0	0.05	0.33	<0.05	0.69	0.84
Benzo(k)fluoranthene	µg/g	0.78	0.05	<0.05	0.37	0.34	<0.05	0.12	<0.05	0.23	0.30
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	0.95	0.89	0.05	0.28	<0.05	0.57	0.72
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	<0.05	0.26	0.22	<0.05	0.07	<0.05	0.16	0.20
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	0.07	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	6.6	0.05	<0.05	0.25	0.21	<0.05	0.06	<0.05	0.16	0.18
2-and 1-methyl Naphthalene	µg/g	0.99	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	21.6	15.2	13.6	17.9	16.9	24.1	7.2	21.7
Surrogate	Unit	Acceptable Limits									
Chrysene-d12	%	50-140		92	88	74	92	91	96	69	66

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 19T483538

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-21

DATE REPORTED: 2019-06-28

SAMPLE DESCRIPTION:				AREA1-B9	AREA1-B10	AREA1-B11	AREA1-B12	AREA1-B13	AREA1-B14	DUP1-AREA1-B5
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21
Parameter	Unit	G / S	RDL	296839	296840	296841	296842	296843	296844	296845
Naphthalene	µg/g	0.6	0.05	0.06	0.12	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	7.9	0.05	0.38	0.75	0.09	<0.05	0.10	0.05	<0.05
Fluorene	µg/g	62	0.05	0.45	0.97	0.13	<0.05	0.14	0.09	<0.05
Phenanthrene	µg/g	6.2	0.05	4.1	7.8	0.99	<0.05	1.0	0.46	0.18
Anthracene	µg/g	0.67	0.05	1.1	2.0	0.41	<0.05	0.39	0.20	0.10
Fluoranthene	µg/g	0.69	0.05	6.0	10	1.5	<0.05	1.6	0.55	0.54
Pyrene	µg/g	78	0.05	5.5	9.3	1.4	<0.05	1.4	0.53	0.51
Benz(a)anthracene	µg/g	0.5	0.05	3.7	8.6	1.2	<0.05	1.2	0.38	0.41
Chrysene	µg/g	7	0.05	2.0	6.0	0.78	<0.05	0.81	0.28	0.29
Benzo(b)fluoranthene	µg/g	0.78	0.05	1.8	3.8	0.87	<0.05	0.77	0.26	0.34
Benzo(k)fluoranthene	µg/g	0.78	0.05	0.67	1.1	0.29	<0.05	0.26	0.09	0.11
Benzo(a)pyrene	µg/g	0.3	0.05	1.7	3.7	0.79	<0.05	0.74	0.22	0.24
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	0.48	0.81	0.23	<0.05	0.20	0.05	0.06
Dibenz(a,h)anthracene	µg/g	0.1	0.05	0.15	0.23	0.06	<0.05	0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	6.6	0.05	0.39	0.24	0.20	<0.05	0.19	<0.05	0.05
2-and 1-methyl Naphthalene	µg/g	0.99	0.05	0.09	0.17	<0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	9.8	12.5	12.7	25.1	6.9	12.5	13.3
Surrogate	Unit	Acceptable Limits								
Chrysene-d12	%	50-140		80	62	67	106	74	76	70

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

296831-296845 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.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopnikolof

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19T483538

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-21

DATE REPORTED: 2019-06-28

		SAMPLE DESCRIPTION:		AREA2-B3	AREA2-B4
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-06-21	2019-06-21
Parameter	Unit	G / S	RDL	296829	296830
F1 (C6 to C10)	µg/g	55	5	20	6
F2 (C10 to C16)	µg/g	98	10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	<50
F4 (C34 to C50)	µg/g	2800	50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA
Moisture Content	%		0.1	28.8	29.5
Surrogate	Unit	Acceptable Limits			
Terphenyl	%	60-140		69	70

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

296829-296830 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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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AGAT WORK ORDER: 19T483538

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-21

DATE REPORTED: 2019-06-28

SAMPLE DESCRIPTION:				AREA6-E7	DUP1-AREA6-E7	AREA6-N1	AREA6-SW2	AREA6-W4
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21
Parameter	Unit	G / S	RDL	296785	296825	296826	296827	296828
Benzene	µg/g		0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g		5	9	10	<5	9	9
F1 (C6 to C10) minus BTEX	µg/g		5	9	10	<5	9	9
F2 (C10 to C16)	µg/g		10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g		50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g		50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA	NA	NA	NA	NA
Moisture Content	%		0.1	29.1	33.6	17.0	28.7	28.5
Surrogate	Unit	Acceptable Limits						
Terphenyl	%	60-140		62	61	67	68	72

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

296785-296828 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
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 with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopnikolof

Results relate only to the items tested. Results apply to samples as received.

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AGAT WORK ORDER: 19T483538

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-21

DATE REPORTED: 2019-06-28

SAMPLE DESCRIPTION:				AREA1-B1	AREA1-B2	AREA1-B3	AREA1-B4	AREA1-B5	AREA1-B6	AREA1-B7	AREA1-B8
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21
Parameter	Unit	G / S	RDL	296831	296832	296833	296834	296835	296836	296837	296838
F1 (C6 to C10)	µg/g	55	5	6	7	6	6	7	7	<5	12
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10	<10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	590	320	84	250	<50	110	81
F3 (C16 to C34) minus PAHs	µg/g		50	<50	580	310	83	250	<50	100	75
F4 (C34 to C50)	µg/g	2800	50	<50	270	500	120	340	<50	57	84
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	21.6	15.2	13.6	17.9	16.9	24.1	7.2	21.7
Surrogate	Unit	Acceptable Limits									
Terphenyl	%	60-140		85	78	77	86	84	72	110	88

SAMPLE DESCRIPTION:				AREA1-B9	AREA1-B10	AREA1-B11	AREA1-B12	AREA1-B13	AREA1-B14	DUP1-AREA1-B5
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21	2019-06-21
Parameter	Unit	G / S	RDL	296839	296840	296841	296842	296843	296844	296845
F1 (C6 to C10)	µg/g	55	5	<5	6	<5	<5	<5	31	8
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	98	54	150	<50	82	210	190
F3 (C16 to C34) minus PAHs	µg/g		50	71	<50	140	<50	75	210	190
F4 (C34 to C50)	µg/g	2800	50	<50	<50	<50	<50	<50	280	250
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	9.8	12.5	12.7	25.1	6.9	12.5	13.3
Surrogate	Unit	Acceptable Limits								
Terphenyl	%	60-140		65	62	96	72	75	79	70

Certified By:



Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19T483538

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-21

DATE REPORTED: 2019-06-28

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

296831-296845 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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 – C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: 

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Guideline Violation

AGAT WORK ORDER: 19T483538

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
296832	AREA1-B2	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	3.9
296832	AREA1-B2	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	0.95
296832	AREA1-B2	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	µg/g	0.78	1.2
296832	AREA1-B2	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	2.6
296832	AREA1-B2	ON T3 S RPI CT	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)	F3 (C16 to C34)	µg/g	300	590
296833	AREA1-B3	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	1.4
296833	AREA1-B3	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	0.89
296833	AREA1-B3	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	µg/g	0.78	1.0
296833	AREA1-B3	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	1.5
296833	AREA1-B3	ON T3 S RPI CT	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)	F3 (C16 to C34)	µg/g	300	320
296837	AREA1-B7	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	1.0
296837	AREA1-B7	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	0.57
296837	AREA1-B7	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	1.3
296838	AREA1-B8	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	1.0
296838	AREA1-B8	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	0.72
296838	AREA1-B8	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	µg/g	0.78	0.84
296838	AREA1-B8	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	1.3
296839	AREA1-B9	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Anthracene	µg/g	0.67	1.1
296839	AREA1-B9	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	3.7
296839	AREA1-B9	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	1.7
296839	AREA1-B9	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	µg/g	0.78	1.8
296839	AREA1-B9	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Dibenz(a,h)anthracene	µg/g	0.1	0.15
296839	AREA1-B9	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	6.0
296839	AREA1-B9	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.48
296840	AREA1-B10	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Anthracene	µg/g	0.67	2.0
296840	AREA1-B10	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	8.6
296840	AREA1-B10	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	3.7
296840	AREA1-B10	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	µg/g	0.78	3.8
296840	AREA1-B10	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(k)fluoranthene	µg/g	0.78	1.1
296840	AREA1-B10	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Dibenz(a,h)anthracene	µg/g	0.1	0.23
296840	AREA1-B10	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	10
296840	AREA1-B10	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.81
296840	AREA1-B10	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Phenanthrene	µg/g	6.2	7.8
296841	AREA1-B11	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	1.2
296841	AREA1-B11	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	0.79
296841	AREA1-B11	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	µg/g	0.78	0.87
296841	AREA1-B11	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	1.5
296843	AREA1-B13	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	1.2
296843	AREA1-B13	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	0.74
296843	AREA1-B13	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	1.6

Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP CANADA INC
AGAT WORK ORDER: 19T483538
PROJECT: 17M-01348-00-SLREM
ATTENTION TO: Adrian Menyhart
SAMPLING SITE:
SAMPLED BY:

Soil Analysis

RPT Date: Jun 28, 2019			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
O. Reg. 153(511) - ORPs (Soil)															
Sodium Adsorption Ratio	300433		0.418	0.409	2.2%	NA	NA			NA			NA		

Comments: NA signifies Not Applicable.

Certified By:

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 17M-01348-00-SLREM
SAMPLING SITE:

AGAT WORK ORDER: 19T483538
ATTENTION TO: Adrian Menyhart
SAMPLED BY:

Trace Organics Analysis

RPT Date: Jun 28, 2019			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
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	296843	296843	< 0.02	< 0.02	NA	< 0.02	78%	60%	130%	79%	60%	130%	88%	60%	130%
Toluene	296843	296843	< 0.05	< 0.05	NA	< 0.05	82%	60%	130%	79%	60%	130%	85%	60%	130%
Ethylbenzene	296843	296843	< 0.05	< 0.05	NA	< 0.05	80%	60%	130%	79%	60%	130%	88%	60%	130%
Xylene Mixture	296843	296843	< 0.05	< 0.05	NA	< 0.05	86%	60%	130%	75%	60%	130%	93%	60%	130%
F1 (C6 to C10)	296843	296843	< 5	< 5	NA	< 5	92%	60%	130%	93%	85%	115%	90%	70%	130%
F2 (C10 to C16)	296845	296845	< 10	< 10	NA	< 10	102%	60%	130%	107%	80%	120%	86%	70%	130%
F3 (C16 to C34)	296845	296845	190	180	NA	< 50	103%	60%	130%	117%	80%	120%	91%	70%	130%
F4 (C34 to C50)	296845	296845	250	250	0.0%	< 50	94%	60%	130%	119%	80%	120%	118%	70%	130%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	292180		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	88%	50%	140%	72%	50%	140%
Acenaphthylene	292180		< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	92%	50%	140%	73%	50%	140%
Acenaphthene	292180		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	92%	50%	140%	74%	50%	140%
Fluorene	292180		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	89%	50%	140%	75%	50%	140%
Phenanthrene	292180		< 0.05	< 0.05	NA	< 0.05	107%	50%	140%	80%	50%	140%	67%	50%	140%
Anthracene	292180		< 0.05	< 0.05	NA	< 0.05	94%	50%	140%	81%	50%	140%	67%	50%	140%
Fluoranthene	292180		< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	98%	50%	140%	79%	50%	140%
Pyrene	292180		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	99%	50%	140%	77%	50%	140%
Benz(a)anthracene	292180		< 0.05	< 0.05	NA	< 0.05	62%	50%	140%	101%	50%	140%	68%	50%	140%
Chrysene	292180		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	101%	50%	140%	73%	50%	140%
Benzo(b)fluoranthene	292180		< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	70%	50%	140%	72%	50%	140%
Benzo(k)fluoranthene	292180		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	70%	50%	140%	65%	50%	140%
Benzo(a)pyrene	292180		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	78%	50%	140%	61%	50%	140%
Indeno(1,2,3-cd)pyrene	292180		< 0.05	< 0.05	NA	< 0.05	74%	50%	140%	86%	50%	140%	69%	50%	140%
Dibenz(a,h)anthracene	292180		< 0.05	< 0.05	NA	< 0.05	66%	50%	140%	85%	50%	140%	66%	50%	140%
Benzo(g,h,i)perylene	292180		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	88%	50%	140%	71%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popnikolof

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Results relate only to the items tested. Results apply to samples as received.

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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19T483538

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010C	ICP/OES
Trace Organics Analysis			
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Moisture Content	ORG-91-5106	EPA SW-846 3541 & 8270D	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
F1 (C6 to C10)	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	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009	CCME Tier 1 Method	GC/FID
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
Terphenyl	VOL-91-5009		GC/FID
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC/FID

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only
Work Order #: 19T483538
Cooler Quantity: One - on ice
Arrival Temperatures: 9.4 | 9.1 | 9.5 / 9.4 | 9.5 | 9.2
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes:

Report Information:
Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)
☑ Regulation 153/04 — Table (Indicate One): ☐ Ind/Com ☑ Res/Park ☐ Agriculture; Soil Texture (Check One): ☐ Coarse ☐ Fine
☐ Sewer Use — ☐ Sanitary ☐ Storm; Region (Indicate One): ☐ MISA
☐ Regulation 558 ☐ CCME ☐ Prov. Water Quality Objectives (PWQO) ☐ Other (Indicate One)

Project Information:
Project: 17M-01348-00-SLREM
Site Location:
Sampled By:
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Turnaround Time (TAT) Required:
Regular TAT ☐ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☑ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*
For 'Same Day' analysis, please contact your AGAT CPM

Invoice Information: Bill To Same: Yes ☐ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend
B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y/N	Field Filtered - Metals, Hg, CrVI	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☑ 153 Metals (incl. Hydrides))	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☑ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_4 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_2+NO_3	Volatiles: ☐ VOC ☑ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use	NO BTEX					Potentially Hazardous or High Concentration (Y/N)
AREA 6 - EB	21/06/19	11:00	1	S					✓	-				✓	✓	✓											
AREA 6 - E7		11:05	2																								
DUP 1 - AREA 6 - E7		11:05																									
AREA 6 - N1		11:10																									
AREA 6 - SW2		11:15																									
AREA 6 - W4		11:26																									
AREA 2 - B3		11:30																									
AREA 2 - B4		11:35																									
AREA 1 - B1		11:40																									
AREA 1 - B2		11:45	1																								
AREA 1 - B3		11:50																									

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Eve Sabourin	21/06/19	13:30			
[illegible]	21/06/19	13:30	[illegible]	19/06/21	16h40
UPS PWO	19/6/21	17h00	[illegible]	Jun 22/19	12:00

Page ____ of ____
N°:

Document ID: [illegible]

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

Date Issued: March 22, 2019

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Project Information:

Project: 17M-01348-00-SI.REM
Site Location:
Sampled By:
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company:
Contact:
Address:
Email:

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☑ Regulation 153/04
Table (Indicate One): ☐ Ind/Com ☑ Res/Park ☐ Agriculture
Soil Texture (Check One): ☐ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary ☐ Storm
Region (Indicate One): ☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a Record of Site Condition? ☐ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Laboratory Use Only

Work Order #:
Cooler Quantity: One - on - ice
Arrival Temperatures: 9.1 | 9.1 | 9.5
9.8 | 9.4 | 9.2
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: With ice

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☑ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☑ 153 Metals (incl. Hydrides))	O. Reg 153: ORPs: ☐ B-HWS ☐ Cr ☐ CN ☐ Cr6+ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	O. Reg 153: Full Metals Scan	O. Reg 153: Regulation/Custom Metals	O. Reg 153: Nutrients: ☐ TP ☐ NH4 ☐ TKN ☐ NO3 ☐ NO2 ☐ NO3+NO2	O. Reg 153: Volatiles: ☐ VOC ☑ BTEX ☐ THM	O. Reg 153: PHCs F1 - F4	O. Reg 153: ABNs	O. Reg 153: PAHs	O. Reg 153: PCBs: ☐ Total ☐ Aroclors	O. Reg 153: Organochlorine Pesticides	O. Reg 153: TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 153: Sewer Use	No BTEX						Potentially Hazardous or High Concentration (Y/N)
AREA1 - B4	21/06/19	11:55	2	S									☑		☑					✓					
AREA1 B5		11:58											✓		✓					✓					
AREA1 B6		12:00											✓		✓					✓					
AREA1 B7		12:05											✓		✓					✓					
AREA1 B8		12:10											✓		✓					✓					
AREA1 B9		12:15											✓		✓					✓					
AREA1 B10		12:19											✓		✓					✓					
AREA1 B11		12:23											✓		✓					✓					
AREA1 B12		12:26											✓		✓					✓					
AREA1 B13		12:29											✓		✓					✓					
AREA1 B14		12:32											✓		✓					✓					

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Eve Sabourin	21/06/19	13:20			
	21/06/19	13:30	LBerthelet	19-06-21	16h40
LBto Pulso	19/06/21	17h00	Ghassan Aalsaad	Jun/22/19	11:30 AM

Page 1 of

Document ID: DW-78-1511.016

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

Date Issued: March 22, 2019

AGAT Laboratories

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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: ____________

Cooler Quantity: one - on ice

Arrival Temperatures: 9.4 | 9.1 | 9.5
9.4 | 9.5 | 9.2

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: ____________

Report Information:

Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax: ____________
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email: ____________

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☑ Regulation 153/04
Table ____ *Indicate One*
☐ Ind/Com
☑ Res/Park
☐ Agriculture
Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region ____ *Indicate One*
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
____ *Indicate One*

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☑ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply): ____________

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17M-01348-00-SLREM
Site Location: ____________
Sampled By: ____________
AGAT Quote #: ____________ PO: ____________
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company: ____________
Contact: ____________
Address: ____________
Email: ____________

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☒ 153 Metals (incl. Hydrides)	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr6+ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☐ BTEX ☐ THM	PHCs F1 - F4 (no BTEX)	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use	no BTEX					Potentially Hazardous or High Concentration (Y/N)
DUP1-AREA1-B5	21/06/19	12H35	2	S										☑		☑					✓					
AREA1-																										
AREA1-																										
AREA1-																										
AREA1-																										
AREA1-																										
AREA1-																										
AREA1-																										
AREA1-																										
AREA1-																										
AREA1-																										

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time	
Eve Sabourin	21/06/19	13:30	[signature]			
[signature]	21/06/19	13:30	I Berthelet [signature]	19/06/21	16h40	Page ____ of ____
USTOPURO	19/6/21	17h00	[signature]	06/22/19	12:10PM	N°:

AGAT Laboratories

5835 COOPERS AVENUE
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TEL (905)712-5100
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http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 17M-01348-00-SLREM

AGAT WORK ORDER: 19Z469678

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Supervisor

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

DATE REPORTED: May 27, 2019

PAGES (INCLUDING COVER): 9

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.

Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z469678

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

O. Reg. 558 Metals and Inorganics

DATE RECEIVED: 2019-05-22

DATE REPORTED: 2019-05-24

		SAMPLE DESCRIPTION:		TCLP
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-05-22
Parameter	Unit	G / S	RDL	211963
Arsenic Leachate	mg/L	2.5	0.010	<0.010
Barium Leachate	mg/L	100	0.100	0.770
Boron Leachate	mg/L	500	0.050	0.101
Cadmium Leachate	mg/L	0.5	0.010	<0.010
Chromium Leachate	mg/L	5	0.010	<0.010
Lead Leachate	mg/L	5	0.010	<0.010
Mercury Leachate	mg/L	0.1	0.01	<0.01
Selenium Leachate	mg/L	1	0.010	<0.010
Silver Leachate	mg/L	5	0.010	<0.010
Uranium Leachate	mg/L	10	0.050	<0.050
Fluoride Leachate	mg/L	150	0.05	0.11
Cyanide Leachate	mg/L	20	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 O. Reg. 558 - Schedule IV Leachate Quality Criteria
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z469678

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

O. Reg. 558 - PCBs

DATE RECEIVED: 2019-05-22

DATE REPORTED: 2019-05-24

		SAMPLE DESCRIPTION:		TCLP
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-05-22
Parameter	Unit	G / S	RDL	211963
Polychlorinated Biphenyls	mg/L	0.3	0.005	<0.005
PCB Extr	NA			Y
Surrogate	Unit	Acceptable Limits		
Decachlorobiphenyl	%	60-130		106

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 558 - Schedule IV Leachate Quality Criteria
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

211963 The soil sample was leached using the Regulation 558 procedure. Analysis was performed on the leachate.
PCB total is a calculated parameter. The calculated value is the sum of Aroclor 1242, Aroclor 1248, Aroclor 1254 and Aroclor 1260.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z469678

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

O. Reg. 558 - SVOCs

DATE RECEIVED: 2019-05-22

DATE REPORTED: 2019-05-27

		SAMPLE DESCRIPTION:		TCLP
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-05-22
Parameter	Unit	G / S	RDL	211963
Pyridine	mg/L	5.0	0.010	<0.010
Cresols	mg/L	200	0.012	<0.012
Ortho-Cresol	mg/L	200	0.004	<0.004
Meta & Para-Cresol	mg/L	200	0.008	<0.008
Hexachloroethane	mg/L	3	0.004	<0.004
Nitrobenzene	mg/L	2.0	0.004	<0.004
Hexachlorobutadiene	mg/L	0.5	0.004	<0.004
2,4,6-Trichlorophenol	mg/L	0.5	0.05	<0.05
2,4,5-Trichlorophenol	mg/L	400	0.004	<0.004
2,4-Dinitrotoluene	mg/L	0.13	0.004	<0.004
2,3,4,6-Tetrachlorophenol	mg/L	10	0.004	<0.004
Hexachlorobenzene	mg/L	0.13	0.004	<0.004
Dinoseb	mg/L	1	0.004	<0.004
Benzo(a)pyrene	mg/L	0.001	0.001	<0.001
BNA Extr	NA			Y
Surrogate	Unit	Acceptable Limits		
Chrysene-d12	%	50-130		99

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 558 - Schedule IV Leachate Quality Criteria
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

211963 The sample was leached according to Regulation 558 protocol. Analysis was performed on the leachate.
Cresols total is a calculated parameter. The calculated value is the sum o-Cresol and m&p-Cresol.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

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Certificate of Analysis

AGAT WORK ORDER: 19Z469678

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

TCLP - Petroleum Hydrocarbon F1 - F4 (mg/L)

DATE RECEIVED: 2019-05-22

DATE REPORTED: 2019-05-24

		SAMPLE DESCRIPTION:		TCLP
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-05-22
Parameter	Unit	G / S	RDL	211963
Benzene	mg/L	0.5	0.02	<0.02
Toluene	mg/L		0.02	<0.02
Ethylbenzene	mg/L		0.01	<0.01
Xylenes (Total)	mg/L		0.014	<0.014
C6 - C10 (F1)	mg/L		1	<1
C6 - C10 (F1 minus BTEX)	mg/L		1	<1
C>10 - C16 (F2)	mg/L		0.1	<0.1
C>16 - C34 (F3)	mg/L		0.5	<0.5
C>34 - C50 (F4)	mg/L		0.5	<0.5
Gravimetric Heavy Hydrocarbons	mg/L		0.5	<0.5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 558 - Schedule IV Leachate Quality Criteria
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

211963 Sample was prepared using Regulation 558 protocol and a zero headspace extractor for F1/BTEX(Gasoline).
Analysis performed on leachate.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene + o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Quality Assurance

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z469678

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

Soil Analysis

RPT Date:			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
O. Reg. 558 Metals and Inorganics															
Arsenic Leachate	211371		<0.010	<0.010	NA	< 0.010	103%	90%	110%	102%	80%	120%	112%	70%	130%
Barium Leachate	211371		0.293	0.295	NA	< 0.100	100%	90%	110%	101%	80%	120%	104%	70%	130%
Boron Leachate	211371		0.060	0.064	NA	< 0.050	108%	90%	110%	99%	80%	120%	87%	70%	130%
Cadmium Leachate	211371		<0.010	<0.010	NA	< 0.010	99%	90%	110%	99%	80%	120%	100%	70%	130%
Chromium Leachate	211371		<0.010	<0.010	NA	< 0.010	100%	90%	110%	108%	80%	120%	111%	70%	130%
Lead Leachate	211371		<0.010	<0.010	NA	< 0.010	96%	90%	110%	87%	80%	120%	84%	70%	130%
Mercury Leachate	211371		<0.01	<0.01	NA	< 0.01	105%	90%	110%	110%	80%	120%	90%	70%	130%
Selenium Leachate	211371		<0.010	<0.010	NA	< 0.010	97%	90%	110%	103%	80%	120%	106%	70%	130%
Silver Leachate	211371		<0.010	<0.010	NA	< 0.010	100%	90%	110%	96%	80%	120%	96%	70%	130%
Uranium Leachate	211371		<0.050	<0.050	NA	< 0.050	93%	90%	110%	85%	80%	120%	79%	70%	130%
Fluoride Leachate	211371		0.27	0.27	0.0%	< 0.05	103%	90%	110%	103%	90%	110%	97%	70%	130%
Cyanide Leachate	204875		<0.05	<0.05	NA	< 0.05	104%	90%	110%	110%	90%	110%	108%	70%	130%
(Nitrate + Nitrite) as N Leachate	211371		<0.70	<0.70	NA	< 0.70	98%	80%	120%	100%	80%	120%	103%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL

Certified By:



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Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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CANADA L4Z 1Y2
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FAX (905)712-5122
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 17M-01348-00-SLREM
SAMPLING SITE:

AGAT WORK ORDER: 19Z469678
ATTENTION TO: Adrian Menyhart
SAMPLED BY:A.M.

Trace Organics Analysis

RPT Date:			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
O. Reg. 558 - SVOCs															
Pyridine	211963	211963	< 0.010	< 0.010	NA	< 0.010	98%	30%	100%	92%	30%	100%	87%	30%	100%
Cresols	211963	211963	< 0.012	< 0.012	NA	< 0.012	89%	60%	130%	90%	35%	110%	80%	30%	130%
Ortho-Cresol	211963	211963	< 0.004	< 0.004	NA	< 0.004	81%	50%	130%	96%	50%	130%	76%	50%	130%
Meta & Para-Cresol	211963	211963	< 0.008	< 0.008	NA	< 0.008	96%	50%	130%	83%	50%	130%	83%	50%	130%
Hexachloroethane	211963	211963	< 0.004	< 0.004	NA	< 0.004	88%	60%	130%	87%	60%	130%	84%	60%	130%
Nitrobenzene	211963	211963	< 0.004	< 0.004	NA	< 0.004	94%	60%	130%	97%	60%	130%	107%	60%	130%
Hexachlorobutadiene	211963	211963	< 0.004	< 0.004	NA	< 0.004	94%	60%	130%	88%	60%	130%	92%	60%	130%
2,4,6-Trichlorophenol	211963	211963	< 0.05	< 0.05	NA	< 0.05	104%	60%	130%	87%	60%	130%	105%	60%	130%
2,4,5-Trichlorophenol	211963	211963	< 0.004	< 0.004	NA	< 0.004	97%	60%	130%	99%	60%	130%	104%	60%	130%
2,4-Dinitrotoluene	211963	211963	< 0.004	< 0.004	NA	< 0.004	91%	60%	130%	95%	60%	130%	113%	60%	130%
2,3,4,6-Tetrachlorophenol	211963	211963	< 0.004	< 0.004	NA	< 0.004	108%	60%	140%	79%	60%	140%	113%	60%	140%
Hexachlorobenzene	211963	211963	< 0.004	< 0.004	NA	< 0.004	112%	60%	130%	105%	60%	130%	102%	60%	130%
Dinoseb	211963	211963	< 0.004	< 0.004	NA	< 0.004	101%	60%	140%	78%	40%	130%	68%	30%	150%
Benzo(a)pyrene	211963	211963	< 0.001	< 0.001	NA	< 0.001	113%	60%	130%	101%	60%	130%	98%	60%	130%
O. Reg. 558 - PCBs															
Polychlorinated Biphenyls	211371		< 0.005	< 0.005	NA	< 0.005	95%	60%	130%	104%	60%	130%	109%	60%	130%
TCLP - Petroleum Hydrocarbon F1 - F4 (mg/L)															
Benzene	211963	211963	< 0.02	< 0.02	NA	< 0.02	94%	60%	130%	90%	60%	130%	89%	60%	130%
Toluene	211963	211963	< 0.02	< 0.02	NA	< 0.02	100%	70%	130%	98%	70%	130%	104%	70%	130%
Ethylbenzene	211963	211963	< 0.01	< 0.01	NA	< 0.01	99%	70%	130%	88%	70%	130%	100%	70%	130%
Xylenes (Total)	211963	211963	< 0.014	< 0.014	NA	< 0.014	96%	70%	130%	91%	70%	130%	82%	70%	130%
C6 - C10 (F1)	211963	211963	< 1	< 1	NA	< 1	103%	70%	130%	88%	70%	130%	93%	70%	130%
C>10 - C16 (F2)	211963	211963	< 0.1	< 0.1	NA	< 0.1	99%	70%	130%	78%	70%	130%	99%	70%	130%
C>16 - C34 (F3)	211963	211963	< 0.5	< 0.5	NA	< 0.5	97%	70%	130%	104%	70%	130%	89%	70%	130%
C>34 - C50 (F4)	211963	211963	< 0.5	< 0.5	NA	< 0.5	94%	70%	130%	110%	70%	130%	94%	70%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

Results relate only to the items tested. Results apply to samples as received.

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http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP CANADA INC
AGAT WORK ORDER: 19Z469678
PROJECT: 17M-01348-00-SLREM
ATTENTION TO: Adrian Menyhart
SAMPLING SITE:
SAMPLED BY:A.M.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
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 - NO3- I	LACHAT FIA
Trace Organics Analysis			
Polychlorinated Biphenyls	ORG-91-5112	Regulation 558, EPA SW846 3510C/8082	GC/ECD
Decachlorobiphenyl	ORG-91-5112	EPA SW846 3510C/8082	GC/ECD
PCB Extr	ORG-91-5112	EPA SW846 3510C/8082	N/A
Pyridine	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
Cresols	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
Ortho-Cresol	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
Meta & Para-Cresol	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
Hexachloroethane	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
Nitrobenzene	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
Hexachlorobutadiene	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
2,4,6-Trichlorophenol	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
2,4,5-Trichlorophenol	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
2,4-Dinitrotoluene	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
2,3,4,6-Tetrachlorophenol	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
Hexachlorobenzene	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
Dinoseb	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
Chrysene-d12	ORG-91-5114	EPA SW846 3510C & 8270	GC/MS
BNA Extr	ORG-91-5114	EPA SW846 3510C & 8270	N/A
Benzene	VOL-91-5001	EPA SW-846 5030B & 8260	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
Xylenes (Total)	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
C6 - C10 (F1)	VOL-91-5010	MOE E3421	(P&T)GC/FID
C6 - C10 (F1 minus BTEX)	VOL-91-5010	MOE E3421	(P&T)GC/FID
C>10 - C16 (F2)	VOL-91-5010	MOE E3421	GC/FID
C>16 - C34 (F3)	VOL-91-5010	MOE E3421	GC/FID
C>34 - C50 (F4)	VOL-91-5010	MOE E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE E3421	BALANCE

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AGAT Laboratories

5835 Coopers Avenue
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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 19Z469675

Cooler Quantity: one - on ice

Arrival Temperatures: 15.0 | 15.5 | 15.1

Custody Seal Intact: ☐ Yes ☐ No ☒ N/A

Notes:

Report Information:

Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☐ Regulation 153/04
Table (Indicate One): ☐ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (Check One): ☐ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One):
☐ MISA

☒ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☒ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17M-01348-00-SLREM
Site Location:
Sampled By: A.M.
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Is this submission for a Record of Site Condition?

☐ Yes ☐ No

Report Guideline on Certificate of Analysis

☐ Yes ☐ No

Invoice Information:

Bill To Same: Yes ☐ No ☒

Company:
Contact:
Address:
Email: payables.ontario@WSP.com

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	O. Reg 153: Full Metals Scan	O. Reg 153: Regulation/Custom Metals	O. Reg 153: Nutrients: ☐ TP ☐ NH_4 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	O. Reg 153: Volatiles: ☒ VOC ☒ BTEX ☐ THM	O. Reg 153: PHCs F1 - F4	O. Reg 153: ABNs	O. Reg 153: PAHs	O. Reg 153: PCBs: ☒ Total ☐ Aroclors	O. Reg 153: Organochlorine Pesticides	TCLP: ☒ Metals ☐ VOCs ☒ ABNs ☒ OPAHs ☒ PCBs	Sewer Use	TCLP PHC F1/F4 (BLANK)	TCLP BTEX
TCLP	2019-05-22		5	S													☒		/	/

Samples Relinquished By (Print Name and Sign): ADRIAN MENYHART — Date: May 22 '19 — Time: 12 PM — Samples Received By (Print Name and Sign): Uberthekett — Date: 19-05-22 — Time: 12h03.

Samples Relinquished By (Print Name and Sign): Via Fedex — Date: 19-05-22 — Time: 16h00 — Samples Received By (Print Name and Sign): Simon — Date: 19/2/23 — Time: 11 25

Page 1 of 1

N°:

AGAT Laboratories

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CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 171-01603-00

AGAT WORK ORDER: 19Z474070

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Supervisor

TRACE ORGANICS REVIEWED BY: Pinkal Patel, Report Reviewer

DATE REPORTED: Jun 06, 2019

PAGES (INCLUDING COVER): 9

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z474070

PROJECT: 171-01603-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

O. Reg. 558 Metals and Inorganics

DATE RECEIVED: 2019-05-31

DATE REPORTED: 2019-06-04

		SAMPLE DESCRIPTION:		TCLP
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-05-31
Parameter	Unit	G / S	RDL	236317
Arsenic Leachate	mg/L	2.5	0.010	<0.010
Barium Leachate	mg/L	100	0.100	0.723
Boron Leachate	mg/L	500	0.050	0.100
Cadmium Leachate	mg/L	0.5	0.010	<0.010
Chromium Leachate	mg/L	5	0.010	<0.010
Lead Leachate	mg/L	5	0.010	0.037
Mercury Leachate	mg/L	0.1	0.01	<0.01
Selenium Leachate	mg/L	1	0.010	<0.010
Silver Leachate	mg/L	5	0.010	<0.010
Uranium Leachate	mg/L	10	0.050	<0.050
Fluoride Leachate	mg/L	150	0.05	0.14
Cyanide Leachate	mg/L	20	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 O. Reg. 558 - Schedule IV Leachate Quality Criteria
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 19Z474070

PROJECT: 171-01603-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

O. Reg. 558 - Benzo(a) pyrene

DATE RECEIVED: 2019-05-31

DATE REPORTED: 2019-06-06

				SAMPLE DESCRIPTION:	TCLP
				SAMPLE TYPE:	Soil
				DATE SAMPLED:	2019-05-31
Parameter	Unit	G / S	RDL	236317	
Benzo(a)pyrene	mg/L	0.001	0.001	<0.001	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 558 - Schedule IV Leachate Quality Criteria
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

236317 The sample was leached according to Regulation 558 protocol. Analysis was performed on the leachate.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 19Z474070

PROJECT: 171-01603-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

O. Reg. 558 - PCBs

DATE RECEIVED: 2019-05-31

DATE REPORTED: 2019-06-04

		SAMPLE DESCRIPTION:		TCLP
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-05-31
Parameter	Unit	G / S	RDL	236317
Polychlorinated Biphenyls	mg/L	0.3	0.005	<0.005
PCB Extr	NA			Y
Surrogate	Unit	Acceptable Limits		
Decachlorobiphenyl	%	60-130		75

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 558 - Schedule IV Leachate Quality Criteria
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

236317 The soil sample was leached using the Regulation 558 procedure. Analysis was performed on the leachate.
PCB total is a calculated parameter. The calculated value is the sum of Aroclor 1242, Aroclor 1248, Aroclor 1254 and Aroclor 1260.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 19Z474070

PROJECT: 171-01603-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

O. Reg. 558 - VOCs

DATE RECEIVED: 2019-05-31

DATE REPORTED: 2019-06-04

		SAMPLE DESCRIPTION:		TCLP
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-05-31
Parameter	Unit	G / S	RDL	236317
Vinyl Chloride	mg/L	0.2	0.030	<0.030
1,1 Dichloroethene	mg/L	1.4	0.020	<0.020
Dichloromethane	mg/L	5.0	0.030	<0.030
Methyl Ethyl Ketone	mg/L	200	0.090	<0.090
Chloroform	mg/L	10.0	0.020	<0.020
1,2-Dichloroethane	mg/L	0.5	0.020	<0.020
Carbon Tetrachloride	mg/L	0.5	0.020	<0.020
Benzene	mg/L	0.5	0.020	<0.020
Trichloroethene	mg/L	5.0	0.020	<0.020
Tetrachloroethene	mg/L	3.0	0.050	<0.050
Chlorobenzene	mg/L	8.0	0.010	<0.010
1,2-Dichlorobenzene	mg/L	20.0	0.010	<0.010
1,4-Dichlorobenzene	mg/L	0.5	0.010	<0.010
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	60-130		102

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 558 - Schedule IV Leachate Quality Criteria
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

236317 Sample was prepared using Regulation 558 protocol and a zero headspace extractor.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Quality Assurance

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z474070

PROJECT: 171-01603-00

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

Soil Analysis

RPT Date:			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
O. Reg. 558 Metals and Inorganics															
Arsenic Leachate	231862		<0.010	<0.010	NA	< 0.010	103%	90%	110%	99%	80%	120%	104%	70%	130%
Barium Leachate	231862		0.691	0.676	2.2%	< 0.100	100%	90%	110%	99%	80%	120%	94%	70%	130%
Boron Leachate	231862		0.056	0.055	NA	< 0.050	100%	90%	110%	101%	80%	120%	95%	70%	130%
Cadmium Leachate	231862		<0.010	<0.010	NA	< 0.010	98%	90%	110%	98%	80%	120%	96%	70%	130%
Chromium Leachate	231862		0.015	0.015	NA	< 0.010	102%	90%	110%	100%	80%	120%	93%	70%	130%
Lead Leachate	231862		0.026	0.025	NA	< 0.010	100%	90%	110%	95%	80%	120%	87%	70%	130%
Mercury Leachate	231862		<0.01	<0.01	NA	< 0.01	105%	90%	110%	97%	80%	120%	85%	70%	130%
Selenium Leachate	231862		<0.010	<0.010	NA	< 0.010	102%	90%	110%	109%	80%	120%	111%	70%	130%
Silver Leachate	231862		<0.010	<0.010	NA	< 0.010	100%	90%	110%	99%	80%	120%	95%	70%	130%
Uranium Leachate	231862		<0.050	<0.050	NA	< 0.050	107%	90%	110%	95%	80%	120%	90%	70%	130%
Fluoride Leachate	231862		0.13	0.13	NA	< 0.05	104%	90%	110%	105%	90%	110%	102%	70%	130%
Cyanide Leachate	231862		<0.05	<0.05	NA	< 0.05	99%	90%	110%	103%	90%	110%	101%	70%	130%
(Nitrate + Nitrite) as N Leachate	231862		<0.70	<0.70	NA	< 0.70	96%	80%	120%	99%	80%	120%	97%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL

Certified By:



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Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 171-01603-00
SAMPLING SITE:

AGAT WORK ORDER: 19Z474070
ATTENTION TO: Adrian Menyhart
SAMPLED BY:A.M.

Trace Organics Analysis

RPT Date:			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 - Benzo(a) pyrene															
Benzo(a)pyrene	236317	236317	< 0.001	< 0.001	NA	< 0.001	86%	70%	130%	90%	70%	130%	NA	70%	130%
O. Reg. 558 - PCBs															
Polychlorinated Biphenyls	231862		< 0.005	< 0.005	NA	< 0.005	96%	60%	130%	91%	60%	130%	84%	60%	130%
O. Reg. 558 - VOCs															
Vinyl Chloride	231989		< 0.030	< 0.030	NA	< 0.030	81%	60%	140%	115%	60%	140%	112%	60%	140%
1,1 Dichloroethene	231989		< 0.020	< 0.020	NA	< 0.020	109%	70%	130%	104%	70%	130%	103%	60%	140%
Dichloromethane	231989		< 0.030	< 0.030	NA	< 0.030	92%	70%	130%	91%	70%	130%	102%	60%	140%
Methyl Ethyl Ketone	231989		< 0.090	< 0.090	NA	< 0.090	83%	70%	130%	111%	70%	130%	86%	60%	140%
Chloroform	231989		< 0.020	< 0.020	NA	< 0.020	102%	70%	130%	97%	70%	130%	101%	60%	140%
1,2-Dichloroethane	231989		< 0.020	< 0.020	NA	< 0.020	88%	70%	130%	82%	70%	130%	98%	60%	140%
Carbon Tetrachloride	231989		< 0.020	< 0.020	NA	< 0.020	95%	70%	130%	85%	70%	130%	88%	60%	140%
Benzene	231989		< 0.020	< 0.020	NA	< 0.020	99%	70%	130%	90%	70%	130%	77%	60%	140%
Trichloroethene	231989		< 0.020	< 0.020	NA	< 0.020	99%	70%	130%	87%	70%	130%	85%	60%	140%
Tetrachloroethene	231989		< 0.050	< 0.050	NA	< 0.050	96%	70%	130%	93%	70%	130%	83%	60%	140%
Chlorobenzene	231989		< 0.010	< 0.010	NA	< 0.010	96%	70%	130%	96%	70%	130%	93%	60%	140%
1,2-Dichlorobenzene	231989		< 0.010	< 0.010	NA	< 0.010	82%	70%	130%	85%	70%	130%	85%	60%	140%
1,4-Dichlorobenzene	231989		< 0.010	< 0.010	NA	< 0.010	82%	70%	130%	86%	70%	130%	103%	60%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

Results relate only to the items tested. Results apply to samples as received.

5835 COOPERS AVENUE
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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z474070

PROJECT: 171-01603-00

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
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 - NO3- I	LACHAT FIA
Trace Organics Analysis			
Benzo(a)pyrene	ORG-91-5105	EPA SW846 3540 & 8270	GC/MS
Polychlorinated Biphenyls	ORG-91-5112	Regulation 558, EPA SW846 3510C/8082	GC/ECD
Decachlorobiphenyl	ORG-91-5112	EPA SW846 3510C/8082	GC/ECD
PCB Extr	ORG-91-5112	EPA SW846 3510C/8082	N/A
Vinyl Chloride	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1 Dichloroethene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Dichloromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Chloroform	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Benzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trichloroethene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Tetrachloroethene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS

Results relate only to the items tested. Results apply to samples as received.

1 large

AGAT Laboratories

RUSH!

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 19Z174070

Cooler Quantity:

Arrival Temperatures: 5.3 15.1 5.6
LT: 1.8 11.6 11.5

Custody Seal Intact: ☐ Yes ☐ No ☑ N/A

Notes: on ice

Report Information:

Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☐ Regulation 153/04
Table (Indicate One) ☐ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (Check One) ☐ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary ☐ Storm
Region (Indicate One) ☐ MISA

☑ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☑ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 171-01603-00
Site Location:
Sampled By: A.M.
AGAT Quote #: PO:
Please note: if quotation number is not provided, client will be billed full price for analysis.

Is this submission for a Record of Site Condition? ☐ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☑ 153 Metals (incl. Hydrides))	O. Reg 153: ORPs: ☐ B-HWS ☐ Cr ☐ CN ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☑ VOC ☒ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☑ M&I ☑ VOCs ☐ ABNs ☒ BieP ☑ PCBs	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
TCLP	2019-05-31		4	S														☑	

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Adrian Menyhart	May 31 2019	12:35pm		19-05-31	12h35
LD to Puro	19-5-31	Time 16h00	Avineet Minhas AM	June 1/19	10:55am
Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time

Page 1 of 1

N°:

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CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 171-01603-00

AGAT WORK ORDER: 19Z474075

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Supervisor

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

DATE REPORTED: Jun 04, 2019

PAGES (INCLUDING COVER): 12

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z474075

PROJECT: 171-01603-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

O. Reg. 153(511) - Metals (Including Hydrides) (Soil)

DATE RECEIVED: 2019-05-31

DATE REPORTED: 2019-06-04

		SAMPLE DESCRIPTION:		G1	G2	G3
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2019-05-31	2019-05-31	2019-05-31
Parameter	Unit	G / S	RDL	236377	236378	236379
Antimony	µg/g		0.8	<0.8	<0.8	<0.8
Arsenic	µg/g		1	5	7	6
Barium	µg/g		2	73	124	90
Beryllium	µg/g		0.5	<0.5	0.6	<0.5
Boron	µg/g		5	6	12	7
Cadmium	µg/g		0.5	<0.5	<0.5	<0.5
Chromium	µg/g		2	15	23	17
Cobalt	µg/g		0.5	8.7	12.4	10.1
Copper	µg/g		1	18	30	22
Lead	µg/g		1	12	28	16
Molybdenum	µg/g		0.5	1.6	1.4	2.3
Nickel	µg/g		1	19	32	23
Selenium	µg/g		0.4	<0.4	0.5	<0.4
Silver	µg/g		0.2	<0.2	<0.2	<0.2
Thallium	µg/g		0.4	<0.4	<0.4	<0.4
Uranium	µg/g		0.5	0.7	0.7	0.7
Vanadium	µg/g		1	21	27	23
Zinc	µg/g		5	43	99	43

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

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z474075

PROJECT: 171-01603-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

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

DATE RECEIVED: 2019-05-31

DATE REPORTED: 2019-06-04

		SAMPLE DESCRIPTION:		G1	G2	G3
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2019-05-31	2019-05-31	2019-05-31
Parameter	Unit	G / S	RDL	236377	236378	236379
F1 (C6 to C10)	µg/g		5	5	26	7
F1 (C6 to C10) minus BTEX	µg/g		5	.	.	.
F2 (C10 to C16)	µg/g		10	<10	20	10
F3 (C16 to C34)	µg/g		50	<50	<50	<50
F4 (C34 to C50)	µg/g		50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA	NA	NA
Moisture Content	%		0.1	12.6	5.9	8.3
Surrogate	Unit	Acceptable Limits				
Terphenyl	%	60-140		110	99	81

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

236377-236379 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 19Z474075

PROJECT: 171-01603-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

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

DATE RECEIVED: 2019-05-31

DATE REPORTED: 2019-06-04

		SAMPLE DESCRIPTION:		G1	G2	G3
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2019-05-31	2019-05-31	2019-05-31
Parameter	Unit	G / S	RDL	236377	236378	236379
Dichlorodifluoromethane	µg/g		0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g		0.02	<0.02	<0.02	<0.02
Bromomethane	ug/g		0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g		0.05	<0.05	<0.05	<0.05
Acetone	ug/g		0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g		0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g		0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g		0.05	<0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g		0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g		0.02	<0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g		0.50	<0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g		0.02	<0.02	<0.02	<0.02
Chloroform	ug/g		0.04	<0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g		0.03	<0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g		0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g		0.05	<0.05	<0.05	<0.05
Benzene	ug/g		0.02	<0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g		0.03	<0.03	<0.03	<0.03
Trichloroethylene	ug/g		0.03	<0.03	<0.03	<0.03
Bromodichloromethane	ug/g		0.05	<0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g		0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g		0.04	<0.04	<0.04	<0.04
Toluene	ug/g		0.05	<0.05	0.09	<0.05
Dibromochloromethane	ug/g		0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g		0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g		0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g		0.04	<0.04	<0.04	<0.04
Chlorobenzene	ug/g		0.05	<0.05	<0.05	<0.05
Ethylbenzene	ug/g		0.05	<0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	0.17	<0.05

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 19Z474075

PROJECT: 171-01603-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

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

DATE RECEIVED: 2019-05-31

DATE REPORTED: 2019-06-04

				SAMPLE DESCRIPTION:	G1	G2	G3
				SAMPLE TYPE:	Soil	Soil	Soil
				DATE SAMPLED:	2019-05-31	2019-05-31	2019-05-31
Parameter	Unit	G / S	RDL		236377	236378	236379
Bromoform	ug/g		0.05		<0.05	<0.05	<0.05
Styrene	ug/g		0.05		<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g		0.05		<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05		<0.05	0.05	<0.05
1,3-Dichlorobenzene	ug/g		0.05		<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g		0.05		<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g		0.05		<0.05	<0.05	<0.05
Xylene Mixture	ug/g		0.05		<0.05	0.22	<0.05
1,3-Dichloropropene	µg/g		0.04		<0.04	<0.04	<0.04
n-Hexane	µg/g		0.05		<0.05	1.2	<0.05
Surrogate	Unit	Acceptable Limits					
Toluene-d8	% Recovery	50-140			106	91	111
4-Bromofluorobenzene	% Recovery	50-140			87	102	95

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

236377-236379 The sample was analyzed 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.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene + o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

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MISSISSAUGA, ONTARIO
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FAX (905)712-5122
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 171-01603-00
SAMPLING SITE:

AGAT WORK ORDER: 19Z474075
ATTENTION TO: Adrian Menyhart
SAMPLED BY:A.M.

Soil Analysis

RPT Date:			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 (Including Hydrides) (Soil)															
Antimony	238747		<0.8	<0.8	NA	< 0.8	117%	70%	130%	94%	80%	120%	81%	70%	130%
Arsenic	238747		2	2	NA	< 1	106%	70%	130%	101%	80%	120%	107%	70%	130%
Barium	238747		51	52	1.9%	< 2	103%	70%	130%	99%	80%	120%	101%	70%	130%
Beryllium	238747		<0.5	<0.5	NA	< 0.5	84%	70%	130%	100%	80%	120%	89%	70%	130%
Boron	238747		6	6	NA	< 5	72%	70%	130%	104%	80%	120%	94%	70%	130%
Cadmium	238747		<0.5	<0.5	NA	< 0.5	100%	70%	130%	100%	80%	120%	99%	70%	130%
Chromium	238747		11	11	0.0%	< 2	85%	70%	130%	93%	80%	120%	91%	70%	130%
Cobalt	238747		4.3	4.4	2.3%	< 0.5	84%	70%	130%	98%	80%	120%	90%	70%	130%
Copper	238747		9	9	0.0%	< 1	87%	70%	130%	96%	80%	120%	83%	70%	130%
Lead	238747		5	6	18.2%	< 1	99%	70%	130%	94%	80%	120%	90%	70%	130%
Molybdenum	238747		<0.5	<0.5	NA	< 0.5	105%	70%	130%	103%	80%	120%	105%	70%	130%
Nickel	238747		10	10	0.0%	< 1	91%	70%	130%	102%	80%	120%	90%	70%	130%
Selenium	238747		<0.4	0.6	NA	< 0.4	115%	70%	130%	100%	80%	120%	101%	70%	130%
Silver	238747		<0.2	<0.2	NA	< 0.2	94%	70%	130%	98%	80%	120%	92%	70%	130%
Thallium	238747		<0.4	<0.4	NA	< 0.4	94%	70%	130%	102%	80%	120%	99%	70%	130%
Uranium	238747		0.6	0.7	NA	< 0.5	90%	70%	130%	91%	80%	120%	91%	70%	130%
Vanadium	238747		20	21	4.9%	< 1	88%	70%	130%	97%	80%	120%	95%	70%	130%
Zinc	238747		27	27	0.0%	< 5	93%	70%	130%	103%	80%	120%	91%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL

Certified By:



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AGAT Laboratories
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TEL (905)712-5100
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http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 171-01603-00
SAMPLING SITE:

AGAT WORK ORDER: 19Z474075
ATTENTION TO: Adrian Menyhart
SAMPLED BY:A.M.

Trace Organics Analysis

RPT Date:			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
O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)															
F1 (C6 to C10)	233303		< 5	< 5	NA	< 5	80%	60%	130%	89%	85%	115%	77%	70%	130%
F2 (C10 to C16)	231171		< 10	< 10	NA	< 10	108%	60%	130%	98%	80%	120%	70%	70%	130%
F3 (C16 to C34)	231171		< 50	< 50	NA	< 50	109%	60%	130%	99%	80%	120%	70%	70%	130%
F4 (C34 to C50)	231171		< 50	< 50	NA	< 50	105%	60%	130%	80%	80%	120%	108%	70%	130%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	236377	236377	< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	118%	50%	140%	97%	50%	140%
Vinyl Chloride	236377	236377	< 0.02	< 0.02	NA	< 0.02	95%	50%	140%	109%	50%	140%	95%	50%	140%
Bromomethane	236377	236377	< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	102%	50%	140%	85%	50%	140%
Trichlorofluoromethane	236377	236377	< 0.05	< 0.05	NA	< 0.05	106%	50%	140%	112%	50%	140%	94%	50%	140%
Acetone	236377	236377	< 0.50	< 0.50	NA	< 0.50	101%	50%	140%	97%	50%	140%	97%	50%	140%
1,1-Dichloroethylene	236377	236377	< 0.05	< 0.05	NA	< 0.05	91%	50%	140%	104%	60%	130%	110%	50%	140%
Methylene Chloride	236377	236377	< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	113%	60%	130%	90%	50%	140%
Trans- 1,2-Dichloroethylene	236377	236377	< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	106%	60%	130%	105%	50%	140%
Methyl tert-butyl Ether	236377	236377	< 0.05	< 0.05	NA	< 0.05	104%	50%	140%	104%	60%	130%	92%	50%	140%
1,1-Dichloroethane	236377	236377	< 0.02	< 0.02	NA	< 0.02	87%	50%	140%	90%	60%	130%	93%	50%	140%
Methyl Ethyl Ketone	236377	236377	< 0.50	< 0.50	NA	< 0.50	86%	50%	140%	106%	50%	140%	103%	50%	140%
Cis- 1,2-Dichloroethylene	236377	236377	< 0.02	< 0.02	NA	< 0.02	105%	50%	140%	100%	60%	130%	104%	50%	140%
Chloroform	236377	236377	< 0.04	< 0.04	NA	< 0.04	108%	50%	140%	109%	60%	130%	91%	50%	140%
1,2-Dichloroethane	236377	236377	< 0.03	< 0.03	NA	< 0.03	101%	50%	140%	97%	60%	130%	88%	50%	140%
1,1,1-Trichloroethane	236377	236377	< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	104%	60%	130%	102%	50%	140%
Carbon Tetrachloride	236377	236377	< 0.05	< 0.05	NA	< 0.05	100%	50%	140%	112%	60%	130%	102%	50%	140%
Benzene	236377	236377	< 0.02	< 0.02	NA	< 0.02	101%	50%	140%	99%	60%	130%	106%	50%	140%
1,2-Dichloropropane	236377	236377	< 0.03	< 0.03	NA	< 0.03	99%	50%	140%	100%	60%	130%	93%	50%	140%
Trichloroethylene	236377	236377	< 0.03	< 0.03	NA	< 0.03	94%	50%	140%	96%	60%	130%	112%	50%	140%
Bromodichloromethane	236377	236377	< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	108%	60%	130%	106%	50%	140%
Methyl Isobutyl Ketone	236377	236377	< 0.50	< 0.50	NA	< 0.50	108%	50%	140%	99%	50%	140%	92%	50%	140%
1,1,2-Trichloroethane	236377	236377	< 0.04	< 0.04	NA	< 0.04	111%	50%	140%	110%	60%	130%	97%	50%	140%
Toluene	236377	236377	< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	119%	60%	130%	110%	50%	140%
Dibromochloromethane	236377	236377	< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	104%	60%	130%	102%	50%	140%
Ethylene Dibromide	236377	236377	< 0.04	< 0.04	NA	< 0.04	102%	50%	140%	106%	60%	130%	83%	50%	140%
Tetrachloroethylene	236377	236377	< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	113%	60%	130%	90%	50%	140%
1,1,1,2-Tetrachloroethane	236377	236377	< 0.04	< 0.04	NA	< 0.04	106%	50%	140%	112%	60%	130%	112%	50%	140%
Chlorobenzene	236377	236377	< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	114%	60%	130%	93%	50%	140%
Ethylbenzene	236377	236377	< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	114%	60%	130%	111%	50%	140%
m & p-Xylene	236377	236377	< 0.05	< 0.05	NA	< 0.05	118%	50%	140%	119%	60%	130%	102%	50%	140%
Bromoform	236377	236377	< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	105%	60%	130%	111%	50%	140%
Styrene	236377	236377	< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	99%	60%	130%	92%	50%	140%
1,1,2,2-Tetrachloroethane	236377	236377	< 0.05	< 0.05	NA	< 0.05	115%	50%	140%	105%	60%	130%	98%	50%	140%
o-Xylene	236377	236377	< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	114%	60%	130%	76%	50%	140%

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Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 171-01603-00
SAMPLING SITE:

AGAT WORK ORDER: 19Z474075
ATTENTION TO: Adrian Menyhart
SAMPLED BY:A.M.

Trace Organics Analysis (Continued)

RPT Date:			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
1,3-Dichlorobenzene	236377	236377	< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	103%	60%	130%	72%	50%	140%
1,4-Dichlorobenzene	236377	236377	< 0.05	< 0.05	NA	< 0.05	97%	50%	140%	96%	60%	130%	71%	50%	140%
1,2-Dichlorobenzene	236377	236377	< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	94%	60%	130%	74%	50%	140%
1,3-Dichloropropene	236377	236377	< 0.04	< 0.04	NA	< 0.04	99%	50%	140%	108%	60%	130%	93%	50%	140%
n-Hexane	236377	236377	< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	104%	60%	130%	91%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z474075

PROJECT: 171-01603-00

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

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
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

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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z474075

PROJECT: 171-01603-00

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
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	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009	CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS

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http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z474075

PROJECT: 171-01603-00

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260D	(P&T)GC/MS

Results relate only to the items tested. Results apply to samples as received.

1 large

AGAT Laboratories

RUSH!

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Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table (Indicate One) ☐ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (Check One) ☐ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary ☐ Storm
Region (Indicate One) ☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a Record of Site Condition? ☐ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Project Information:

Project: 171-01603-00
Site Location:
Sampled By: A.M.
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Laboratory Use Only

Work Order #: 19274075
Cooler Quantity: One
Arrival Temperatures: 5.3 5.1 15.6
LT: 1.8 11.7 11.6
Custody Seal Intact: ☐ Yes ☐ No ☑ N/A
Notes: Mine

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☑ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☑ 153 Metals (incl. Hydrides))	O. Reg 153: ORPs (☐ B-HWS ☐ Cl ☐ CN ☐ CrVI ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR)	O. Reg 153: Full Metals Scan	O. Reg 153: Regulation/Custom Metals	O. Reg 153: Nutrients (☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2)	O. Reg 153: Volatiles (☑ VOC ☑ BTEX ☐ THM)	O. Reg 153: PHCs F1 - F4	O. Reg 153: ABNs	O. Reg 153: PAHs	O. Reg 153: PCBs (☐ Total ☐ Aroclors)	O. Reg 153: Organochlorine Pesticides	O. Reg 153: TCLP (☑ M&I ☐ VOCs ☐ ABNs ☑ B(a)P ☑ PCBs)	O. Reg 153: Sewer Use	Potentially Hazardous or High Concentration (Y/N)
G1	2019-05-31		3	S			☑					☑	☑							
G2	2019-05-31		3	S			☑					☑	☑							
G3	2019-05-31		3	S			☑					☑	☑							
WSH																				

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
ADRIAN MENYHART	MAY 31 2019	12:35 pm	[illegible]	2019-05-31	12h35
Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
IBTaPuno 19-5-31	16h00		Avneet Minhas AM	June 1/19	10:55 am
Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time

Page 1 of 1

N°:

AGAT Laboratories

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

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 17M-01348-00-SLREM

AGAT WORK ORDER: 19Z479405

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Supervisor

DATE REPORTED: Jun 18, 2019

PAGES (INCLUDING COVER): 5

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 19Z479405

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

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

DATE RECEIVED: 2019-06-13

DATE REPORTED: 2019-06-18

		SAMPLE DESCRIPTION:		AREA5-SW1	AREA5-SW2	AREA5-B1	AREA5-B2	AREA5-B02
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-06-12	2019-06-12	2019-06-12	2019-06-12	2019-06-12
Parameter	Unit	G / S	RDL	271065	271066	271067	271068	271069
Electrical Conductivity	mS/cm	0.7	0.005	0.286	0.338	0.298	0.324	0.328

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

271065-271069 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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CANADA L4Z 1Y2
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FAX (905)712-5122
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z479405

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

Soil Analysis

RPT Date: Jun 18, 2019			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
O. Reg. 153(511) - ORPs (Soil)															
Electrical Conductivity	272447		0.223	0.225	0.9%	< 0.005	101%	90%	110%	NA			NA		

Comments: NA signifies Not Applicable.

Certified By:

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Results relate only to the items tested. Results apply to samples as received.

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

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z479405

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

(14)

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 1972479405

Cooler Quantity: One - on ice

Arrival Temperatures: 8.4 7.5 7.9 / 6.1 6.4 6.3

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes:

Report Information:

Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☑ Regulation 153/04
Table 3 (Indicate One)
☐ Ind/Com
☐ Res/Park
☐ Agriculture
Soil Texture (Check One)
☑ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region: (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a **Record of Site Condition?** ☑ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17M-01348-00-SLREM
Site Location:
Sampled By: A.M.
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company:
Contact:
Address:
Email: payables.ontario@wsp.com

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI	O. Reg 153: Metals and Inorganics	O. Reg 153: ORPs	Full Metals Scan	Regulation/Custom Metals	Nutrients	Volatiles	PHCs F1 - F4	ABNs	PAHs	PCBs	Organochlorine Pesticides	TCLP	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
AREA5 - SW1	JUNE 12'19	3 PM	1	S				/												
AREA5 - SW2	"	"	"	"				/												
AREA5 - B1	"	"	"	"				/												
AREA5 - B2	"	"	"	"				/												
AREA5 - B02	"	"	"	"				/												

Samples Relinquished By (Print Name and Sign): Adrian Menyhart	Date: JUNE 12/19	Time: 7:30PM	Samples Received By (Print Name and Sign): LBerthelett	Date: 19-06-13	Time: 10h00
Samples Relinquished By (Print Name and Sign): (BM) FedEx	Date: 19-06-13	Time:	Samples Received By (Print Name and Sign):	Date: 19/6/14	Time:
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:

Page 1 of 1

N°:

AGAT Laboratories

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http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 17M-01348-00-SLREM

AGAT WORK ORDER: 19Z479412

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

DATE REPORTED: Jun 18, 2019

PAGES (INCLUDING COVER): 6

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.

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Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z479412

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

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

DATE RECEIVED: 2019-06-13

DATE REPORTED: 2019-06-18

		SAMPLE DESCRIPTION:		AREA2-EW1	AREA2-EW2	AREA2-EB1	AREA2-EB2	AREA2-EW02
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-06-12	2019-06-12	2019-06-12	2019-06-12	2019-06-12
Parameter	Unit	G / S	RDL	271077	271083	271084	271085	271086
Benzene	µg/g	0.21	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	3.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	180	85	120	630	98
F4 (C34 to C50)	µg/g	2800	50	98	<50	110	340	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA	NA
Moisture Content	%		0.1	9.2	24.2	13.9	20.8	24.4
Surrogate	Unit	Acceptable Limits						
Terphenyl	%	60-140		99	99	89	88	100

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

271077-271086 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
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 with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 19Z479412

PROJECT: 17M-01348-00-SLREM

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CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
271085	AREA2-EB2	ON T3 S RPI CT	O. Reg. 153(511) - PHCs F1 - F4 (Soil)	F3 (C16 to C34)	µg/g	300	630

Results relate only to the items tested. Results apply to samples as received.

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http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 17M-01348-00-SLREM
SAMPLING SITE:

AGAT WORK ORDER: 19Z479412
ATTENTION TO: Adrian Menyhart
SAMPLED BY:A.M.

Trace Organics Analysis

RPT Date: Jun 18, 2019			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
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	267786		< 0.02	< 0.02	NA	< 0.02	86%	60%	130%	86%	60%	130%	82%	60%	130%
Toluene	267786		< 0.05	< 0.05	NA	< 0.05	89%	60%	130%	81%	60%	130%	86%	60%	130%
Ethylbenzene	267786		< 0.05	< 0.05	NA	< 0.05	87%	60%	130%	89%	60%	130%	84%	60%	130%
Xylene Mixture	267786		< 0.05	< 0.05	NA	< 0.05	90%	60%	130%	81%	60%	130%	86%	60%	130%
F1 (C6 to C10)	267786		< 5	< 5	NA	< 5	116%	60%	130%	113%	85%	115%	94%	70%	130%
F2 (C10 to C16)	247073		< 10	< 10	NA	< 10	92%	60%	130%	83%	80%	120%	74%	70%	130%
F3 (C16 to C34)	247073		< 50	< 50	NA	< 50	91%	60%	130%	92%	80%	120%	88%	70%	130%
F4 (C34 to C50)	247073		< 50	< 50	NA	< 50	94%	60%	130%	110%	80%	120%	110%	70%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Results relate only to the items tested. Results apply to samples as received.

5835 COOPERS AVENUE
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http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z479412

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	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	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Project Information:

Project: 17M-01348-00-SLREM
Site Location:
Sampled By: A.M.
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐
Company:
Contact:
Address:
Email: Payables.Ontario@wsp.com

Regulatory Requirements:

(Please check all applicable boxes) ☐ No Regulatory Requirement

☑ Regulation 153/04 — Table 3 (Indicate One) — ☐ Ind/Com ☐ Res/Park ☐ Agriculture — Soil Texture (Check One): ☑ Coarse ☐ Fine

☐ Sewer Use — ☐ Sanitary ☐ Storm — Region (Indicate One) ☐ MISA

☐ Regulation 558 ☐ CCME ☐ Prov. Water Quality Objectives (PWQO) ☐ Other (Indicate One)

Is this submission for a Record of Site Condition? ☑ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Laboratory Use Only

Work Order #: 1974 79.412
Cooler Quantity: one - on ice
Arrival Temperatures: 6.8 16.7 17.5 / 6.1 16.4 16.3
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply) RUSH!
☑ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):
(→ REGULAR)
Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays
For 'Same Day' analysis, please contact your AGAT CPM

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	Full Metals Scan	Regulation/Custom Metals	Volatiles: ☒ VOC ☐ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
AREA2 - EW1	JUNE 12'19	2 PM	2	S							✓						
AREA2 - EW2											✓						
AREA2 - EB1											✓						
AREA2 - EB2											✓						
AREA2 - EW02											✓						

Sample(s) Relinquished By (Print Name and Sign): Adrian Menyhart — Date: JUNE 12 2019 — Time: 7:30 PM
Sample(s) Relinquished By (Print Name and Sign): Fedex — Date: 19-06-13 — Time: 6h00
Samples Received By (Print Name and Sign): Bertha Lee — Date: 19-06-13 — Time: 10h00
Samples Received By (Print Name and Sign): — Date: 19/C/14 — Time: 9440

Page 1 of 1

Document ID: DIV-78-1511.016

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

Date Issued: March 22, 2019

AGAT Laboratories

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CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 17M-01348-00-SLREM

AGAT WORK ORDER: 19Z479422

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

DATE REPORTED: Jun 18, 2019

PAGES (INCLUDING COVER): 5

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.

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All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

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Certificate of Analysis

AGAT WORK ORDER: 19Z479422

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

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

DATE RECEIVED: 2019-06-13

DATE REPORTED: 2019-06-18

		SAMPLE DESCRIPTION:		AREA3-WW1	AREA3-WW2	AREA3-WB1	AREA3-WB2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-06-12	2019-06-12	2019-06-12	2019-06-12
Parameter	Unit	G / S	RDL	271116	271120	271121	271122
Benzene	µg/g	0.21	0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	2	0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	3.1	0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	79	97	<50	62
F4 (C34 to C50)	µg/g	2800	50	<50	69	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA
Moisture Content	%		0.1	16.0	15.3	22.9	22.3
Surrogate	Unit	Acceptable Limits					
Terphenyl	%	60-140		87	100	90	120

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

271116-271122 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
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 with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 17M-01348-00-SLREM
SAMPLING SITE:

AGAT WORK ORDER: 19Z479422
ATTENTION TO: Adrian Menyhart
SAMPLED BY:A.M.

Trace Organics Analysis

RPT Date: Jun 18, 2019			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
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	272324		< 0.02	< 0.02	NA	< 0.02	103%	60%	130%	110%	60%	130%	97%	60%	130%
Toluene	272324		< 0.05	< 0.05	NA	< 0.05	108%	60%	130%	103%	60%	130%	108%	60%	130%
Ethylbenzene	272324		< 0.05	< 0.05	NA	< 0.05	104%	60%	130%	104%	60%	130%	103%	60%	130%
Xylene Mixture	272324		< 0.05	< 0.05	NA	< 0.05	107%	60%	130%	108%	60%	130%	108%	60%	130%
F1 (C6 to C10)	272324		< 5	< 5	NA	< 5	111%	60%	130%	105%	85%	115%	91%	70%	130%
F2 (C10 to C16)	247073		< 10	< 10	NA	< 10	92%	60%	130%	83%	80%	120%	74%	70%	130%
F3 (C16 to C34)	247073		< 50	< 50	NA	< 50	91%	60%	130%	92%	80%	120%	88%	70%	130%
F4 (C34 to C50)	247073		< 50	< 50	NA	< 50	94%	60%	130%	110%	80%	120%	110%	70%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Results relate only to the items tested. Results apply to samples as received.

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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z479422

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:A.M.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	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	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

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AGAT Laboratories

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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Project Information:

Project: 17M-01348-00-SLREM
Site Location:
Sampled By: A.M.
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐
Company:
Contact:
Address:
Email: Payable.ontario@wsp.com

Regulatory Requirements:

(Please check all applicable boxes)

☐ No Regulatory Requirement

☑ Regulation 153/04
Table 3 (Indicate One)
☐ Ind/Comm
☐ Res/Park
☐ Agriculture
Soil Texture (Check One)
☑ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a Record of Site Condition? ☑ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Sample Matrix Legend

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

Laboratory Use Only

Work Order #: 19Z479422
Cooler Quantity: One on ice
Arrival Temperatures: 4.8 | 5.5 | 5.4
6 | 6 | 6.3
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply) RUSH!
☑ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays
For 'Same Day' analysis, please contact your AGAT CPM

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☑ 153 Metals (incl. Hydrides))	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr6+ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH3 ☐ TKN ☐ NO3 ☐ NO2 ☐ NO3+NO2	Volatiles: ☑ VOC ☐ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
AREA3 - WW1	JUNE 12 '19	2:30 PM	2	S									✓							
AREA3 - WW2	"	"	"	"									✓							
AREA3 - WB1	"	"	"	"									✓							
AREA3 - WB2	"	"	"	"									✓							

Samples Relinquished By (Print Name and Sign): (B) Hotcdes
Date: JUNE 12 2019 Time: 7:30 PM
Samples Received By (Print Name and Sign): LBerthelet
Date: 19/06/13 Time: 10h00
Samples Relinquished By (Print Name and Sign):
Date: Time:
Samples Received By (Print Name and Sign): Simon
Date: 19/6/14 Time:
Samples Relinquished By (Print Name and Sign):
Date: 19-06-13 Time: 10h00
Samples Received By (Print Name and Sign):
Date: Time: 9 AM
Page 1 of 1
N°:

Document ID: DW-19-1511-016

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Date Issued: March 22, 2019

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(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 17M-01348-00-SLREM

AGAT WORK ORDER: 19Z479431

TRACE ORGANICS REVIEWED BY: Pinkal Patel, Report Reviewer

DATE REPORTED: Jun 18, 2019

PAGES (INCLUDING COVER): 11

VERSION*: 1

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

*NOTES

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Certificate of Analysis

AGAT WORK ORDER: 19Z479431

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-13

DATE REPORTED: 2019-06-18

SAMPLE DESCRIPTION:				AREA1-TPA-1	AREA1-TPB-1	AREA1-TPC-1	AREA1-TPD-1	AREA1-TPE-1	AREA1-TPF-1	AREA1-TPF-2	AREA1-TPE-G1
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2019-06-12	2019-06-12	2019-06-12	2019-06-12	2019-06-12	2019-06-12	2019-06-12	2019-06-12
Parameter	Unit	G / S	RDL	271139	271159	271160	271161	271162	271163	271164	271165
Naphthalene	µg/g	0.6	0.05	<0.05	<0.05	<0.05	<0.05	0.75	<0.05	<0.05	0.11
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	7.9	0.05	<0.05	<0.05	<0.05	0.13	1.7	<0.05	0.08	0.45
Fluorene	µg/g	62	0.05	<0.05	0.06	<0.05	0.18	3.1	<0.05	0.09	0.72
Phenanthrene	µg/g	6.2	0.05	0.15	0.51	0.07	1.6	22	<0.05	0.70	6.0
Anthracene	µg/g	0.67	0.05	0.05	0.16	<0.05	0.45	6.1	<0.05	0.25	1.7
Fluoranthene	µg/g	0.69	0.05	0.31	0.63	0.13	2.3	24	<0.05	1.4	7.1
Pyrene	µg/g	78	0.05	0.24	0.48	0.10	1.9	19	<0.05	1.1	5.6
Benz(a)anthracene	µg/g	0.5	0.05	0.14	0.28	0.06	1.3	11	<0.05	0.62	3.5
Chrysene	µg/g	7	0.05	0.15	0.27	0.06	1.3	11	<0.05	0.61	3.4
Benzo(b)fluoranthene	µg/g	0.78	0.05	0.13	0.27	<0.05	0.67	7.0	<0.05	0.58	3.0
Benzo(k)fluoranthene	µg/g	0.78	0.05	0.05	0.13	<0.05	0.38	3.2	<0.05	0.26	1.4
Benzo(a)pyrene	µg/g	0.3	0.05	0.09	0.21	<0.05	0.63	5.6	<0.05	0.42	2.1
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	<0.05	0.10	<0.05	0.30	2.0	<0.05	0.20	0.99
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	0.06	0.40	<0.05	<0.05	0.20
Benzo(g,h,i)perylene	µg/g	6.6	0.05	0.07	0.12	<0.05	0.33	2.2	<0.05	0.20	1.0
2-and 1-methyl Naphthalene	µg/g	0.99	0.05	<0.05	<0.05	<0.05	0.05	0.63	<0.05	<0.05	0.16
Moisture Content	%		0.1	27.8	8.3	25.6	19.8	15.8	28.1	18.0	15.2
Surrogate	Unit	Acceptable Limits									
Chrysene-d12	%	50-140		125	94	111	117	105	84	118	114

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 19Z479431

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-13

DATE REPORTED: 2019-06-18

		SAMPLE DESCRIPTION:		AREA1-TPE-G2	AREA1-TPE-G3
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-06-12	2019-06-12
Parameter	Unit	G / S	RDL	271166	271167
Naphthalene	µg/g	0.6	0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05
Acenaphthene	µg/g	7.9	0.05	<0.05	<0.05
Fluorene	µg/g	62	0.05	<0.05	<0.05
Phenanthrene	µg/g	6.2	0.05	<0.05	0.15
Anthracene	µg/g	0.67	0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	<0.05	0.26
Pyrene	µg/g	78	0.05	<0.05	0.20
Benz(a)anthracene	µg/g	0.5	0.05	<0.05	0.12
Chrysene	µg/g	7	0.05	<0.05	0.12
Benzo(b)fluoranthene	µg/g	0.78	0.05	<0.05	0.10
Benzo(k)fluoranthene	µg/g	0.78	0.05	<0.05	0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	0.08
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	6.6	0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	0.99	0.05	<0.05	<0.05
Moisture Content	%		0.1	19.7	15.7
Surrogate	Unit	Acceptable Limits			
Chrysene-d12	%	50-140		119	105

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

271139-271167 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.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z479431

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-13

DATE REPORTED: 2019-06-18

		SAMPLE DESCRIPTION:		G1	G3
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-06-12	2019-06-12
Parameter	Unit	G / S	RDL	274648	274649
Benzene	µg/g	0.21	0.02	<0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05	<0.05
Ethylbenzene	µg/g	2	0.05	<0.05	<0.05
Xylene Mixture	µg/g	3.1	0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	65
F4 (C34 to C50)	µg/g	2800	50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA
Moisture Content	%		0.1	27.8	8.3
Surrogate	Unit	Acceptable Limits			
Terphenyl	%	60-140		68	81

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

274648-274649 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 – C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z479431

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-13

DATE REPORTED: 2019-06-18

		SAMPLE DESCRIPTION:		AREA1-TPA-1	AREA1-TPB-1	AREA1-TPC-1	AREA1-TPD-1	AREA1-TPE-1	AREA1-TPF-1	AREA1-TPF-2	AREA1-TPE-G1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-06-12	2019-06-12	2019-06-12	2019-06-12	2019-06-12	2019-06-12	2019-06-12	2019-06-12
Parameter	Unit	G / S	RDL	271139	271159	271160	271161	271162	271163	271164	271165
Benzene	µg/g	0.21	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	3.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10	<10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	180	74	<50	61	470	<50	310	290
F3 (C16 to C34) minus PAHs	µg/g		50	180	71	<50	52	380	<50	300	260
F4 (C34 to C50)	µg/g	2800	50	270	53	<50	<50	120	<50	190	160
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	10.8	11.2	25.6	19.8	15.8	28.1	18.0	15.2
Surrogate	Unit	Acceptable Limits									
Terphenyl	%	60-140		97	94	110	110	100	70	90	91

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 19Z479431

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-13

DATE REPORTED: 2019-06-18

		SAMPLE DESCRIPTION:		AREA1-TPE-G2	AREA1-TPE-G3
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-06-12	2019-06-12
Parameter	Unit	G / S	RDL	271166	271167
Benzene	µg/g	0.21	0.02	<0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05	<0.05
Ethylbenzene	µg/g	2	0.05	<0.05	<0.05
Xylene Mixture	µg/g	3.1	0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10
F3 (C16 to C34)	µg/g	300	50	120	62
F3 (C16 to C34) minus PAHs	µg/g		50	120	61
F4 (C34 to C50)	µg/g	2800	50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA
Moisture Content	%		0.1	19.7	15.7
Surrogate	Unit	Acceptable Limits			
Terphenyl	%	60-140		120	110

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AGAT WORK ORDER: 19Z479431

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-13

DATE REPORTED: 2019-06-18

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

271139-271167 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 – C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Guideline Violation

AGAT WORK ORDER: 19Z479431

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
271161	AREA1-TPD-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	1.3
271161	AREA1-TPD-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	0.63
271161	AREA1-TPD-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	2.3
271162	AREA1-TPE-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Anthracene	µg/g	0.67	6.1
271162	AREA1-TPE-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	11
271162	AREA1-TPE-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	5.6
271162	AREA1-TPE-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	µg/g	0.78	7.0
271162	AREA1-TPE-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(k)fluoranthene	µg/g	0.78	3.2
271162	AREA1-TPE-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Chrysene	µg/g	7	11
271162	AREA1-TPE-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Dibenz(a,h)anthracene	µg/g	0.1	0.40
271162	AREA1-TPE-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	24
271162	AREA1-TPE-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Indeno(1,2,3-cd)pyrene	µg/g	0.38	2.0
271162	AREA1-TPE-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Naphthalene	µg/g	0.6	0.75
271162	AREA1-TPE-1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Phenanthrene	µg/g	6.2	22
271162	AREA1-TPE-1	ON T3 S RPI CT	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)	F3 (C16 to C34)	µg/g	300	470
271164	AREA1-TPF-2	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	0.62
271164	AREA1-TPF-2	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	0.42
271164	AREA1-TPF-2	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	1.4
271164	AREA1-TPF-2	ON T3 S RPI CT	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)	F3 (C16 to C34)	µg/g	300	310
271165	AREA1-TPE-G1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Anthracene	µg/g	0.67	1.7
271165	AREA1-TPE-G1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	3.5
271165	AREA1-TPE-G1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	2.1
271165	AREA1-TPE-G1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	µg/g	0.78	3.0
271165	AREA1-TPE-G1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(k)fluoranthene	µg/g	0.78	1.4
271165	AREA1-TPE-G1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Dibenz(a,h)anthracene	µg/g	0.1	0.20
271165	AREA1-TPE-G1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	7.1
271165	AREA1-TPE-G1	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.99

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Quality Assurance

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z479431

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Jun 18, 2019			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
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)															
Benzene	267786		< 0.02	< 0.02	NA	< 0.02	86%	60%	130%	86%	60%	130%	82%	60%	130%
Toluene	267786		< 0.05	< 0.05	NA	< 0.05	89%	60%	130%	81%	60%	130%	86%	60%	130%
Ethylbenzene	267786		< 0.05	< 0.05	NA	< 0.05	87%	60%	130%	89%	60%	130%	84%	60%	130%
Xylene Mixture	267786		< 0.05	< 0.05	NA	< 0.05	90%	60%	130%	81%	60%	130%	86%	60%	130%
F1 (C6 to C10)	267786		< 5	< 5	NA	< 5	116%	60%	130%	113%	85%	115%	94%	70%	130%
F2 (C10 to C16)	274649	274649	< 10	< 10	NA	< 10	105%	60%	130%	101%	80%	120%	82%	70%	130%
F3 (C16 to C34)	274649	274649	65	64	NA	< 50	103%	60%	130%	105%	80%	120%	86%	70%	130%
F4 (C34 to C50)	274649	274649	< 50	< 50	NA	< 50	70%	60%	130%	104%	80%	120%	96%	70%	130%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	271160	271160	< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	65%	50%	140%	73%	50%	140%
Acenaphthylene	271160	271160	< 0.05	< 0.05	NA	< 0.05	106%	50%	140%	65%	50%	140%	70%	50%	140%
Acenaphthene	271160	271160	< 0.05	< 0.05	NA	< 0.05	106%	50%	140%	62%	50%	140%	72%	50%	140%
Fluorene	271160	271160	< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	65%	50%	140%	74%	50%	140%
Phenanthrene	271160	271160	0.07	0.07	NA	< 0.05	114%	50%	140%	74%	50%	140%	74%	50%	140%
Anthracene	271160	271160	< 0.05	< 0.05	NA	< 0.05	115%	50%	140%	76%	50%	140%	79%	50%	140%
Fluoranthene	271160	271160	0.13	0.13	NA	< 0.05	118%	50%	140%	79%	50%	140%	94%	50%	140%
Pyrene	271160	271160	0.10	0.10	NA	< 0.05	117%	50%	140%	81%	50%	140%	95%	50%	140%
Benz(a)anthracene	271160	271160	0.06	0.06	NA	< 0.05	113%	50%	140%	86%	50%	140%	104%	50%	140%
Chrysene	271160	271160	0.06	0.06	NA	< 0.05	119%	50%	140%	95%	50%	140%	102%	50%	140%
Benzo(b)fluoranthene	271160	271160	< 0.05	< 0.05	NA	< 0.05	97%	50%	140%	78%	50%	140%	73%	50%	140%
Benzo(k)fluoranthene	271160	271160	< 0.05	< 0.05	NA	< 0.05	107%	50%	140%	69%	50%	140%	66%	50%	140%
Benzo(a)pyrene	271160	271160	< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	68%	50%	140%	68%	50%	140%
Indeno(1,2,3-cd)pyrene	271160	271160	< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	62%	50%	140%	66%	50%	140%
Dibenz(a,h)anthracene	271160	271160	< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	72%	50%	140%	70%	50%	140%
Benzo(g,h,i)perylene	271160	271160	< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	63%	50%	140%	64%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

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Method Summary

CLIENT NAME: WSP CANADA INC
AGAT WORK ORDER: 19Z479431
PROJECT: 17M-01348-00-SLREM
ATTENTION TO: Adrian Menyhart
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Moisture Content	ORG-91-5106	EPA SW-846 3541 & 8270D	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	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	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC/FID

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

IL4

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Project Information:

Project: 17M-01348-00-SI.REM
Site Location:
Sampled By: A.M.
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company:
Contact:
Address:
Email: payables.ontario@wsp.com

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 3 (Indicate One)
☐ Ind/Comm
☐ Res/Park
☐ Agriculture
Soil Texture (Check One)
☑ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a Record of Site Condition? ☐ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Laboratory Use Only

Work Order #: 19Z479431.
Cooler Quantity: one - on ice.
Arrival Temperatures: 4.8 5.2 5.6
6.1 6.4 6.5
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply) RUSH!
☑ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	Hydride Metals	153 Metals (Incl. Hydrides)	ORPs: B-HWS	CN	Cr	EC	FOC	Hg	pH	SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: TP	NH_3	TKN	NO_3	NO_2	NO_3+NO_2	Volatiles: VOC	BTEX	THM	PHCs F1 - F4	ABNs	PAHs	PCBs: Total	Aroclors	Organochlorine Pesticides	TCLP: M&I	VOCs	ABNs	B(a)P	PCBs	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
MW4-19-TP1-1	June 12 '19	10 am	2	S																						☑			✓		✓											
MW4-19-TP8-1	"	"	"	"																									✓		✓											
MW4-19-TP6-1	"	"	"	"																									✓		✓											
MW4-19-TP9-1	"	"	"	"																									✓		✓											
MW4-19-TP5-1	"	"	"	"																									✓		✓											
MW4-19-TP7-1	"	"	"	"																									✓		✓											
MW4-19-TP4-1	"	"	"	"																									✓		✓											
MW4-19-TP4-2	"	"	"	"																									✓		✓											
MW4-19-G1		11 am																											✓		✓											
MW4-19-G2																													✓		✓											
MW4-19-G3																													✓		✓											

Samples Relinquished By (Print Name and Sign):	Date: June 12 2019	Time: 7:30 am	Samples Received By (Print Name and Sign):	Date: 19-06-13	Time: 10h00		
Samples Relinquished By (Print Name and Sign):	Date: 19-06-13	Time: 16h00	Samples Received By (Print Name and Sign):	Date: 19/6/14	Time: 9:40	Page 1 of 1	
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:	N°:	

AGAT Laboratories

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

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 17M-01348-00-SLREM

AGAT WORK ORDER: 19Z481685

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jun 25, 2019

PAGES (INCLUDING COVER): 5

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.

Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 19Z481685

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-18

DATE REPORTED: 2019-06-24

		SAMPLE DESCRIPTION:		AREA6-E4
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-06-18
Parameter	Unit	G / S	RDL	286674
Benzene	µg/g	0.21	0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05
Ethylbenzene	µg/g	2	0.05	<0.05
Xylene Mixture	µg/g	3.1	0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5
F2 (C10 to C16)	µg/g	98	10	<10
F3 (C16 to C34)	µg/g	300	50	<50
F4 (C34 to C50)	µg/g	2800	50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA
Moisture Content	%		0.1	26.5
Surrogate	Unit	Acceptable Limits		
Terphenyl	%	60-140		103

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

286674 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
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 with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopnikolof

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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MISSISSAUGA, ONTARIO
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http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z481685

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date:			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
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	274285		< 0.02	< 0.02	NA	< 0.02	102%	60%	130%	116%	60%	130%	116%	60%	130%
Toluene	274285		< 0.05	< 0.05	NA	< 0.05	109%	60%	130%	117%	60%	130%	100%	60%	130%
Ethylbenzene	274285		< 0.05	< 0.05	NA	< 0.05	115%	60%	130%	108%	60%	130%	90%	60%	130%
Xylene Mixture	274285		< 0.05	< 0.05	NA	< 0.05	107%	60%	130%	107%	60%	130%	96%	60%	130%
F1 (C6 to C10)	274285		< 5	< 5	NA	< 5	104%	60%	130%	110%	85%	115%	95%	70%	130%
F2 (C10 to C16)	243684		< 10	< 10	NA	< 10	98%	60%	130%	82%	80%	120%	87%	70%	130%
F3 (C16 to C34)	243684		< 50	< 50	NA	< 50	90%	60%	130%	83%	80%	120%	84%	70%	130%
F4 (C34 to C50)	243684		< 50	< 50	NA	< 50	95%	60%	130%	113%	80%	120%	106%	70%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: NPopnikolof

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z481685

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	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	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

I med red

RUSH!

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Project Information:

Project: 17M-01348-00-SLREM
Site Location:
Sampled By:
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐
Company: Payables, Ontario@wsp.com
Contact:
Address:
Email:

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 3 (Indicate One)
☐ Ind/Com
☑ Res/Park
☐ Agriculture
Soil Texture (Check One)
☐ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a Record of Site Condition? ☑ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Sample Matrix Legend

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

Laboratory Use Only

Work Order #: 19748 1685
Cooler Quantity: one - on ice packs
Arrival Temperatures: 17.0 | 16.5 | 17.1
5.7 | 5.2
Custody Seal Intact: ☐ Yes ☐ No ☑ N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☑ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays
For 'Same Day' analysis, please contact your AGAT CPM

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (All Metals ☐ / 153 Metals (excl. Hydrides) ☐ / 153 Metals (incl. Hydrides) ☑ / Hydride Metals ☐)	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ CrVI ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☐ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
AREA6- E4			2	S								☑	☑						
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Eve SABOURIN	18/06/19	2:42pm			
	18/06/19	2:42pm	Linda Bertrelet	19/06/19	8h30
UBBD to FedEx	19/06/19	16h00	Adrian	June 20/19	10:17

Page 1 of 1

Document ID: DW-78-1511-016

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

Date Issued: March 22, 2018

AGAT Laboratories

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

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 17M-01348-00-SLREM

AGAT WORK ORDER: 19Z487323

TRACE ORGANICS REVIEWED BY: Pinkal Patel, Report Reviewer

DATE REPORTED: Jul 12, 2019

PAGES (INCLUDING COVER): 9

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

AGAT Laboratories

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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 19Z487323

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-07-03

DATE REPORTED: 2019-07-12

		SAMPLE DESCRIPTION:		AREA1-B15	AREA1-B16	AREA1-B16-2
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2019-07-02	2019-07-02	2019-07-02
Parameter	Unit	G / S	RDL	318894	318896	318897
Naphthalene	µg/g	0.6	0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	7.9	0.05	<0.05	0.19	<0.05
Fluorene	µg/g	62	0.05	<0.05	0.12	<0.05
Phenanthrene	µg/g	6.2	0.05	<0.05	0.35	<0.05
Anthracene	µg/g	0.67	0.05	<0.05	0.28	<0.05
Fluoranthene	µg/g	0.69	0.05	<0.05	1.7	<0.05
Pyrene	µg/g	78	0.05	<0.05	1.4	<0.05
Benz(a)anthracene	µg/g	0.5	0.05	<0.05	0.83	<0.05
Chrysene	µg/g	7	0.05	<0.05	0.76	<0.05
Benzo(b)fluoranthene	µg/g	0.78	0.05	<0.05	0.86	<0.05
Benzo(k)fluoranthene	µg/g	0.78	0.05	<0.05	0.23	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	0.52	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	<0.05	0.23	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	0.05	<0.05
Benzo(g,h,i)perylene	µg/g	6.6	0.05	<0.05	0.23	<0.05
2-and 1-methyl Naphthalene	µg/g	0.99	0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	22.5	24.4	23.8
Surrogate	Unit	Acceptable Limits				
Chrysene-d12	%	50-140		96	73	89

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

318894-318897 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.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 19Z487323

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-07-03

DATE REPORTED: 2019-07-12

		SAMPLE DESCRIPTION:		AREA1-B15	AREA1-B16-2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-07-02	2019-07-02
Parameter	Unit	G / S	RDL	318894	318897
F1 (C6 to C10)	µg/g	55	5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	85
F3 (C16 to C34) minus PAHs	µg/g		50	<50	85
F4 (C34 to C50)	µg/g	2800	50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA
Moisture Content	%		0.1	22.5	23.8
Surrogate	Unit	Acceptable Limits			
Terphenyl	%	60-140		110	Y

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

318894-318897 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 – C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

5835 COOPERS AVENUE
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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 19Z487323

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

PHCs F1 - F4 (with PAHs) (Soil)

DATE RECEIVED: 2019-07-03

DATE REPORTED: 2019-07-12

		SAMPLE DESCRIPTION:		AREA1-B16
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-07-02
Parameter	Unit	G / S	RDL	318896
F1 (C6 to C10)	µg/g	55	5	<5
F2 (C10 to C16)	µg/g	98	10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10
F3 (C16 to C34)	µg/g	300	50	110
F3 (C16 to C34) minus PAHs	µg/g		50	100
F4 (C34 to C50)	µg/g	2800	50	81
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA
Moisture Content	%		0.1	24.4
Surrogate	Unit	Acceptable Limits		
Terphenyl	%	60-140		120

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

318896 The soil sample was prepared in the lab using the Methanol extraction technique. The sample was not field preserved with methanol and an Encore was not provided for analysis.
Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 – C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Guideline Violation

AGAT WORK ORDER: 19Z487323

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
318896	AREA1-B16	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	0.83
318896	AREA1-B16	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	0.52
318896	AREA1-B16	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	µg/g	0.78	0.86
318896	AREA1-B16	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	1.7

Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 17M-01348-00-SLREM
SAMPLING SITE:

AGAT WORK ORDER: 19Z487323
ATTENTION TO: Adrian Menyhart
SAMPLED BY:

Trace Organics Analysis

RPT Date: Jul 12, 2019			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
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)															
F1 (C6 to C10)	317931		< 5	< 5	NA	< 5	109%	60%	130%	105%	85%	115%	92%	70%	130%
F2 (C10 to C16)	317733		< 10	< 10	NA	< 10	100%	60%	130%	95%	80%	120%	78%	70%	130%
F3 (C16 to C34)	317733		< 50	< 50	NA	< 50	102%	60%	130%	106%	80%	120%	80%	70%	130%
F4 (C34 to C50)	317733		< 50	< 50	NA	< 50	97%	60%	130%	114%	80%	120%	85%	70%	130%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	324588		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	88%	50%	140%	72%	50%	140%
Acenaphthylene	324588		< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	92%	50%	140%	73%	50%	140%
Acenaphthene	324588		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	92%	50%	140%	74%	50%	140%
Fluorene	324588		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	89%	50%	140%	75%	50%	140%
Phenanthrene	324588		< 0.05	< 0.05	NA	< 0.05	107%	50%	140%	80%	50%	140%	67%	50%	140%
Anthracene	324588		< 0.05	< 0.05	NA	< 0.05	94%	50%	140%	81%	50%	140%	67%	50%	140%
Fluoranthene	324588		< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	98%	50%	140%	79%	50%	140%
Pyrene	324588		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	99%	50%	140%	77%	50%	140%
Benz(a)anthracene	324588		< 0.05	< 0.05	NA	< 0.05	62%	50%	140%	101%	50%	140%	68%	50%	140%
Chrysene	324588		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	101%	50%	140%	73%	50%	140%
Benzo(b)fluoranthene	324588		< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	70%	50%	140%	72%	50%	140%
Benzo(k)fluoranthene	324588		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	70%	50%	140%	65%	50%	140%
Benzo(a)pyrene	324588		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	78%	50%	140%	61%	50%	140%
Indeno(1,2,3-cd)pyrene	324588		< 0.05	< 0.05	NA	< 0.05	74%	50%	140%	86%	50%	140%	69%	50%	140%
Dibenz(a,h)anthracene	324588		< 0.05	< 0.05	NA	< 0.05	66%	50%	140%	85%	50%	140%	66%	50%	140%
Benzo(g,h,i)perylene	324588		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	88%	50%	140%	71%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)															
F1 (C6 to C10)	330832		< 5	< 5	NA	< 5	96%	60%	130%	92%	85%	115%	89%	70%	130%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	335076		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	77%	50%	140%	87%	50%	140%
Acenaphthylene	335076		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	85%	50%	140%	96%	50%	140%
Acenaphthene	335076		< 0.05	< 0.05	NA	< 0.05	106%	50%	140%	95%	50%	140%	92%	50%	140%
Fluorene	335076		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	78%	50%	140%	78%	50%	140%
Phenanthrene	335076		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	83%	50%	140%	84%	50%	140%
Anthracene	335076		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	96%	50%	140%	86%	50%	140%
Fluoranthene	335076		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	74%	50%	140%	73%	50%	140%
Pyrene	335076		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	75%	50%	140%	94%	50%	140%
Benz(a)anthracene	335076		< 0.05	< 0.05	NA	< 0.05	67%	50%	140%	85%	50%	140%	85%	50%	140%
Chrysene	335076		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	98%	50%	140%	73%	50%	140%
Benzo(b)fluoranthene	335076		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	79%	50%	140%	77%	50%	140%
Benzo(k)fluoranthene	335076		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	77%	50%	140%	97%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

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http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z487323

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Jul 12, 2019			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
Benzo(a)pyrene	335076		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	78%	50%	140%	84%	50%	140%
Indeno(1,2,3-cd)pyrene	335076		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	78%	50%	140%	88%	50%	140%
Dibenz(a,h)anthracene	335076		< 0.05	< 0.05	NA	< 0.05	75%	50%	140%	98%	50%	140%	76%	50%	140%
Benzo(g,h,i)perylene	335076		< 0.05	< 0.05	NA	< 0.05	86%	50%	140%	69%	50%	140%	81%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z487323

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Moisture Content	ORG-91-5106	EPA SW-846 3541 & 8270D	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34) minus PAHs	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	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

Results relate only to the items tested. Results apply to samples as received.

1 small bed

AGAT Laboratories

RUSH!

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table (Indicate One): ☐ Ind/Com ☑ Res/Park ☐ Agriculture
Soil Texture (Check One): ☐ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary ☐ Storm
Region (Indicate One): ☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Laboratory Use Only

Work Order #: 19748732 3

Cooler Quantity: one - once
Arrival Temperatures: 18.9 18.9 19.0
Cooler Temperatures: 6.0 6.1 6.2
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: DN ICE

Turnaround Time (TAT) Required:

Regular TAT [illegible] Business Days

Rush TAT (Rush Surcharges Apply)

☑ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply): 03/07/2019

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17M-01348-00-SLREM
Site Location:
Sampled By:
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	PHCs F1 - F4	ABNs	PAHs	Organochlorine Pesticides	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
AREA1- B15	02/07/19	13:30	2	S				☑		☑		✓	
AREA1- B16		13:38	2	S				✓		✓		✓	
AREA1- B16-2		13:45	2	S	HOLD			✓		✓		✓	
AREA1-													
AREA1-													
AREA1-													
AREA1-													
AREA1-													
AREA1-													
AREA1-													
AREA1-													

NO BTEX

Samples Relinquished By (Print Name and Sign): Eve Sabourin	Date: 02/07/2019	Time: 16h00	Samples Received By (Print Name and Sign): [illegible]
Samples Relinquished By (Print Name and Sign): [illegible]	Date: 02/07/2019	Time: 16:00	Samples Received By (Print Name and Sign): Avneet Minhas
Samples Relinquished By (Print Name and Sign): CB/BO to FedEx 19-07-03	Date: 19-07-03	Time: 16h00	Samples Received By (Print Name and Sign): [illegible]
			Date: 19-07-03 Time: 8h00
			Date: 19/7/19 Time: 10:18 am

Cooler # of 1

Document ID: DIV-78-1511-016

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

Date Issued: March 22, 2019

AGAT Laboratories

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http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 17-01348-00-SLREM

AGAT WORK ORDER: 19Z487961

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jul 12, 2019

PAGES (INCLUDING COVER): 11

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z487961

PROJECT: 17-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:3636 Innes Road

SAMPLED BY:Eva Sabourin

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

DATE RECEIVED: 2019-07-03

DATE REPORTED: 2019-07-12

		SAMPLE DESCRIPTION:		AREA1-B17-2	AREA1-B22-2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-07-03	2019-07-03
Parameter	Unit	G / S	RDL	322404	322412
Naphthalene	µg/g		0.05	<0.05	<0.05
Acenaphthylene	µg/g		0.05	<0.05	<0.05
Acenaphthene	µg/g		0.05	<0.05	<0.05
Fluorene	µg/g		0.05	<0.05	<0.05
Phenanthrene	µg/g		0.05	<0.05	<0.05
Anthracene	µg/g		0.05	<0.05	<0.05
Fluoranthene	µg/g		0.05	<0.05	<0.05
Pyrene	µg/g		0.05	<0.05	<0.05
Benz(a)anthracene	µg/g		0.05	<0.05	<0.05
Chrysene	µg/g		0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g		0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g		0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g		0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g		0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g		0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g		0.05	<0.05	<0.05
Methyl Naphthalene, 2-and 1-	µg/g		0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits			
.Chrysene-d12	%	50-140		80	92

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

322404-322412 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.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopnikolof

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AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z487961

PROJECT: 17-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:3636 Innes Road

SAMPLED BY:Eva Sabourin

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

DATE RECEIVED: 2019-07-03

DATE REPORTED: 2019-07-12

		SAMPLE DESCRIPTION:		AREA1-B17	AREA1-B18	AREA1-B19	AREA1-B20	AREA1-B21	AREA1-B22
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-07-03	2019-07-03	2019-07-03	2019-07-03	2019-07-03	2019-07-03
Parameter	Unit	G / S	RDL	322398	322405	322406	322408	322410	322411
Naphthalene	µg/g	0.6	0.05	0.34	<0.05	<0.05	<0.05	<0.05	0.06
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	7.9	0.05	1.5	<0.05	<0.05	<0.05	0.05	0.22
Fluorene	µg/g	62	0.05	1.9	<0.05	<0.05	<0.05	<0.05	0.32
Phenanthrene	µg/g	6.2	0.05	20	<0.05	<0.05	<0.05	0.06	3.0
Anthracene	µg/g	0.67	0.05	5.0	<0.05	<0.05	<0.05	<0.05	0.64
Fluoranthene	µg/g	0.69	0.05	21	0.05	<0.05	<0.05	0.05	3.9
Pyrene	µg/g	78	0.05	19	<0.05	<0.05	<0.05	<0.05	3.0
Benz(a)anthracene	µg/g	0.5	0.05	11	<0.05	<0.05	<0.05	<0.05	1.7
Chrysene	µg/g	7	0.05	11	<0.05	<0.05	<0.05	<0.05	1.6
Benzo(b)fluoranthene	µg/g	0.78	0.05	9.5	<0.05	<0.05	<0.05	<0.05	1.1
Benzo(k)fluoranthene	µg/g	0.78	0.05	4.2	<0.05	<0.05	<0.05	<0.05	0.49
Benzo(a)pyrene	µg/g	0.3	0.05	7.6	<0.05	<0.05	<0.05	<0.05	0.97
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	2.1	<0.05	<0.05	<0.05	<0.05	0.39
Dibenz(a,h)anthracene	µg/g	0.1	0.05	0.55	<0.05	<0.05	<0.05	<0.05	0.10
Benzo(g,h,i)perylene	µg/g	6.6	0.05	2.0	<0.05	<0.05	<0.05	<0.05	0.35
2-and 1-methyl Naphthalene	µg/g	0.99	0.05	0.47	<0.05	<0.05	<0.05	<0.05	0.08
Moisture Content	%		0.1	12.6	26.4	28.3	25.0	22.6	13.5
Surrogate	Unit	Acceptable Limits							
Chrysene-d12	%	50-140		65	87	93	82	102	67

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

322398-322411 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.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopnikolof

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Certificate of Analysis

AGAT WORK ORDER: 19Z487961

PROJECT: 17-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:3636 Innes Road

SAMPLED BY:Eva Sabourin

PHCs F1 - F4 (with PAHs) (Soil)

DATE RECEIVED: 2019-07-03

DATE REPORTED: 2019-07-12

		SAMPLE DESCRIPTION:		AREA1-B17-2	AREA1-B22-2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2019-07-03	2019-07-03
Parameter	Unit	G / S	RDL	322404	322412
Benzene	µg/g		0.02	<0.02	<0.02
Toluene	µg/g		0.05	<0.05	<0.05
Ethylbenzene	µg/g		0.05	<0.05	<0.05
Xylene Mixture	µg/g		0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g		5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g		5	<5	<5
F2 (C10 to C16)	µg/g		10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10
F3 (C16 to C34)	µg/g		50	<50	<50
F3 (C16 to C34) minus PAHs	µg/g		50	<50	<50
F4 (C34 to C50)	µg/g		50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA	NA
Moisture Content	%		0.1	34.7	22.0
Surrogate	Unit	Acceptable Limits			
Terphenyl	%	60-140		120	110

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

322404-322412 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 – C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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AGAT WORK ORDER: 19Z487961

PROJECT: 17-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:3636 Innes Road

SAMPLED BY:Eva Sabourin

PHCs F1 - F4 (with PAHs) (Soil)

DATE RECEIVED: 2019-07-03

DATE REPORTED: 2019-07-12

		SAMPLE DESCRIPTION:		AREA1-B17	AREA1-B18	AREA1-B19	AREA1-B20	AREA1-B21	AREA1-B22
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-07-03	2019-07-03	2019-07-03	2019-07-03	2019-07-03	2019-07-03
Parameter	Unit	G / S	RDL	322398	322405	322406	322408	322410	322411
F1 (C6 to C10)	µg/g	55	5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	15	<10	<10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	15	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	390	<50	<50	<50	81	63
F3 (C16 to C34) minus PAHs	µg/g		50	300	<50	<50	<50	81	<50
F4 (C34 to C50)	µg/g	2800	50	<50	<50	<50	<50	72	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	12.6	26.4	28.3	25.0	22.6	13.5
Surrogate	Unit	Acceptable Limits							
Terphenyl	%	60-140		75	73	72	66	100	110

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

322398-322411 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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 – C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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Guideline Violation

AGAT WORK ORDER: 19Z487961

PROJECT: 17-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
322398	AREA1-B17	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Anthracene	µg/g	0.67	5.0
322398	AREA1-B17	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	11
322398	AREA1-B17	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	7.6
322398	AREA1-B17	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	µg/g	0.78	9.5
322398	AREA1-B17	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(k)fluoranthene	µg/g	0.78	4.2
322398	AREA1-B17	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Chrysene	µg/g	7	11
322398	AREA1-B17	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Dibenz(a,h)anthracene	µg/g	0.1	0.55
322398	AREA1-B17	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	21
322398	AREA1-B17	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Indeno(1,2,3-cd)pyrene	µg/g	0.38	2.1
322398	AREA1-B17	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Phenanthrene	µg/g	6.2	20
322398	AREA1-B17	ON T3 S RPI CT	PHCs F1 - F4 (with PAHs) (Soil)	F3 (C16 to C34)	µg/g	300	390
322411	AREA1-B22	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.5	1.7
322411	AREA1-B22	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.3	0.97
322411	AREA1-B22	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	µg/g	0.78	1.1
322411	AREA1-B22	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	3.9
322411	AREA1-B22	ON T3 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.39

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Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 17-01348-00-SLREM
SAMPLING SITE:3636 Innes Road

AGAT WORK ORDER: 19Z487961
ATTENTION TO: Adrian Menyhart
SAMPLED BY:Eva Sabourin

Trace Organics Analysis

RPT Date: Jul 12, 2019			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
PHCs F1 - F4 (with PAHs) (Soil)															
F1 (C6 to C10)	326880		< 5	< 5	NA	< 5	80%	60%	130%	89%	85%	115%	89%	70%	130%
F2 (C10 to C16)	317733		< 10	< 10	NA	< 10	97%	60%	130%	105%	80%	120%	78%	70%	130%
F3 (C16 to C34)	317733		< 50	< 50	NA	< 50	94%	60%	130%	119%	80%	120%	80%	70%	130%
F4 (C34 to C50)	317733		< 50	< 50	NA	< 50	90%	60%	130%	118%	80%	120%	85%	70%	130%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	322408	322408	< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	88%	50%	140%	72%	50%	140%
Acenaphthylene	322408	322408	< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	92%	50%	140%	73%	50%	140%
Acenaphthene	322408	322408	< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	92%	50%	140%	74%	50%	140%
Fluorene	322408	322408	< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	89%	50%	140%	75%	50%	140%
Phenanthrene	322408	322408	< 0.05	< 0.05	NA	< 0.05	107%	50%	140%	80%	50%	140%	67%	50%	140%
Anthracene	322408	322408	< 0.05	< 0.05	NA	< 0.05	94%	50%	140%	81%	50%	140%	67%	50%	140%
Fluoranthene	322408	322408	< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	98%	50%	140%	79%	50%	140%
Pyrene	322408	322408	< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	99%	50%	140%	77%	50%	140%
Benz(a)anthracene	322408	322408	< 0.05	< 0.05	NA	< 0.05	62%	50%	140%	101%	50%	140%	68%	50%	140%
Chrysene	322408	322408	< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	101%	50%	140%	73%	50%	140%
Benzo(b)fluoranthene	322408	322408	< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	70%	50%	140%	72%	50%	140%
Benzo(k)fluoranthene	322408	322408	< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	70%	50%	140%	65%	50%	140%
Benzo(a)pyrene	322408	322408	< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	78%	50%	140%	61%	50%	140%
Indeno(1,2,3-cd)pyrene	322408	322408	< 0.05	< 0.05	NA	< 0.05	74%	50%	140%	86%	50%	140%	69%	50%	140%
Dibenz(a,h)anthracene	322408	322408	< 0.05	< 0.05	NA	< 0.05	66%	50%	140%	85%	50%	140%	66%	50%	140%
Benzo(g,h,i)perylene	322408	322408	< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	88%	50%	140%	71%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	324588		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	88%	50%	140%	72%	50%	140%
Acenaphthylene	324588		< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	92%	50%	140%	73%	50%	140%
Acenaphthene	324588		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	92%	50%	140%	74%	50%	140%
Fluorene	324588		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	89%	50%	140%	75%	50%	140%
Phenanthrene	324588		< 0.05	< 0.05	NA	< 0.05	107%	50%	140%	80%	50%	140%	67%	50%	140%
Anthracene	324588		< 0.05	< 0.05	NA	< 0.05	94%	50%	140%	81%	50%	140%	67%	50%	140%
Fluoranthene	324588		< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	98%	50%	140%	79%	50%	140%
Pyrene	324588		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	99%	50%	140%	77%	50%	140%
Benz(a)anthracene	324588		< 0.05	< 0.05	NA	< 0.05	62%	50%	140%	101%	50%	140%	68%	50%	140%
Chrysene	324588		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	101%	50%	140%	73%	50%	140%
Benzo(b)fluoranthene	324588		< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	70%	50%	140%	72%	50%	140%
Benzo(k)fluoranthene	324588		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	70%	50%	140%	65%	50%	140%
Benzo(a)pyrene	324588		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	78%	50%	140%	61%	50%	140%
Indeno(1,2,3-cd)pyrene	324588		< 0.05	< 0.05	NA	< 0.05	74%	50%	140%	86%	50%	140%	69%	50%	140%

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

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Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 17-01348-00-SLREM
SAMPLING SITE:3636 Innes Road

AGAT WORK ORDER: 19Z487961
ATTENTION TO: Adrian Menyhart
SAMPLED BY:Eva Sabourin

Trace Organics Analysis (Continued)

RPT Date: Jul 12, 2019			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
Dibenz(a,h)anthracene	324588		< 0.05	< 0.05	NA	< 0.05	66%	50%	140%	85%	50%	140%	66%	50%	140%
Benzo(g,h,i)perylene	324588		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	88%	50%	140%	71%	50%	140%
PHCs F1 - F4 (with PAHs) (Soil)															
Benzene	330832		< 0.02	< 0.02	NA	< 0.02	97%	60%	130%	82%	60%	130%	92%	60%	130%
Toluene	330832		< 0.05	< 0.05	NA	< 0.05	99%	60%	130%	85%	60%	130%	94%	60%	130%
Ethylbenzene	330832		< 0.05	< 0.05	NA	< 0.05	103%	60%	130%	86%	60%	130%	94%	60%	130%
Xylene Mixture	330832		< 0.05	< 0.05	NA	< 0.05	103%	60%	130%	89%	60%	130%	99%	60%	130%
F1 (C6 to C10)	330832		< 5	< 5	NA	< 5	96%	60%	130%	92%	85%	115%	89%	70%	130%

Certified By: N Popnikolof

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z487961

PROJECT: 17-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:3636 Innes Road

SAMPLED BY:Eva Sabourin

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
Methyl Naphthalene, 2-and 1-	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
.Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Moisture Content	ORG-91-5106	EPA SW-846 3541 & 8270D	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270D	GC/MS
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34) minus PAHs	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	BALANCE

Results relate only to the items tested. Results apply to samples as received.

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
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FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z487961

PROJECT: 17-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:3636 Innes Road

SAMPLED BY:Eva Sabourin

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only
Work Order #: 19748796 1

Cooler Quantity: One - ice
Arrival Temperatures: 12.6 | 13.7 | 13.1
7.4 | 8.1 | 15.2
Custody Seal Intact: ☐ Yes ☐ No ☑ N/A
Notes: on ice

Report Information:
Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)

RUSH!!

☑ Regulation 153/04
Table (Indicate One): ☐ Ind/Com ☑ Res/Park ☐ Agriculture
Soil Texture (Check One): ☐ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary ☐ Storm
Region (Indicate One): ☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Turnaround Time (TAT) Required:
Regular TAT ☐ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☑ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*
For 'Same Day' analysis, please contact your AGAT CPM

Project Information:
Project: 17M-01348-00-SLREM
Site Location: 3636 INNES
Sampled By: Eve Sabourin
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Is this submission for a Record of Site Condition? ☐ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Invoice Information: Bill To Same: Yes ☐ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend
B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☑ 153 Metals (incl. Hydrides))	ORPs: ☐ B-HWS ☐ Cr ☐ CN⁻ ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH₃ ☐ TKN ☐ NO₃ ☐ NO₂ ☐ NO₃+NO₂	Volatiles: ☐ VOC ☑ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use							Potentially Hazardous or High Concentration (Y/N)
AREA1- B17	03/09/19	12:00	2	S									✓	✓					✓	NO BTEX					
AREA1- B17-2		12:00			HOLD								✓	✓					✓						
AREA1- B18		12:15											✓	✓					✓						
AREA1- B19		12:35											✓	✓					✓						
AREA1- B19-2		12:30			HOLD								✓	✓					✓						
AREA1- B20		13:00											✓	✓					✓						
AREA1- B21-2		13:15			HOLD								✓	✓					✓						
AREA1- B21		13:20											✓	✓					✓						
AREA1- B22		10:10											✓	✓					✓						
AREA1- B22-2		10:05			HOLD								✓	✓					✓						
AREA1-																									

Samples Relinquished By (Print Name and Sign): Eve Sabourin — Date: 03/07/2019 — Time: 14:00
Samples Relinquished By (Print Name and Sign): — Date: 03/09/2019 — Time: 14:00
Samples Relinquished By (Print Name and Sign): LB/DD to FedEx — Date: 2019/07/04 — Time: 16h00
Samples Received By (Print Name and Sign): — Date: 2019-07-03 — Time: 16h45
Samples Received By (Print Name and Sign): — Date: 19/7/5 — Time: 9:36
Samples Received By (Print Name and Sign): — Date: — Time: — N°:

Page 1 of 1

Document ID: 20-78-4511-016

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

Date Issued: March 22, 2019

AGAT Laboratories

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

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 17M-01348-00-SLREM

AGAT WORK ORDER: 19Z481685

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jun 25, 2019

PAGES (INCLUDING COVER): 5

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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Certificate of Analysis

AGAT WORK ORDER: 19Z481685

PROJECT: 17M-01348-00-SLREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-06-18

DATE REPORTED: 2019-06-24

		SAMPLE DESCRIPTION:		AREA6-E4
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2019-06-18
Parameter	Unit	G / S	RDL	286674
Benzene	µg/g	0.21	0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05
Ethylbenzene	µg/g	2	0.05	<0.05
Xylene Mixture	µg/g	3.1	0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5
F2 (C10 to C16)	µg/g	98	10	<10
F3 (C16 to C34)	µg/g	300	50	<50
F4 (C34 to C50)	µg/g	2800	50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA
Moisture Content	%		0.1	26.5
Surrogate	Unit	Acceptable Limits		
Terphenyl	%	60-140		103

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

286674 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
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 with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopnikolof

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AGAT Laboratories

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Quality Assurance

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z481685

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date:			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
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	274285		< 0.02	< 0.02	NA	< 0.02	102%	60%	130%	116%	60%	130%	116%	60%	130%
Toluene	274285		< 0.05	< 0.05	NA	< 0.05	109%	60%	130%	117%	60%	130%	100%	60%	130%
Ethylbenzene	274285		< 0.05	< 0.05	NA	< 0.05	115%	60%	130%	108%	60%	130%	90%	60%	130%
Xylene Mixture	274285		< 0.05	< 0.05	NA	< 0.05	107%	60%	130%	107%	60%	130%	96%	60%	130%
F1 (C6 to C10)	274285		< 5	< 5	NA	< 5	104%	60%	130%	110%	85%	115%	95%	70%	130%
F2 (C10 to C16)	243684		< 10	< 10	NA	< 10	98%	60%	130%	82%	80%	120%	87%	70%	130%
F3 (C16 to C34)	243684		< 50	< 50	NA	< 50	90%	60%	130%	83%	80%	120%	84%	70%	130%
F4 (C34 to C50)	243684		< 50	< 50	NA	< 50	95%	60%	130%	113%	80%	120%	106%	70%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: NPopnikolof

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Results relate only to the items tested. Results apply to samples as received.

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CANADA L4Z 1Y2
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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z481685

PROJECT: 17M-01348-00-SLREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260D	P&T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	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	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

I med red

RUSH!

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP
Contact: Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: 613-690-3852 Fax:
Reports to be sent to:
1. Email: Adrian.Menyhart@wsp.com
2. Email:

Project Information:

Project: 17M-01348-00-SLREM
Site Location:
Sampled By:
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐
Company: Payables, Ontario@wsp.com
Contact:
Address:
Email:

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 3 (Indicate One)
☐ Ind/Com
☑ Res/Park
☐ Agriculture
Soil Texture (Check One)
☐ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a Record of Site Condition? ☑ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Sample Matrix Legend

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

Laboratory Use Only

Work Order #: 19748 1685
Cooler Quantity: one - on ice packs
Arrival Temperatures: 17.0 | 16.5 | 17.1
5.7 | 5.2
Custody Seal Intact: ☐ Yes ☐ No ☑ N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☑ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays
For 'Same Day' analysis, please contact your AGAT CPM

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (All Metals ☐ / 153 Metals (excl. Hydrides) ☐ / 153 Metals (incl. Hydrides) ☑ / Hydride Metals ☐)	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ CrVI ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☐ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
AREA6- E4			2	S								☑	☑						
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			
AREA6-																			

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Eve SABOURIN	18/06/19	2:42pm			
	18/06/19	2:42pm	Linda Bertrelet	19/06/19	8h30
UBBD to FedEx	19/06/19	16h00	Adrian	June 20/19	10:17

Page 1 of 1

Document ID: DW-78-1511-016

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

Date Issued: March 22, 2018

AGAT Laboratories

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CANADA L4Z 1Y2
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FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 16Z156073

PROJECT: 161-06382-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road - Remediation

SAMPLED BY:Kathryn Maton

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

DATE RECEIVED: 2016-11-03

DATE REPORTED: 2016-11-08

		SAMPLE DESCRIPTION:		FL 01	FL 101	FL 04	WW 14	SW 11	EW 8
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2016-11-02	2016-11-02	2016-11-02	2016-11-02	2016-11-02	2016-11-02
Parameter	Unit	G / S	RDL	7980909	7980934	7980935	7980937	7980938	7980942
Benzene	µg/g	0.32	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	6.4	0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Ethylbenzene	µg/g	1.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	26	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	230	10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	1700	50	200	68	<50	160	380	400
F4 (C34 to C50)	µg/g	3300	50	<50	<50	<50	79	100	130
Gravimetric Heavy Hydrocarbons	µg/g	3300	50	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	18.3	16.2	28.0	13.7	10.9	9.3
Surrogate	Unit	Acceptable Limits							
Terphenyl	%	60-140		92	86	100	110	65	81

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Industrial/Commercial/Community Property Use - Coarse Textured Soils

7980909-7980942 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.
The chromatogram has returned to baseline by the retention time of nC50.
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 with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Certified By: 

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z156073

PROJECT: 161-06382-00

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road - Remediation

SAMPLED BY:Kathryn Maton

Trace Organics Analysis

RPT Date: Nov 08, 2016			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
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	7980755		< 0.02	< 0.02	NA	< 0.02	94%	60%	130%	95%	60%	130%	94%	60%	130%
Toluene	7980755		< 0.08	< 0.08	NA	< 0.08	99%	60%	130%	99%	60%	130%	99%	60%	130%
Ethylbenzene	7980755		< 0.05	< 0.05	NA	< 0.05	98%	60%	130%	98%	60%	130%	97%	60%	130%
Xylene Mixture	7980755		< 0.05	< 0.05	NA	< 0.05	93%	60%	130%	93%	60%	130%	92%	60%	130%
F1 (C6 to C10)	7980755		< 5	< 5	NA	< 5	81%	60%	130%	108%	85%	115%	105%	70%	130%
F2 (C10 to C16)	7961471		< 10	< 10	NA	< 10	100%	60%	130%	91%	80%	120%	86%	70%	130%
F3 (C16 to C34)	7961471		< 50	< 50	NA	< 50	103%	60%	130%	91%	80%	120%	88%	70%	130%
F4 (C34 to C50)	7961471		< 50	< 50	NA	< 50	99%	60%	130%	92%	80%	120%	86%	70%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).performed with this batch.

Certified By:



AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Results relate only to the items tested and to all the items tested

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Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 16Z156073

PROJECT: 161-06382-00

ATTENTION TO: Matthieu Rochon

SAMPLING SITE:3636 Innes Road - Remediation

SAMPLED BY:Kathryn Maton

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

Results relate only to the items tested and to all the items tested

AGAT Laboratories RUSH!

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only

Work Order #: 16715607 3

Cooler Quantity: one

Arrival Temperatures: 8.4 | 8.1 | 8.0

LT - 7.3 | 7.4 | 6.9

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: on ice

Report Information:

Company: WSP Canada Inc.
Contact: Kathryn Maton
Address: 300-2611 Queensview Dr.
Ottawa, ON
Phone: 613-617-9237 Fax:
Reports to be sent to:
1. Email: Kathryn.Maton@wspgroup.com
2. Email: Matthieu.Rochon@wspgroup.com

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 2 (Indicate One)
☐ Ind/Comm
☒ Res/Park
☐ Agriculture
Soil Texture (Check One): ☒ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One)

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☒ 3 Business Days ☐ 2 Business Days ☐ 1 Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

Project Information:

Project: BBBC Lakes Remediation
Site Location: 3636 Innes Rd.
Sampled By: K. Maton
AGAT Quote #: PO: 161-06382-00

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

Invoice Information:

Bill To Same: Yes ☐ No ☒

Company: WSP
Contact: Matthieu Rochon
Address: 450 boul. de la Cité, bureau 200, Gatineau
Email: Matthieu.Rochon@wspgroup.com

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ EC ☐ FOC ☐ NO_2/NO_3 ☐ Total N ☐ Hg ☐ pH ☐ SAR	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_2/NO_3	Volatiles: ☐ VOC ☒ BTEX ☐ THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use
FL01	02/11/16	12pm	2	S									X	X							
FL0101													X	X							
FL0204													X	X							
WW14													X	X							
SW11													X	X							
EW8													X	X							

Samples Relinquished By (Print Name and Sign): K. Maton / K. Maton
Date: 03/11/16. Time: 9:17
Samples Relinquished By (Print Name and Sign): UPS to Purolator
Date: 3-Nov-16 Time: 16h30
Samples Relinquished By (Print Name and Sign):
Date: Time:

Samples Received By (Print Name and Sign): Matthieu Rochon
Date: 3-Nov-16 Time: 9h43
Samples Received By (Print Name and Sign): Shaumin
Date: 4/11/16 Time: 9:30

Page 1 of 1

N°: T 028833

Document ID: DN-76-1511 011

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Date Issued: Feb 15, 2016

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CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 17M-01348-00-GWREM

AGAT WORK ORDER: 19Z513950

TRACE ORGANICS REVIEWED BY: Pinkal Patel, Report Reviewer

DATE REPORTED: Sep 11, 2019

PAGES (INCLUDING COVER): 5

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z513950

PROJECT: 17M-01348-00-GWREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:3636 Innes Rd, Ottawa, ON

SAMPLED BY:Steven Wheeler

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

DATE RECEIVED: 2019-09-05

DATE REPORTED: 2019-09-11

		SAMPLE DESCRIPTION:		MW19-5	MW19-105	Trip Blank
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2019-09-05	2019-09-05	2019-09-05
Parameter	Unit	G / S	RDL	498855	498857	498860
Benzene	µg/L		0.20	<0.20	<0.20	<0.20
Toluene	µg/L		0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L		0.10	<0.10	<0.10	<0.10
Xylene Mixture	µg/L		0.20	<0.20	<0.20	<0.20
F1 (C6 - C10)	µg/L		25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L		25	<25	<25	<25
F2 (C10 to C16)	µg/L		100	<100	<100	<100
F3 (C16 to C34)	µg/L		100	<100	<100	<100
F4 (C34 to C50)	µg/L		100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L		500	NA	NA	NA
Surrogate	Unit	Acceptable Limits				
Terphenyl	%	60-140		111	102	102

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

498855-498860 The C6-C10 fraction is calculated using Toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contribution.
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 with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 17M-01348-00-GWREM
SAMPLING SITE:3636 Innes Rd, Ottawa, ON

AGAT WORK ORDER: 19Z513950
ATTENTION TO: Adrian Menyhart
SAMPLED BY:Steven Wheeler

Trace Organics Analysis

RPT Date: Sep 11, 2019			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
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	480956		< 0.20	< 0.20	NA	< 0.20	103%	50%	140%	100%	60%	130%	112%	50%	140%
Toluene	480956		< 0.20	< 0.20	NA	< 0.20	100%	50%	140%	119%	60%	130%	103%	50%	140%
Ethylbenzene	480956		< 0.10	< 0.10	NA	< 0.10	93%	50%	140%	118%	60%	130%	114%	50%	140%
Xylene Mixture	480956		< 0.20	< 0.20	NA	< 0.20	103%	50%	140%	114%	60%	130%	107%	50%	140%
F1 (C6 - C10)	480956		< 25	< 25	NA	< 25	93%	60%	140%	92%	60%	140%	93%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	97%	60%	140%	104%	60%	140%	82%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	99%	60%	140%	80%	60%	140%	118%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	106%	60%	140%	90%	60%	140%	83%	60%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Results relate only to the items tested. Results apply to samples as received.

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CANADA L4Z 1Y2
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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z513950

PROJECT: 17M-01348-00-GWREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:3636 Innes Rd, Ottawa, ON

SAMPLED BY:Steven Wheeler

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
Toluene	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
F1 (C6 - C10)	VOL-91- 5010	MOE PHC-E3421	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	P&T GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010	MOE PHC-E3421	GC/FID

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 1925139 50

Cooler Quantity: one - on ice

Arrival Temperatures: 12.9 13.3 13.1 / 7.2 7.4 6.9

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: on ice

Report Information:

Company: WSP Canada Inc

Contact: Adrian.Meyhart@wsp.com

Address: 2611 Queensview Dr. Ottawa ON

Phone: Fax:

Reports to be sent to:

1. Email: Adrian.Meyhart@wsp.com
2. Email: Steven.wheeler@wsp.com

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04

Table (Indicate One): ☐ Ind/Com ☐ Res/Park ☐ Agriculture

Soil Texture (Check One): ☐ Coarse ☐ Fine

☐ Sewer Use ☐ Sanitary ☐ Storm

Region (Indicate One): ☐ MISA

☐ Regulation 558 ☐ CCME ☐ Prov. Water Quality Objectives (PWQO) ☐ Other

(Indicate One)

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT

**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17M-01348-00-GWREM

Site Location: 3636 Innes Rd. Ottawa, ON

Sampled By: Steven Wheeler

AGAT Quote #: PO:

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

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company: WSP Canada Inc

Contact: Adrian Meyhart

Address: 2611 Queensview Dr Ottawa ON

Email: Adrian.Meyhart@wsp.com

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (incl. Hydrides))	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_2+NO_3	Volatiles: ☐ VOC ☒ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use	Potentially Hazardous or High Concentration (Y/N)
MW19-5	Sep 5 2019	9:30	4	GW								1	1								
MW19-105	1	9:40	4	GW								1	1								

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Steven Wheeler Steven Wheeler			(Berthelet-Dallaire)	2019-09-05	10h56
VB/D to Fed Ex	2019-09-05	16h00	Sima	19/9/6	1002
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

Page 1 of 1

N°: T 093468

AGAT Laboratories

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http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart

PROJECT: 17M-01348-00-GWREM

AGAT WORK ORDER: 19Z529395

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

DATE REPORTED: Oct 22, 2019

PAGES (INCLUDING COVER): 5

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.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
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Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested. Results apply to samples as received.
All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request

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Certificate of Analysis

AGAT WORK ORDER: 19Z529395

PROJECT: 17M-01348-00-GWREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-10-10

DATE REPORTED: 2019-10-22

		SAMPLE DESCRIPTION:		MW19-5	MW19-105	TRIP BLANK
		SAMPLE TYPE:		Water	Water	Water
		DATE SAMPLED:		2019-10-10	2019-10-10	2019-10-10
Parameter	Unit	G / S	RDL	609674	609675	609676
Benzene	µg/L		0.20	<0.20	<0.20	<0.20
Toluene	µg/L		0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L		0.10	<0.10	<0.10	<0.10
Xylene Mixture	µg/L		0.20	<0.20	<0.20	<0.20
F1 (C6 - C10)	µg/L		25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L		25	<25	<25	<25
F2 (C10 to C16)	µg/L		100	<100	<100	<100
F3 (C16 to C34)	µg/L		100	<100	<100	<100
F4 (C34 to C50)	µg/L		100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L		500	NA	NA	NA
Surrogate	Unit	Acceptable Limits				
Terphenyl	%	60-140		92	106	92

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

609674-609676 The C6-C10 fraction is calculated using Toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contribution.
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 with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP CANADA INC
AGAT WORK ORDER: 19Z529395
PROJECT: 17M-01348-00-GWREM
ATTENTION TO: Adrian Menyhart
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis

RPT Date: Oct 22, 2019			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
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	609674	609674	< 0.20	< 0.20	NA	< 0.20	116%	50%	140%	93%	60%	130%	82%	50%	140%
Toluene	609674	609674	< 0.20	< 0.20	NA	< 0.20	100%	50%	140%	91%	60%	130%	92%	50%	140%
Ethylbenzene	609674	609674	< 0.10	< 0.10	NA	< 0.10	94%	50%	140%	86%	60%	130%	90%	50%	140%
Xylene Mixture	609674	609674	< 0.20	< 0.20	NA	< 0.20	86%	50%	140%	82%	60%	130%	84%	50%	140%
F1 (C6 - C10)	609674	609674	< 25	< 25	NA	< 25	95%	60%	140%	89%	60%	140%	93%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	78%	60%	140%	78%	60%	140%	83%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	94%	60%	140%	78%	60%	140%	123%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	87%	60%	140%	111%	60%	140%	115%	60%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Results relate only to the items tested. Results apply to samples as received.

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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 19Z529395

PROJECT: 17M-01348-00-GWREM

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
Toluene	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
F1 (C6 - C10)	VOL-91- 5010	MOE PHC-E3421	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	P&T GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010	MOE PHC-E3421	GC/FID

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

iMed

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 1Z529395

Cooler Quantity: one on ice

Arrival Temperatures: 9.8 | 9.6 | 10.0
8.9 | 9.3

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes:

Report Information:

Company: WSP Canada Inc
Contact: Adrian Mearhart
Address: 2611 Queensview Dr
Ottawa ON
Phone: 343-961-1429 Fax:

Reports to be sent to:
1. Email: Adrian.Mearhart@wsp.com
2. Email: Steven.Wheeler@wsp.com

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table (Indicate One): ☐Ind/Com ☒Res/Park ☐Agriculture
Soil Texture (Check One): ☐Coarse ☐Fine

☐ Sewer Use
☐Sanitary ☐Storm
Region (Indicate One): ☐MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17M-01348-00-GWREM
Site Location: Innes Road
Sampled By: Steven Wheeler
AGAT Quote #: PO:
Please note: if quotation number is not provided, client will be billed full price for analysis.

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☒ No

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (incl. Hydrides))	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☒ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP ☐ M&I ☐ VOCs ☐ ABNs ☐ BrA+P ☐ PCBs	Sewer Use						Potentially Hazardous or High Concentration (Y/N)
MW19-5	Oct. 10	3:05pm	4	GW								1	1												
MW19-105	Oct. 10	3:05pm	4	GW								1	1												

Samples Relinquished By (Print Name and Sign): Steven Wheeler	Date: Oct. 10 2019	Time: 4:30 pm	Samples Received By (Print Name and Sign):	Date: 2019-10-10	Time: 16h33
Samples Relinquished By (Print Name and Sign): toPuro	Date: 2019-10-11	Time: 16h00	Samples Received By (Print Name and Sign):	Date: 19/10/12	Time: 11:12
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:

Page 1 of 1

N°: T096001

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http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800

ATTENTION TO: Adrian Menyhart; Steven Wheeler

PROJECT: 17M-01348-00 Phase: GWREM

AGAT WORK ORDER: 20Z563613

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jan 20, 2020

PAGES (INCLUDING COVER): 5

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.

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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Certificate of Analysis

AGAT WORK ORDER: 20Z563613

PROJECT: 17M-01348-00 Phase: GWREM

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart; Steven Wheeler

SAMPLING SITE:

SAMPLED BY:S.W.

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

DATE RECEIVED: 2020-01-14

DATE REPORTED: 2020-01-20

				SAMPLE DESCRIPTION:	MW19-5	MW19-105	Trip Blank
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2020-01-14 13:00	2020-01-14 13:05	2020-01-14
Parameter	Unit	G / S	RDL		862373	862375	862376
Benzene	µg/L	44	0.20		<0.20	<0.20	<0.20
Toluene	µg/L	18000	0.20		<0.20	<0.20	<0.20
Ethylbenzene	µg/L	2300	0.10		<0.10	<0.10	<0.10
Xylene Mixture	µg/L	4200	0.20		<0.20	<0.20	<0.20
F1 (C6 - C10)	µg/L	750	25		<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	750	25		<25	<25	<25
F2 (C10 to C16)	µg/L	150	100		<100	<100	<100
F3 (C16 to C34)	µg/L	500	100		<100	<100	<100
F4 (C34 to C50)	µg/L	500	100		<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500		NA	NA	NA
Surrogate	Unit	Acceptable Limits					
Terphenyl	%	60-140			116	114	91

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Non-Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

862373-862376 The C6-C10 fraction is calculated using Toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contribution.
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 with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopnikolof

Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP CANADA INC
AGAT WORK ORDER: 20Z563613
PROJECT: 17M-01348-00 Phase: GWREM
ATTENTION TO: Adrian Menyhart; Steven Wheeler
SAMPLING SITE:
SAMPLED BY:S.W.

Trace Organics Analysis

RPT Date: Jan 20, 2020			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
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	862376	862376	< 0.20	< 0.20	NA	< 0.20	97%	50%	140%	110%	60%	130%	106%	50%	140%
Toluene	862376	862376	< 0.20	< 0.20	NA	< 0.20	101%	50%	140%	115%	60%	130%	103%	50%	140%
Ethylbenzene	862376	862376	< 0.10	< 0.10	NA	< 0.10	100%	50%	140%	114%	60%	130%	97%	50%	140%
Xylene Mixture	862376	862376	< 0.20	< 0.20	NA	< 0.20	99%	50%	140%	110%	60%	130%	94%	50%	140%
F1 (C6 - C10)	862376	862376	< 25	< 25	NA	< 25	92%	60%	140%	110%	60%	140%	87%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	109%	60%	140%	106%	60%	140%	100%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	103%	60%	140%	125%	60%	140%	117%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	91%	60%	140%	117%	60%	140%	97%	60%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popnikolof

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Results relate only to the items tested. Results apply to samples as received.

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

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 20Z563613

PROJECT: 17M-01348-00 Phase: GWREM

ATTENTION TO: Adrian Menyhart; Steven Wheeler

SAMPLING SITE:

SAMPLED BY:S.W.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
Toluene	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
Ethylbenzene	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
Xylene Mixture	VOL-91-5010	MOE PHC-E3421	P&T GC/MS
F1 (C6 - C10)	VOL-91- 5010	MOE PHC-E3421	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	P&T GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010	MOE PHC-E3421	GC/FID

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 20Z563613

Cooler Quantity: one - ice packs

Arrival Temperatures: 2.4 | 2.1 | 2.2
LT- 2.0 | 1.7 | 2.4

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes: (once)

Report Information:

Company: WSP
Contact: Steven Wheeler; Adrian Menyhart
Address: 2611 Queensview Dr
Ottawa, ON K2B 8K2
Phone: Fax:
Reports to be sent to:
1. Email: Steven.Wheeler@wsp.com
2. Email: Adrian.Menyhart@wsp.com

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☑ Regulation 153/04
Table 3 (Indicate One)
☐ Ind/Com
☑ Res/Park
☐ Agriculture
Soil Texture (Check One)
☐ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Turnaround Time (TAT) Required:

Regular TAT ☑ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17M-01348-00 Phase: GWREM
Site Location:
Sampled By: S.W.
AGAT Quote #: Standing Offer Rates PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Is this submission for a **Record of Site Condition?** ☑ Yes ☐ No

Report Guideline on Certificate of Analysis ☑ Yes ☐ No

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y/N
MW19-5	2020-01-14	13:00	4	GW		N
MW19-105	2020-01-14	13:05	4	GW		N
Trip Blank	2020-01-14		4	GW		N

Field Filtered - Metals, Hg, CrVI

O. Reg 153

Metals and Inorganics ☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☑ 153 Metals (incl. Hydrides)
ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR
Full Metals Scan
Regulation/Custom Metals
Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2
Volatiles: ☐ VOC ☒ BTEX ☐ THM
PHCs F1 - F4
ABNs
PAHs
PCBs: ☐ Total ☐ Aroclors
Organochlorine Pesticides
TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs
Sewer Use
Potentially Hazardous or High Concentration (Y/N)

MW19-5					☑	☑																						
MW19-105					☑	☑																						
Trip Blank					☑	☑																						

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Steven Wheeler Steven Wheeler	Jan 14, 2019	14:20	Bertheletegen	2020/01/14	14h20
Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
UPS to FedEx 7720 0711 4	2020/01/14	16h00			
Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
			Shaunin Jan 15/2020	10:10am	

Page 1 of 1

Document ID: DIN-78-1511.016

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

Date Issued: March 22, 2019

AGAT Laboratories

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

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800
ATTENTION TO: Adrian Menyhart
PROJECT: 17M-01348-00
AGAT WORK ORDER: 20Z624271
SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor
DATE REPORTED: Jul 17, 2020
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

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
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- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

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Western Enviro-Agricultural Laboratory Association (WEALA)
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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 20Z624271

PROJECT: 17M-01348-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:Innes Rd.

SAMPLED BY:Steven Wheeler

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

DATE RECEIVED: 2020-07-13 **DATE REPORTED: 2020-07-17**

				SAMPLE DESCRIPTION:	TP20-3	TP20-4	TP20-5
				SAMPLE TYPE:	Soil	Soil	Soil
				DATE SAMPLED:	2020-07-10 11:00	2020-07-10 11:00	2020-07-10 11:00
Parameter	Unit	G / S	RDL		1264173	1264174	1264175
Electrical Conductivity (2:1)	mS/cm		0.005		0.718	0.065	0.405

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

1264173-1264175 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Results relate only to the items tested. Results apply to samples as received.

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Certificate of Analysis

AGAT WORK ORDER: 20Z624271

PROJECT: 17M-01348-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:Innes Rd.

SAMPLED BY:Steven Wheeler

O. Reg. 153(511) - SAR

DATE RECEIVED: 2020-07-13

DATE REPORTED: 2020-07-17

				SAMPLE DESCRIPTION:	TP20-1	TP20-2	SAR-DUP
				SAMPLE TYPE:	Soil	Soil	Soil
				DATE SAMPLED:	2020-07-10 11:00	2020-07-10 11:00	2020-07-10 11:00
Parameter	Unit	G / S	RDL		1264166	1264172	1264179
Sodium Adsorption Ratio	NA		NA		0.984	0.483	0.262

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

1264166-1264179 SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 20Z624271

PROJECT: 17M-01348-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:Innes Rd.

SAMPLED BY:Steven Wheeler

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

DATE RECEIVED: 2020-07-13

DATE REPORTED: 2020-07-17

		SAMPLE DESCRIPTION:		TP20-6	TP20-7	TP20-8	PHC/BTEX-DUP
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2020-07-10 11:00	2020-07-10 11:00	2020-07-10 11:00	2020-07-10 11:00
Parameter	**Unit**	**G / S**	**RDL**	**1264176**	**1264177**	**1264178**	**1264180**
Benzene	µg/g		0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (Total)	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g		5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g		5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g		10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g		50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g		50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA	NA	NA	NA
Moisture Content	%		0.1	25.8	19.9	28.1	26.5
Surrogate	**Unit**	**Acceptable Limits**					
Terphenyl	%	60-140		93	97	95	105

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

1264176-1264180 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
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 with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories
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CANADA L4Z 1Y2
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Quality Assurance

CLIENT NAME: WSP CANADA INC

PROJECT: 17M-01348-00

SAMPLING SITE:Innes Rd.

AGAT WORK ORDER: 20Z624271

ATTENTION TO: Adrian Menyhart

SAMPLED BY:Steven Wheeler

Soil Analysis

RPT Date: Jul 17, 2020			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
O. Reg. 153(511) - SAR															
Sodium Adsorption Ratio	1264324		0.165	0.163	1.2%	NA									
O. Reg. 153(511) - ORPs (Soil)															
Electrical Conductivity (2:1)	1267979		0.831	0.832	0.1%	< 0.005	101%	80%	120%						

Comments: NA signifies Not Applicable.
If the RPD value is NA, the results of the duplicates are under 5X the RDL and will not be calculated.

Certified By:



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Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Quality Assurance

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 20Z624271

PROJECT: 17M-01348-00

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:Innes Rd.

SAMPLED BY:Steven Wheeler

Trace Organics Analysis

RPT Date: Jul 17, 2020			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
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	1262001		< 0.02	< 0.02	NA	< 0.02	83%	50%	140%	92%	60%	130%	87%	50%	140%
Toluene	1262001		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	102%	60%	130%	107%	50%	140%
Ethylbenzene	1262001		< 0.05	< 0.05	NA	< 0.05	88%	50%	140%	82%	60%	130%	87%	50%	140%
Xylenes (Total)	1262001		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	94%	60%	130%	99%	50%	140%
F1 (C6 to C10)	1262001		< 5	< 5	NA	< 5	86%	60%	140%	91%	60%	140%	89%	60%	140%
F2 (C10 to C16)	1264334		< 10	< 10	NA	< 10	100%	60%	140%	87%	60%	140%	77%	60%	140%
F3 (C16 to C34)	1264334		< 50	< 50	NA	< 50	99%	60%	140%	76%	60%	140%	84%	60%	140%
F4 (C34 to C50)	1264334		< 50	< 50	NA	< 50	96%	60%	140%	94%	60%	140%	98%	60%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Results relate only to the items tested. Results apply to samples as received.

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

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 20Z624271

PROJECT: 17M-01348-00

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:Innes Rd.

SAMPLED BY:Steven Wheeler

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010C	ICP/OES
Trace Organics Analysis			
Benzene	VOL-91-5009	modified from EPA SW-846 5035C & 8260D	(P&T)GC/MS
Toluene	VOL-91-5009	modified from EPA SW-846 5035C & 8260D	P&T GC/MS
Ethylbenzene	VOL-91-5009	modified from EPA SW-846 5035C & 8260D	P&T GC/MS
Xylenes (Total)	VOL-91-5009	modified from EPA SW-846 5035C & 8260D	P&T GC/MS
F1 (C6 to C10)	VOL-91-5009	modified from CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	modified from CCME Tier 1 Method	P&T GC/FID
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only
Work Order #: 2076 24271
Cooler Quantity: one - onice
Arrival Temperatures: 2.1 | 2.5 | 2.4 (Li- 1.9 | 2.6 | 2.0)
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes: (on ice)

Report Information:
Company: WSP Canada Inc
Contact: Adrian.Meryhart@wsp.com
Address: 2611 Queensview Dr
Ottawa ON
Phone: 343-961-1429 Fax:
Reports to be sent to:
1. Email: Adrian.Meryhart@wsp.com
2. Email:

Regulatory Requirements:
☐ No Regulatory Requirement
(Please check all applicable boxes)

☒ Regulation 153/04
Table (Indicate One): ☐Ind/Com ☒Res/Park ☐Agriculture
Soil Texture (Check One): ☒Coarse ☐Fine

☐ Sewer Use
☐Sanitary ☐Storm
Region (Indicate One): ☐MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other (Indicate One)

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Turnaround Time (TAT) Required:
Regular TAT ☑ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):
4 days. Please use quote used for this project Prev.
Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays
For 'Same Day' analysis, please contact your AGAT CPM

Project Information:
Project: 17M-01348-00
Site Location: Innes Rd.
Sampled By: Steven Wheeler
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:
Bill To Same: Yes ☑ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend
B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y/N	Field Filtered - Metals, Hg, CrVI	O. Reg 153: Metals and Inorganics (☐All Metals ☐153 Metals (excl. Hydrides) ☐Hydride Metals ☐153 Metals (Incl. Hydrides))	O. Reg 153: ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr⁶⁺ ☐EC ☐FOC ☐Hg ☐pH ☒SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐TP ☐NH_3 ☐TKN ☐NO_3 ☐NO_2 ☐NO_3+NO_2	Volatiles: ☐VOC ☒BTEX ☐THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐Total ☐Aroclors	Organochlorine Pesticides	TCLP: ☐M&I ☐VOCs ☐ABNs ☐B(a)P ☐PCBs	Sewer Use	Electrical Conductivity
TP20-1	July 10	11 AM	1	S					1												1
TP20-2		1	1	S					1												
TP20-3			1	S																	1
TP20-4			1	S																	1
TP20-5			1	S																	1
TP20-6			3	S									1	1							
TP20-7			3	S									1	1							
TP20-8			3	S									1	1							
SAR-DUP			1	S					1												
PHC/BTEX-DUP			3	S									1	1							

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Steven Wheeler / Steven Wheeler	July 10	4:58pm	CBerthelet	2020/07/13	11h58
UPS/FedEx	2020/07/13	16h00			
			Shagufta	July 14/2020	10 AM

Page 1 of 1
N°: T 085510

Document ID: DIV-78-1511-015
Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT
Date Issued: March 16, 2018

AGAT Laboratories

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http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON K2B8K2
(613) 829-2800
ATTENTION TO: Adrian Menyhart
PROJECT: 17M-01348-00
AGAT WORK ORDER: 20Z630055
SOIL ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician
DATE REPORTED: Jul 27, 2020
PAGES (INCLUDING COVER): 6
VERSION*: 1

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

Notes

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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 20Z630055

PROJECT: 17M-01348-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2020-07-24 **DATE REPORTED: 2020-07-27**

		SAMPLE DESCRIPTION:		Sidewall - E	Sidewall - W	Base - N	Base - S	Stockpile
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2020-07-24	2020-07-24	2020-07-24	2020-07-24	2020-07-24
Parameter	Unit	G / S	RDL	1300594	1300595	1300596	1300597	1300598
Electrical Conductivity (2:1)	mS/cm	0.7	0.005	**0.767**	0.489	0.556	0.533	0.562

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

1300594-1300598 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil).

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 20Z630055

PROJECT: 17M-01348-00

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CLIENT NAME: WSP CANADA INC

ATTENTION TO: Adrian Menyhart

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
1300594	Sidewall - E	ON T3 S RPI MFT	O. Reg. 153(511) - ORPs (Soil)	Electrical Conductivity (2:1)	mS/cm	0.7	0.767

Results relate only to the items tested. Results apply to samples as received.

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Quality Assurance

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 20Z630055

PROJECT: 17M-01348-00

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: Jul 27, 2020			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
O. Reg. 153(511) - ORPs (Soil)															
Electrical Conductivity (2:1)	1300594	1300594	0.767	0.765	0.3%	< 0.005	101%	80%	120%						

Certified By:

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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 20Z630055

PROJECT: 17M-01348-00

ATTENTION TO: Adrian Menyhart

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

lab temp: 14-2/14.5/15.5 ice packs

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only 2076300S5

Work Order #: ~~2076300S4~~ 1

Cooler Quantity: 1

Arrival Temperatures: 21.6 | 21.5 | 21.3

Custody Seal Intact: ☐ Yes ☐ No ☑ N/A

Notes:

Report Information:

Company: WSP Canada Inc
Contact: Adrian Merryhart
Address: 2611 Queensview Dr Ottawa ON
Phone: Fax:
Reports to be sent to:
1. Email: Adrian.Merryhart@WSP.com
2. Email:

Project Information:

Project: 17M-01348-00
Site Location: Innes Rd
Sampled By: Steven Wheeler
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☒ Regulation 153/04
Table 3 *Indicate One*
☐ Ind/Com
☒ Res/Park
☐ Agriculture

Soil Texture *(Check One)*
☐ Coarse
☒ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm

Region *Indicate One*
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other

Indicate One

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☒ Next Business Day

OR Date Required (Rush Surcharges May Apply):

July 28, 2020.

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (Incl. Hydrides)	ORPs: ☐ B-HWS ☐ Cl⁻ ☐ CN ☐ Cr^{6+} ☒ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_2+NO_3	Volatiles: ☐ VOC ☐ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use
Sidewall-E	July 24		1	S					1										
Sidewall-W	1		1	S					1										
Base-N	1		1	S					1										
Base-S	1		1	S					1										
Stockpile	1		1	S					1										

'20 JUL 25 12:09pm

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Steven Wheeler Steven Wheeler	July 24	11:39	Jeff Jans	24 JUL 20	11:50
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

Page 1 of 1

Nº: T078028

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CLIENT NAME: WSP Canada Inc.
610 Chartwell Rd, Suite 300
Oakville, ON L6J 4A5
905-823-8500
ATTENTION TO: Natalia Codoban
PROJECT: 17M-01348-00-RSC
AGAT WORK ORDER: 20Z683403
TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist
DATE REPORTED: Dec 07, 2020
PAGES (INCLUDING COVER): 10
VERSION*: 1

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

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Certificate of Analysis

AGAT WORK ORDER: 20Z683403

PROJECT: 17M-01348-00-RSC

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Natalia Codoban

SAMPLING SITE:Ottawa, ON

SAMPLED BY:Steven Wheeler

O. Reg. 153(511) - BNA (full) + PAHs (Soil)

DATE RECEIVED: 2020-11-27

DATE REPORTED: 2020-12-07

		SAMPLE DESCRIPTION:		GS20-1	GS20-2	GS20-3	GS20-4	GS20-5	GS-DUP2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2020-11-26	2020-11-26	2020-11-26	2020-11-26	2020-11-26	2020-11-26
Parameter	Unit	G / S	RDL	1748043	1748044	1748045	1748046	1748047	1748051
Naphthalene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g		0.05	<0.05	<0.05	0.21	<0.05	0.05	<0.05
Anthracene	µg/g		0.05	<0.05	<0.05	0.11	<0.05	<0.05	<0.05
Fluoranthene	µg/g		0.05	<0.05	<0.05	0.31	<0.05	0.08	<0.05
Pyrene	µg/g		0.05	<0.05	<0.05	0.21	<0.05	0.06	<0.05
Benz(a)anthracene	µg/g		0.05	<0.05	<0.05	0.12	<0.05	<0.05	<0.05
Chrysene	µg/g		0.05	<0.05	<0.05	0.15	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g		0.05	<0.05	<0.05	0.13	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g		0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g		0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenol	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-chloroethyl)ether	µg/g		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Chlorophenol	µg/g		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o-Cresol	µg/g		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Bis(2-chloroisopropyl)ether	µg/g		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
m & p - Cresol	µg/g		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-Dimethylphenol	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4-Dichlorophenol	µg/g		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,2,4-Trichlorobenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
p-Chloroaniline	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1 and 2 Methlynaphthalene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2,4,6-Trichlorophenol	µg/g		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-Trichlorophenol	µg/g		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,1-Biphenyl	µg/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Certified By: N Popowich

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 20Z683403

PROJECT: 17M-01348-00-RSC

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Natalia Codoban

SAMPLING SITE:Ottawa, ON

SAMPLED BY:Steven Wheeler

O. Reg. 153(511) - BNA (full) + PAHs (Soil)

DATE RECEIVED: 2020-11-27 **DATE REPORTED: 2020-12-07**

		SAMPLE DESCRIPTION:		GS20-1	GS20-2	GS20-3	GS20-4	GS20-5	GS-DUP2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2020-11-26	2020-11-26	2020-11-26	2020-11-26	2020-11-26	2020-11-26
Parameter	**Unit**	**G / S**	**RDL**	**1748043**	**1748044**	**1748045**	**1748046**	**1748047**	**1748051**
Dimethyl Phthalate	µg/g		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4 and 2,6-Dinitrotoluene	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Diethyl Phthalate	µg/g		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pentachlorophenol	µg/g		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
3,3'-Dichlorobenzidine	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Bis(2-Ethylhexyl)phthalate	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4-Dinitrophenol	µg/g		2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Moisture Content	%		0.1	7.2	5.1	14.8	9.9	6.0	14.2
wet weight BNA	g		NA	10.02	10.08	10.56	10.20	10.14	10.41
Surrogate	**Unit**	**Acceptable Limits**							
2-Fluorophenol	%	10-130		75	76	69	76	67	75
Phenol-d6	%	30-130		74	74	76	84	74	84
2,4,6-Tribromophenol	%	50-140		84	72	89	75	67	76
Chrysene-d12	%	50-140		75	69	76	89	84	84

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

1748043-1748051 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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopowkolof

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Certificate of Analysis

AGAT WORK ORDER: 20Z683403

PROJECT: 17M-01348-00-RSC

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Natalia Codoban

SAMPLING SITE:Ottawa, ON

SAMPLED BY:Steven Wheeler

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

DATE RECEIVED: 2020-11-27

DATE REPORTED: 2020-12-07

		SAMPLE DESCRIPTION:		MW20-5D-ST2B	GS20-6	GS20-7	GS-DUP1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2020-11-24	2020-11-26	2020-11-26	2020-11-26
Parameter	**Unit**	**G / S**	**RDL**	**1748042**	**1748048**	**1748049**	**1748050**
Benzene	µg/g		0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (Total)	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g		5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g		5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g		10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g		50	<50	<50	51	<50
F4 (C34 to C50)	µg/g		50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA	NA	NA	NA
Moisture Content	%		0.1	31.2	19.4	21.8	21.0
Surrogate	**Unit**	**Acceptable Limits**					
Terphenyl	%	60-140		78	92	130	120

Certified By:



Results relate only to the items tested. Results apply to samples as received.

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Certificate of Analysis

AGAT WORK ORDER: 20Z683403

PROJECT: 17M-01348-00-RSC

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Natalia Codoban

SAMPLING SITE:Ottawa, ON

SAMPLED BY:Steven Wheeler

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

DATE RECEIVED: 2020-11-27

DATE REPORTED: 2020-12-07

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

1748042-1748050 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
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 with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popowkolof

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20Z683403

PROJECT: 17M-01348-00-RSC

ATTENTION TO: Natalia Codoban

SAMPLING SITE:Ottawa, ON

SAMPLED BY:Steven Wheeler

Trace Organics Analysis

RPT Date: Dec 07, 2020			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
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	1755899		< 0.02	< 0.02	NA	< 0.02	86%	50%	140%	104%	60%	130%	96%	50%	140%
Toluene	1755899		< 0.05	< 0.05	NA	< 0.05	80%	50%	140%	80%	60%	130%	98%	50%	140%
Ethylbenzene	1755899		< 0.05	< 0.05	NA	< 0.05	86%	50%	140%	88%	60%	130%	89%	50%	140%
m & p-Xylene	1755899		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	99%	60%	130%	99%	50%	140%
o-Xylene	1755899		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	81%	60%	130%	92%	50%	140%
Xylenes (Total)	1755899		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	90%	60%	130%	95%	50%	140%
F1 (C6 to C10)	1755899		< 5	< 5	NA	< 5	85%	60%	140%	93%	60%	140%	87%	60%	140%
F2 (C10 to C16)	1767112		< 10	< 10	NA	< 10	100%	60%	140%	82%	60%	140%	76%	60%	140%
F3 (C16 to C34)	1767112		< 50	< 50	NA	< 50	97%	60%	140%	92%	60%	140%	86%	60%	140%
F4 (C34 to C50)	1767112		< 50	< 50	NA	< 50	73%	60%	140%	98%	60%	140%	101%	60%	140%
O. Reg. 153(511) - BNA (full) + PAHs (Soil)															
Naphthalene	1723275		< 0.05	< 0.05	NA	< 0.05	72%	50%	140%	76%	50%	140%	72%	50%	140%
Acenaphthylene	1723275		< 0.05	< 0.05	NA	< 0.05	69%	50%	140%	60%	50%	140%	78%	50%	140%
Acenaphthene	1723275		< 0.05	< 0.05	NA	< 0.05	76%	50%	140%	64%	50%	140%	72%	50%	140%
Fluorene	1723275		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	65%	50%	140%	71%	50%	140%
Phenanthrene	1723275		< 0.05	< 0.05	NA	< 0.05	100%	50%	140%	67%	50%	140%	63%	50%	140%
Anthracene	1723275		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	72%	50%	140%	69%	50%	140%
Fluoranthene	1723275		< 0.05	< 0.05	NA	< 0.05	109%	50%	140%	70%	50%	140%	67%	50%	140%
Pyrene	1723275		< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	70%	50%	140%	69%	50%	140%
Benz(a)anthracene	1723275		< 0.05	< 0.05	NA	< 0.05	68%	50%	140%	63%	50%	140%	67%	50%	140%
Chrysene	1723275		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	74%	50%	140%	77%	50%	140%
Benzo(b)fluoranthene	1723275		< 0.05	< 0.05	NA	< 0.05	86%	50%	140%	65%	50%	140%	62%	50%	140%
Benzo(k)fluoranthene	1723275		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	71%	50%	140%	67%	50%	140%
Benzo(a)pyrene	1723275		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	66%	50%	140%	66%	50%	140%
Indeno(1,2,3-cd)pyrene	1723275		< 0.05	< 0.05	NA	< 0.05	75%	50%	140%	63%	50%	140%	62%	50%	140%
Dibenz(a,h)anthracene	1723275		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	71%	50%	140%	71%	50%	140%
Benzo(g,h,i)perylene	1723275		< 0.05	< 0.05	NA	< 0.05	82%	50%	140%	73%	50%	140%	67%	50%	140%
Phenol	1723275		< 0.5	< 0.5	NA	< 0.5	66%	30%	130%	88%	30%	130%	71%	30%	130%
Bis(2-chloroethyl)ether	1723275		< 0.1	< 0.1	NA	< 0.1	72%	50%	140%	110%	50%	140%	72%	50%	140%
2-Chlorophenol	1723275		< 0.1	< 0.1	NA	< 0.1	77%	50%	140%	64%	50%	140%	72%	50%	140%
o-Cresol	1723275		< 0.1	< 0.1	NA	< 0.1	76%	50%	140%	76%	50%	140%	76%	50%	140%
Bis(2-chloroisopropyl)ether	1723275		< 0.1	< 0.1	NA	< 0.1	66%	50%	140%	69%	50%	140%	78%	50%	140%
m & p - Cresol	1723275		< 0.1	< 0.1	NA	< 0.1	80%	50%	140%	64%	50%	140%	74%	50%	140%
2,4-Dimethylphenol	1723275		< 0.2	< 0.2	NA	< 0.2	89%	30%	130%	60%	30%	130%	64%	30%	130%
2,4-Dichlorophenol	1723275		< 0.1	< 0.1	NA	< 0.1	71%	50%	140%	67%	50%	140%	61%	50%	140%
1,2,4-Trichlorobenzene	1723275		< 0.05	< 0.05	NA	< 0.05	70%	50%	140%	67%	50%	140%	64%	50%	140%
p-Chloroaniline	1723275		< 0.5	< 0.5	NA	< 0.5	56%	30%	130%	68%	30%	130%	67%	30%	130%
2,4,6-Trichlorophenol	1723275		< 0.1	< 0.1	NA	< 0.1	72%	50%	140%	65%	50%	140%	76%	50%	140%
2,4,5-Trichlorophenol	1723275		< 0.1	< 0.1	NA	< 0.1	86%	50%	140%	86%	50%	140%	76%	50%	140%

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Results relate only to the items tested. Results apply to samples as received.

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http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP Canada Inc.
AGAT WORK ORDER: 20Z683403
PROJECT: 17M-01348-00-RSC
ATTENTION TO: Natalia Codoban
SAMPLING SITE:Ottawa, ON
SAMPLED BY:Steven Wheeler

Trace Organics Analysis (Continued)

RPT Date: Dec 07, 2020			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
1,1-Biphenyl	1723275		< 0.05	< 0.05	NA	< 0.05	81%	50%	140%	NA	50%	140%	61%	50%	140%
Dimethyl Phthalate	1723275		< 0.1	< 0.1	NA	< 0.1	82%	50%	140%	70%	50%	140%	72%	50%	140%
2,4 and 2,6-Dinitrotoluene	1723275		< 0.5	< 0.5	NA	< 0.5	86%	50%	140%	95%	50%	140%	80%	50%	140%
Diethyl Phthalate	1723275		< 0.1	< 0.1	NA	< 0.1	84%	50%	140%	65%	50%	140%	63%	50%	140%
Pentachlorophenol	1723275		< 0.1	< 0.1	NA	< 0.1	70%	50%	140%	68%	50%	140%	62%	50%	140%
3,3'-Dichlorobenzidine	1723275		< 0.5	< 0.5	NA	< 0.5	72%	30%	130%	83%	30%	130%	89%	30%	130%
Bis(2-Ethylhexyl)phthalate	1723275		< 0.2	< 0.2	NA	< 0.2	66%	50%	140%	74%	50%	140%	81%	50%	140%
2,4-Dinitrophenol	1723275		< 2.0	< 2.0	NA	< 2.0	113%	30%	130%	50%	30%	130%	85%	30%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popnikolof

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Results relate only to the items tested. Results apply to samples as received.

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20Z683403

PROJECT: 17M-01348-00-RSC

ATTENTION TO: Natalia Codoban

SAMPLING SITE:Ottawa, ON

SAMPLED BY:Steven Wheeler

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Acenaphthylene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Acenaphthene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Fluorene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Phenanthrene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Anthracene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Fluoranthene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Pyrene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Benz(a)anthracene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Chrysene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Phenol	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Bis(2-chloroethyl)ether	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
2-Chlorophenol	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
o-Cresol	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Bis(2-chloroisopropyl)ether	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
m & p - Cresol	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
2,4-Dimethylphenol	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
2,4-Dichlorophenol	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
1,2,4-Trichlorobenzene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
p-Chloroaniline	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS

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Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20Z683403

PROJECT: 17M-01348-00-RSC

ATTENTION TO: Natalia Codoban

SAMPLING SITE:Ottawa, ON

SAMPLED BY:Steven Wheeler

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
2,4,6-Trichlorophenol	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
2,4,5-Trichlorophenol	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
1,1-Biphenyl	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Dimethyl Phthalate	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
2,4 and 2,6-Dinitrotoluene	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Diethyl Phthalate	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Pentachlorophenol	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
3,3'-Dichlorobenzidine	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Bis(2-Ethylhexyl)phthalate	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
2,4-Dinitrophenol	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Moisture Content		Tier 1 method	BALANCE
2-Fluorophenol	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Phenol-d6	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
2,4,6-Tribromophenol	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
Chrysene-d12	ORG-91-5114	modified from EPA SW-846 3570 & 8270E	GC/MS
wet weight BNA	ORG-91-5114		BALANCE
Benzene	VOL-91-5009	modified from EPA SW-846 5035C & 8260D	(P&T)GC/MS
Toluene	VOL-91-5009	modified from EPA SW-846 5035C & 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5009	modified from EPA SW-846 5035C & 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5009	modified from EPA SW-846 5035C & 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5009	modified from EPA SW-846 5035C & 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5009	modified from EPA SW-846 5035C & 8260D	(P&T)GC/MS
F1 (C6 to C10)	VOL-91-5009	modified from CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	modified from CCME Tier 1 Method	P&T GC/FID
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID

Results relate only to the items tested. Results apply to samples as received.

LT (ice-pack) - 14.8 | 13.9 | 12-3 | Med Blue

AGAT Laboratories

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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP Canada Limited
Contact: Natalia Codoban
Address: 610 Chartwell Rd, Suite 300
Oakville, Ontario
Phone: 416-568-5004 Fax:
Reports to be sent to:
1. Email: Natalia.Codoban@wsp.com
2. Email: Steven.Wheeler@wsp.com

Regulatory Requirements:

(Please check all applicable boxes)

- [x] Regulation 153/04
  - Table — *Indicate One*: [ ] Ind/Com [x] Res/Park [ ] Agriculture
  - Soil Texture *(Check One)*: [x] Coarse [ ] Fine
- [ ] Excess Soils R406
  - Table — *Indicate One*
- [ ] Regulation 558
- [ ] CCME
- [ ] Sewer Use [ ] Sanitary [ ] Storm
  - Region
- [ ] Prov. Water Quality Objectives (PWQO)
- [ ] Other
  - *Indicate One*

Is this submission for a **Record of Site Condition?** [x] Yes [ ] No

Report Guideline on *Certificate of Analysis* [x] Yes [ ] No

Laboratory Use Only

Work Order #: 2076834 03
Cooler Quantity: One
Arrival Temperatures: 8.7 | 8.8 | 8.5
Custody Seal Intact: [ ] Yes [ ] No [ ] N/A
Notes: Ice packs.

Turnaround Time (TAT) Required:

Regular TAT [x] 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

[ ] 3 Business Days [ ] 2 Business Days [ ] Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17M-01348-00-RSC
Site Location: Ottawa, ON
Sampled By: Steven Wheeler
AGAT Quote #: 36141a PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes [x] No [ ]

Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - CrVI, Hg, HWSB	O. Reg 153: BTEX, F1-F4 PHCs Analyze F4G if required [x] Yes [ ] No	O. Reg 153: PAHs	O. Reg 153: PCBs	O. Reg 153: VOC	O. Reg 558: Landfill Disposal Characterization TCLP: [ ] M&I [ ] VOCs [ ] ABNs [ ] B(a)P [ ] PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach SPLP: [ ] Metals [ ] VOCs [ ] SVOCs	O. Reg 406: Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Salt - EC/SAR	ABNs as per guide							Potentially Hazardous or High Concentration (Y/N)
BMW20-5D-ST28	Nov. 24	AM/PM	2	S					—															
GS20-1	Nov. 26	AM/PM	1	S													—							
GS20-2	"	AM/PM	1	S													—							
GS20-3	"	AM/PM	1	S													—							
GS20-4	"	AM/PM	1	S													—							
GS20-5	"	AM/PM	1	S													—							
GS20-6	"	AM/PM	2	S					—															
GS20-7	"	AM/PM	2	S					—															
GS-DUP1	"	AM/PM	2	S					—															
GS-DUP2	"	AM/PM	1	S													1							
		AM/PM																						

Samples Relinquished By (Print Name and Sign): Steven Wheeler Steven Wheeler	Date: Nov. 26	Time: 5:30pm	Samples Received By (Print Name and Sign): Bertheleth Dlue	Date: 2020/11/27	Time: 9h55
Samples Relinquished By (Print Name and Sign): H.D to Dlue 2020/11/27	Date:	Time: 15h00	Samples Received By (Print Name and Sign): Dlue	Date: Nov 28/20	Time: 10:48 am
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:

Page 1 of 1

N: 111758

AGAT Laboratories

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http://www.agatlabs.com

CLIENT NAME: WSP Canada Inc.
610 Chartwell Rd, Suite 300
Oakville, ON L6J 4A5
905-823-8500
ATTENTION TO: Natalia Codoban
PROJECT: 17M-01348-00-RSC
AGAT WORK ORDER: 20Z684070
TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist
DATE REPORTED: Dec 07, 2020
PAGES (INCLUDING COVER): 6
VERSION*: 1

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

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 20Z684070

PROJECT: 17M-01348-00-RSC

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Natalia Codoban

SAMPLING SITE:

SAMPLED BY:SW

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

DATE RECEIVED: 2020-11-27

DATE REPORTED: 2020-12-07

		SAMPLE DESCRIPTION:		MW20-5D-GW1	MW20-5S-GW1	MW-DUP-GW1	Trip Blank
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2020-11-27 11:45	2020-11-27 13:00	2020-11-27 13:00	2020-11-27 13:00
Parameter	**Unit**	**G / S**	**RDL**	**1762490**	**1762508**	**1762509**	**1762510**
Benzene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10
Xylenes (Total)	µg/L		0.20	<0.20	<0.20	<0.20	<0.20
F1 (C6 - C10)	µg/L		25	<25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L		25	<25	<25	<25	<25
F2 (C10 to C16)	µg/L		100	<100	<100	<100	<100
F3 (C16 to C34)	µg/L		100	<100	<100	<100	<100
F4 (C34 to C50)	µg/L		100	<100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L		500	NA	NA	NA	NA
Sediment				No	No	No	No
Surrogate	**Unit**	**Acceptable Limits**					
Terphenyl	%	60-140		98	99	87	89

Certified By:



Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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

Certificate of Analysis

AGAT WORK ORDER: 20Z684070

PROJECT: 17M-01348-00-RSC

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Natalia Codoban

SAMPLING SITE:

SAMPLED BY:SW

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

DATE RECEIVED: 2020-11-27

DATE REPORTED: 2020-12-07

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

1762490-1762510

The C6-C10 fraction is calculated using Toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
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.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX contribution.
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 with the contribution of PAHs. Under Ontario Regulation 153/04, results are considered valid without determining the PAH contribution if not requested by the client.
NA = Not Applicable

Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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CANADA L4Z 1Y2
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FAX (905)712-5122
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20Z684070

PROJECT: 17M-01348-00-RSC

ATTENTION TO: Natalia Codoban

SAMPLING SITE:

SAMPLED BY:SW

Trace Organics Analysis

RPT Date: Dec 07, 2020			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
O. Reg. 153(511) - PHCs F1 - F4 (Water)															
Benzene	1763803		< 0.20	< 0.20	NA	< 0.20	85%	50%	140%	87%	60%	130%	103%	50%	140%
Toluene	1763803		< 0.20	< 0.20	NA	< 0.20	81%	50%	140%	81%	60%	130%	93%	50%	140%
Ethylbenzene	1763803		< 0.10	< 0.10	NA	< 0.10	96%	50%	140%	99%	60%	130%	104%	50%	140%
m & p-Xylene	1763803		< 0.20	< 0.20	NA	< 0.20	102%	50%	140%	84%	60%	130%	103%	50%	140%
o-Xylene	1763803		< 0.10	< 0.10	NA	< 0.10	99%	50%	140%	86%	60%	130%	102%	50%	140%
Xylenes (Total)	1763803		< 0.20	< 0.20	NA	< 0.20	101%	50%	140%	85%	60%	130%	103%	50%	140%
F1 (C6 - C10)	1763803		< 25	< 25	NA	< 25	99%	60%	140%	90%	60%	140%	87%	60%	140%
F2 (C10 to C16)	1745653		< 100	< 100	NA	< 100	113%	60%	140%	90%	60%	140%	120%	60%	140%
F3 (C16 to C34)	1745653		< 100	< 100	NA	< 100	111%	60%	140%	67%	60%	140%	96%	60%	140%
F4 (C34 to C50)	1745653		< 100	< 100	NA	< 100	105%	60%	140%	106%	60%	140%	105%	60%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popowkolof

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

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MISSISSAUGA, ONTARIO
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TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 20Z684070

PROJECT: 17M-01348-00-RSC

ATTENTION TO: Natalia Codoban

SAMPLING SITE:

SAMPLED BY:SW

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F1 (C6 - C10)	VOL-91- 5010	modified from MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	modified from MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Sediment			

Results relate only to the items tested. Results apply to samples as received.

AGAT Laboratories

(ice pack) (8.3/8.4/8.5) (4/13/K)

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP Canada Limited
Contact: Natalia Cadahon
Address: 610 Chartwell Rd. Suite 300
Oakville, Ontario
Phone: 416-562-5004 Fax:
Reports to be sent to:
1. Email: Natalia.Lodobas@wsp.com
2. Email: Steven.Wheeler@wsp.com

Project Information:

Project: 17M-01348-00-RSC
Site Location: Ottawa ON
Sampled By: Steven Wheeler
AGAT Quote #: 36142 PO: 17M-01348-00-RSC
Please note: if quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐
Company:
Contact:
Address:
Email:

Regulatory Requirements:

(Please check all applicable boxes)

☒ Regulation 153/04
Table _____ *Indicate One*
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Excess Soils R406
Table _____ *Indicate One*
☐ Regulation 558
☐ CCME

☐ Sewer Use ☐ Sanitary ☐ Storm
_____ *Region*
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
_____ *Indicate One*

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Sample Matrix Legend

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

Laboratory Use Only

Work Order #: 20768407O
Cooler Quantity: One
Arrival Temperatures: 6.3 6.1 6.3
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: ICE

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC (Y/N)	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs, Analyze F4G if required ☐ Yes ☐ No	O. Reg 153: PAHs	O. Reg 153: PCBs	O. Reg 153: VOC	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach ☐ VOCs ☐ SVOCs	O. Reg 406: Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Salt - EC/SAR	Potentially Hazardous or High Concentration (Y/N)
MW20-5D-GW1	Nov. 27	11:45 AM/PM	5	GW					1								
MW20-5S-GW1	1	1:00 AM/PM	5	1					1								
MW-DUP-GW1	1	AM/PM	5	1					1								
Trip Blank		AM/PM	5	1					1								
		AM/PM															
		AM/PM															
		AM/PM															
		AM/PM															
		AM/PM															
		AM/PM															
		AM/PM															

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Steven Wheeler Steven Wheeler	Nov. 27, 2020	3:14 PM	(Bertheleth Ollivierre)	2020/11/27	15:18
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
	2020/11/30	16h00	Takshaya	DEC 1 9:30	
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

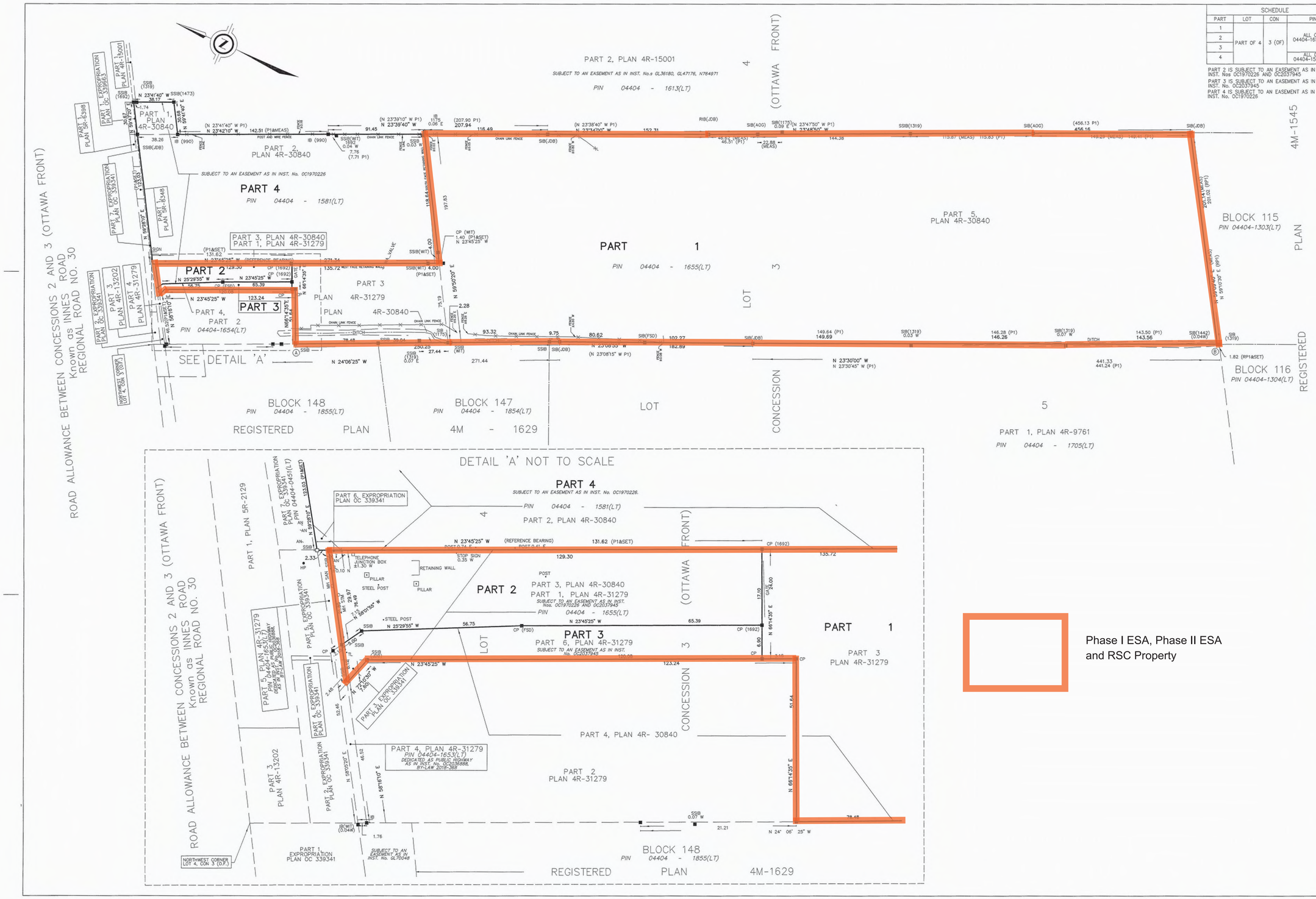
Page 1 of 1
N°: 112992

Document ID: DIV-78-1511.018

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

APPENDIX

A-4 *SURVEY OF PHASE TWO PROPERTY*



SCHEDULE			
PART	LOT	CON	PIN
1	PART OF 4	3 (OF)	ALL OF 04404-1655(LT)
2			
3			ALL OF 04404-1581(LT)
4			

PART 2 IS SUBJECT TO AN EASEMENT AS IN INST. Nos OC1970226 AND OC2037945
PART 3 IS SUBJECT TO AN EASEMENT AS IN INST. No. OC2037945
PART 4 IS SUBJECT TO AN EASEMENT AS IN INST. No. OC1970226

I REQUIRE THIS PLAN TO BE DEPOSITED UNDER THE LAND TITLES ACT.

DATE JULY 4, 2019

C.M. FOX
ONTARIO LAND SURVEYOR

PLAN 4R-32049

RECEIVED AND DEPOSITED
DATE 2019/07/05

REPRESENTATIVE FOR THE LAND REGISTRAR FOR THE LAND TITLES DIVISION OF OTTAWA-CARLETON (No 4)

PLAN OF SURVEY OF
PART OF LOT 4
CONCESSION 3 (OTTAWA FRONT)
(GEOGRAPHIC TOWNSHIP OF GLOUCESTER)
NOW IN THE
CITY OF OTTAWA

SCALE 1 : 1500
50 0 20 40 60 80 100 metres

J.D. BARNES LIMITED

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

NOTES

BEARINGS ARE MTM GRID, MTM ZONE 9, NAD 83 (ORIGINAL), FROM THE WESTERLY LIMIT OF PART 1, HAVING A BEARING OF N 23°45'25" W, AS SHOWN ON PLAN PLAN 4R-31279.

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999963

INTEGRATION DATA

OBSERVED REFERENCE POINTS (ORPs): MTM ZONE 9, NAD83 (CSRS) (2010.0).
COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.

POINT ID	EASTING	NORTHING
ORP (A)	381 300.49	5 034 616.89
ORP (B)	381 649.84	5 033 817.26

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

LEGEND

■	DENOTES	SURVEY MONUMENT FOUND
□	DENOTES	SURVEY MONUMENT SET
SIB	DENOTES	STANDARD IRON BAR
SSIB	DENOTES	SHORT STANDARD IRON BAR
IB	DENOTES	IRON BAR
CP	DENOTES	CONCRETE PIN AND WASHER
WIT	DENOTES	WITNESS
MEAS	DENOTES	MEASURED
RP	DENOTES	PLAN 4M-948
RP1	DENOTES	PLAN 4M-1545
P1	DENOTES	PLAN 4R-30840
P2	DENOTES	PLAN 4R-31279
INST	DENOTES	INSTRUMENT
JDB	DENOTES	J.D. BARNES LIMITED
AOG	DENOTES	ANNIS O'SULLIVAN VOLLEBEKK LTD.
OU	DENOTES	ORIGIN UNKNOWN
990	DENOTES	ARPENTAGE PAYETTE SURVEYING LTD.
1473	DENOTES	DOUGLAS ANDREW SIMMONDS OLS.
1319	DENOTES	WILLIAM JAMES WEBSTE
1442	DENOTES	JOHN HUGH KENNEDY
1175	DENOTES	HARRY ALBERT KENDALL SHIPMAN, OLS
HP	DENOTES	HYDRO POLE
AN	DENOTES	POLE ANCHOR
TL	DENOTES	TRAFFIC LIGHT
MH SAN	DENOTES	MANHOLE- SANITARY
MH STM	DENOTES	MANHOLE- STORM

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

ALL FOUND MONUMENTS ARE SET BY FARLEY, SMITH & DENIS SURVEYING LTD. UNLESS NOTED OTHERWISE.

Phase I ESA, Phase II ESA and RSC Property

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON APRIL 11, 2019.

APRIL 17, 2019
DATE

C.M. FOX
ONTARIO LAND SURVEYOR

J.D.BARNES LIMITED
SURVEYING MAPPING GIS
LAND INFORMATION SPECIALISTS
2430 DON REID DRIVE, SUITE 204, OTTAWA, ON K1H 1E1
T: (613) 731-7244 F: (613) 731-8955 www.jdbarnes.com

DRAWN BY:	CHECKED BY:	REFERENCE NO.:	18-10-147-00
LH	CF		DATED: 04/12/19

FILE: G:\18-10-147\00\Drawing\First App\18-10-147-00_R-PLAN(GRID).dgn
PLOTTED: 7/4/2019

APPENDIX

B 2019 REMEDIATION

APPENDIX B

1 INTRODUCTION

1.1 BACKGROUND

WSP Canada Inc. (WSP) was retained by Glenview Homes (Innes) Ltd. and Glenview Properties Inc. (Glenview) in October 2017 to conduct a Phase Two Environmental Site Assessment (ESA) for the property present at 3610 Innes Road in Ottawa, Ontario. As described in Section 1.1, Part 2 of Parcel 4R 30840 and Part 2 of Parcel 4R 31279 of this property were sold by Glenview to separate third parties on February 1, 2018 and September 21, 2018. Part of the property at 3604-3646 Innes Road was previously occupied by a building supplies retail operation, including the outdoor storage of off-spec and waste materials.

The property boundaries of the parcel of land (owned by Glenview) at 3610 Innes Road in Ottawa, Ontario (the "Phase Two Property") are shown on **Figures 1** and **2**. Soil sampling for the Phase Two ESA was conducted at the locations shown in **Figure 2**, with evaluations of soil quality in the areas of potential concern (APECs).

The Phase Two ESA identified and delineated other regulated parameters (EC and SAR), PHC and PAH contamination in soil at the central portion of the Phase Two Property, south of the former building supplies operation, shown on **Figures 3** through **5**. Historical groundwater contamination in MW17-5 is shown on **Figure 6**.

The direction of groundwater flow and recorded elevations are shown on **Figure 7**. Groundwater at one location (BH16-5/BH17-5) was noted to have impacts from PHCs, toluene and ethylbenzene with seasonal fluctuations in measured concentrations. The soil remediation resulted in removal of contaminated soil and entrained groundwater, resulting in improvement of groundwater quality. Sampling of groundwater conducted on September 5, 2019, October 10, 2019 and January 15, 2020 confirmed that groundwater quality meets the Ministry of the Environment, Conservation and Parks (MECP) Table 3 Site Condition Standards (SCSs) for residential/parkland/institutional (RPI) land use MECP Table 3 SCS (see **Table 4**).

As part of the site preparation for the residential redevelopment, remediation was undertaken to remove the contaminated soil for off-site disposal. Distribution of the soil contamination prior to remediation is shown on **Figure 9**. Six areas requiring remediation were identified, with an overlap between Areas 4 and 6, resulting in five actual separate areas. The areas of remediation and verification sampling is shown on **Figures 10, 12** and **13**. Cross-sections illustrating the encountered soil stratigraphy and depth-specific verification sample locations are shown on **Figures 11** and **13**.

1.2 REMEDIAL ACTIONS

For the Phase Two Property, remediation involved the removal of impacted soil, including a stockpile of soil mixed with debris identified as Area 1. Excavation in Areas 2, 3 and 5 extended to silty clay interpreted to be native soil, and Area 6 extended to bedrock. Although initially identified separately, Area 4 was later included in the greater Area 6. No reagents or treatment methods were introduced to the Phase Two Property during the remedial actions.

Surface material was removed across the excavation areas to a minimum depth of 0.8 meters below ground surface (mbgs) and the remediation was extended to a maximum depth of 3 mbgs in areas where interim verification samples identified contamination extended deeper than indicated by Phase Two ESA sampling. The details of remediation excavations areas are provided in **Table B-1**.

APPENDIX B

Table B-1: Details of Remediation Excavations

Area	Contaminants of Concern	Approx. Lateral Dimensions	Maximum Depth	Estimated Quantity of Soil Removed
1	PAH, PHCs F1-F4	NA – mound	4 m	6,580 m^3
2	PHCs F1-F4	3 m x 7 m	0.9 m	19 m^3
3	PHCs F1-F4	3 m x 5 m	0.8 m	12 m^3
5	EC	4 m x 4 m	2 m	32 m^3
4 and 6	PHC F1-F4, BTEX, EC	15 m x 15 m	3 m	675 m^3

The remedial excavation was completed by an environmental contractor Tomlinson Environmental Services with Qualified Person oversight provided by WSP. No permits, such as site alternation permits or work within a regulated zone were required from the municipality or conservation area. Excavated soils were transported off-site to the City of Ottawa waste receiving facility located at Trail Road, Ottawa, Ontario. The total quantity of soils removed was 14,636.21 tonnes, or approximately 7,318 m^3.

Assessment of the known contaminants was conducted through collection of soil samples to delineate the vertical and horizontal extent of contamination as identified in the Phase Two ESA. A total of 57 soil samples (including field duplicates) were collected from varying depths of the remediation excavation and submitted to AGAT Laboratories for analysis of the contaminants of concern identified for each area, as described in **Table B-1**. The rationale for the selection of these analyses is based on existing investigations that included these analytical parameters as well as field observations during the excavation work.

Results of analyses were compared to the 2011 MECP Table 3. Limits of excavation were established at the point where results of analysis and visual observations indicated that no residual contamination was present in soil remaining onsite. Delineation and excavation activities for the Phase Two Property took place from June 5, 2019 to July 17, 2019.

The general stratigraphy encountered in locations outside of Area 1 includes the following strata:

- From 0 to 0.20 mbgs – topsoil and organics, or fill (certain locations);
- From 0.20 to 3.0 mbgs – clayey silt to silty clay;
- 3.0 mbgs – bedrock (encountered at Area 6).

The maximum depth of excavation was reached within Area 6 (3 mbgs), and encountered the upper perched groundwater table. Monitoring well BH17-5 was damaged during excavation activities in Area 6 and was decommissioned by a licensed well driller Strata Drilling Company at the site on June 11, 2019. A replacement well BH19-5 was installed by a licensed well drilled OGS Inc. on August 28, 2019, within 2 m of the former location of BH17-5. Due to presence of competent bedrock at the depth of 3.6 mbgs, the well was screened in the overburden.

Groundwater was sampled from monitoring well BH19-5 to confirm that removal of entrained groundwater was effective in reducing the contaminant concentrations to MECP Table 3 SCS.

A limited volume of groundwater was removed during excavation, to maintain dry conditions prior to backfilling. Groundwater was extracted using a suction pump equipped with a screen to filter out debris, and subsequently discharged to surface further south of the excavation footprint. No evidence of visual or olfactory signs of contamination was observed in the groundwater.

APPENDIX B

1.3 FREE FLOWING PRODUCT

Free flowing product was not encountered during remedial excavation, and was not reported in previous ESAs involving the Phase Two Property.

1.4 RESULTS OF CONFIRMATION SAMPLING AND ANALYSIS

In compliance with sampling requirements for excavation under Ontario Regulation (O. Reg.) 153/04, a total of 36 confirmatory soil samples were collected from Area 1, 7 from Area 2, 8 from Area 3, 5 from Area 5, and 7 from Area 6. Samples from Area 1 were collected from the base, as no true sidewalls remained following the excavation from the pile. Area 6 terminated at bedrock, and as such, no base samples were collected. Samples are summarized in **Table B-1**; results of verification sampling, as compared to the applicable MECP Table 3 SCSs are shown in **Tables B-2** to **B-3** in the Phase Two ESA report. Laboratory Certificates of Analysis are included in **Appendix A-3** of the Phase Two ESA report.

Remediation Area 1

TABLE B-2: PHASE TWO PROPERTY EXCAVATION SAMPLING – Area 1

FIRST ROUND OF CONFIRMATORY SAMPLING (following initial removal of approx. 2 m soil from top of pile)			
Sample ID	**Sample Location**	**Sample Depth (mbgs)**	**Parameters exceeding Table 3 SCS**
AREA1-TPA-1	Outside Area 1, southwest	1 m from top of pile	None
AREA1-TPB-1	Outside Area 1, West	1 m from top of pile	None
AREA1-TPC-1	Southwest corner of Area 1	2 m from former top of pile	None
AREA1-TPD-1	Southeast side of Area 1	2 m from former top of pile	PAHs
AREA1-TPE-1	Southeast side of Area 1	2 m from former top of pile	PAHs, PHCs
AREA1-TPF-1	Central area of Area 1 (native)	3 m from former top of pile	None
AREA1-TPF-2	Central area of Area 1 (upper fill)	2 m from former top of pile	PAHs, PHCs
G1	Stockpiled soil, outside of Area 1, north	Surface	PAHs
G2	Outside of Area 1, northwest	Surface, top of pile	None
G3	Outside of Area 1, northeast	Surface, top of pile	None

APPENDIX B

Second Round of Confirmatory Sampling			
Sample ID	**Sample Location**	**Sample Depth (mbgs)**	**Parameters exceeding Table 3 SCS**
B1	Northwest corner	2.5 – 3 m	None
B2	West side	2.5 – 3 m	PAHs, PHCs
B3	West side	2.5 – 3 m	PAHs, PHCs
B4	Southwest corner	2.5 – 3 m	None
B5/DUP1	Central	2.5 – 3 m	None
B6	North side	2.5 – 3 m	None
B7	North side	2.5 – 3 m	PAHs
B8	Central	2.5 – 3 m	PAHs
B9	Central	2.5 – 3 m	PAHs
B10	South side	2.5 – 3 m	PAHs
B11	South side	2.5 – 3 m	PAHs
B12	East corner	2.5 – 3 m	None
B13	East side	2.5 – 3 m	PAHs
B14	East side	2.5 – 3 m	None
THIRD ROUND OF CONFIRMATORY SAMPLING			
B15	West side	3 – 3.5 m	None
B16	West side	3 – 3.5 m	PAHs,
B16-2	West side	3.5 – 4 m (native material)	None
B17	South side	3 – 3.5 m	PAHs, PHCs

APPENDIX B

Sample ID	Sample Location	Sample Depth (mbgs)	Parameters exceeding Table 3 SCS
B17-2	South side	3.5 – 4 m (native material)	None
B18	South side	3 – 3.5 m	None
B19	Central	3 – 3.5 m	None
B19-2	Central	3.5 – 4 m (native material)	* Not Analyzed
B20	Central	3 – 3.5 m	None
B21	North side	3 – 3.5 m	None
B21-2	North side	3.5 – 4 m (native material)	* Not Analyzed
B22	East side	3 – 3.5 m	PAHs
B22-2	East side	3.5 – 4 m (native material)	None

Past studies conducted at the Site identified PHCs and PAHs as contaminants within Area 1 of the property. Area 1 consisted of a stock pile approximately 4 m in height above surrounding grade. Initial testing identified these parameters to a maximum depth of 2.4 m below the top of the pile.

Following the removal of approximately 2 m of soil from the top of the pile, some preliminary test pits were excavated both inside and outside of the impacted Area 1. Results from this testing identified clean material outside of Area 1 TPA, TPB, G2 and G3 (see **Figure 10** and **11**), as well as some clean material within (TPC). The central area of the pile identified exceedances of PHCs and PAHs, and as a result, further excavation was conducted in these areas (TPD, TPE and TPF). For delineation purposes, two samples were collected from TPF; one of the upper fill material, and one of the native soil below (TPF-1). Results indicated that the native material below the pile was in compliance at this location.

A second round of confirmatory samples were collected on June 21, 2019. Some samples were in compliance with site standards, however, several samples were found to contain exceedances of PAHs and PHCs. Additional excavation in these areas was conducted, and approximately 0.5 to 1 m was removed, targeting the areas of exceedance.

A third round of confirmatory samples were collected on July 2, 2019. Samples were collected at the new suspected clean surface, however select samples were proactively collected at a deeper depth (native soil layer). The majority of these confirmatory samples were in compliance with site standards, with the exception of B16, B17 and B22. The fill material at these locations were found to contain elevated PAH and/or PHC concentrations, however, the samples of the native soil at those locations were found to be in compliance with site standards. As a result, soils within those specific areas were removed from the Site, leaving samples B16-2, B17-2 and B22-2 as final confirmatory samples for those locations.

Remediation Area 2, 3 and 5

These remediation areas were relatively small compared to Areas 1 and 6. During excavation of these areas, no visual or olfactory signs of impacts were noted.

Only one exceedance was noted in Area 2 (see **Figure 12**), in a sample collected from the base at 0.3 m. The entire base was excavated to a depth of 0.9 m below grade prior to the collection of new confirmatory base samples.

All final samples in these areas were in compliance with site standards.

Remediation Area 6

Although not identified as a remediation area at the Phase Two ESA investigation stage, Area 6 was encountered while excavating in the vicinity of MW17-5, where previous exceedances of BTEX parameters were identified in the groundwater. Area 6 began adjacent to MW17-5, and extended outwards. Based on field observations, soils adjacent to the well appeared to be most impacted, with visual staining and strong hydrocarbon odours. Once suspected clean walls were achieved, screening samples were collected at two elevations along each wall. The excavation was terminated at bedrock, and therefore no soil samples were collected from the base.

Several soil samples were collected during excavation activities in Area 6. In total, 22 soil samples (see **Figure 13**) were collected for screening purposes in Area 6 at depths ranging between 1.0 and 2.5 mbgs. Soil samples that were selected for analysis are described in **Table B-3** and in **Table 9**.

TABLE B-3: PHASE TWO PROPERTY EXCAVATION SAMPLING – Area 6

CONFIRMATORY SAMPLES			
Sample ID	**Sample Location**	**Sample Depth (mbgs)**	**Parameters exceeding Table 3 SCS**
E4	East wall	2	None
E7/DUP1	East wall	1	None
E8	East wall	2.5	None (analysed for SAR)
N1	North wall	1	None
SW2	South wall	1	None
W4	West wall	1	None

While excavating around MW17-5, a cone of soil was kept around the well, however due to the depth of the excavation, and the unstable nature of the soil, the cone of soil collapsed and in doing so, damaged the well. As a result, the well was decommissioned MW17-5 shortly after, with the understanding that a new well will be drilled in it's placed following the reinstatement of the soils in Area 6.

Since the extent of the Area 6 excavation went beyond Area 4 (see **Figure 13**), the nearest sample from Area 6 was submitted for analysis of SAR.

All final sidewall samples were in compliance with site standards.

APPENDIX B

1.5 EXCAVATION BACKFILL

The remediation excavation at Areas 2, 3, 5 and 6 was backfilled using fill obtained from a nearby construction project located at 6211 Renaud Road, Orleans, Ontario (Renaud Site) as well as clean material from the Site. Soil sampling at the Renaud Site was completed by WSP in 2018 to facilitate soil movement between the Renaud Site and the Site at 3610 Innes Road. Details of backfill brought to the Site are provided in **Appendix C**.

The imported soil (approximately 80 m^3) was placed in the remediation excavation, nominally compacted with the bucket of the excavator in lifts of approximately 1 m. WSP observed the backfilled excavation.

1.6 CONCLUSIONS

In the summer of 2019, a soil remediation program was completed, which saw the excavation of five (5) different areas of the Site, where impacted soil was previously identified. This included the former "cemetery" area (Area 1), two areas with noted exceedances on the perimeter of the 2016 remediation area, two areas with SAR and EC exceedances on the eastern side, and finally, an area with PHC impacted soils in the vicinity of MW17-5 (Area 6). Approximately 14,637 metric tonnes of impacted soil were removed from the various APEC areas on the Site, and disposed of at a licensed waste disposal facility. Confirmatory sampling following the excavation activities confirmed that all remaining soils within the APEC and remediation areas were in compliance with the selected site standards.

A new well MW19-5 has been installed in the area of the recently decommissioned MW17-5. Results of groundwater sampling analysis from these wells are discussed in Section 5.9.8 of the report.

APPENDIX

C SOIL EXCAVATED OR BROUGHT TO THE PHASE TWO PROPERTY

APPENDIX C

1 SOIL EXCAVATED AT OR BROUGHT TO THE PHASE TWO PROPERTY

1.7 SOIL BROUGHT TO THE PHASE TWO PROPERTY

Prior to undertaking the remediation at the Phase Two Property, Glenview identified a potential source for backfill material, at a nearby residential development with excess soil. The source site was located at 6211 Renaud Road in Orleans, Ontario. The soil was excavated from this source site and transported to 3610 Innes Road until backfill material was required.

The soil at the source site consisted of topsoil and silty sand. The topsoil was not considered for placement at the Phase Two Property. A Phase One ESA prepared for the source site indicated that the source site had been used for agricultural purposes. No potentially contaminating concerns were identified that would lead to areas of potential environmental concern at the source site and no Phase Two ESA was completed. To characterize the silty sand prior to transfer to the Phase Two Property, sampling was conducted at 15 test pits distributed across the source site. In the absence of identified environmental concerns at the source site, soil was analysed for metals, inorganic parameters (other regulated parameters or ORPs) and petroleum hydrocarbon compounds (PHCs), including benzene, toluene, ethylbenzene and xylenes (BTEX).

The test pits were excavated using an excavator available at the construction site, under the observation of a WSP field technician. The test pits were distributed around the source site. Two samples were recovered from each test pit (near surface and at depth of greater than 0.5 m) and five duplicate soil samples were collected for quality assurance purposes. A total of 35 soil samples were submitted to AGAT Laboratories for chemical analysis of metals, ORPS and PHCs, with BTEX. Results of analysis are included in **Appendix C-1**.

Soil observed during the test pitting program appeared to be native, and the samples were representative of subsurface conditions. The results indicated that in general, the concentrations of potential contaminants met the MECP SCS for residential land use in potable groundwater conditions and in addition, evaluation of the results against the MECP background SCS confirmed that soil quality met Table 1 SCS (**Table C-1**) for residential and other land uses.

At four locations (shallow and deep samples from TP18-4 and TP18-10), the pH of the samples was less than the lower limit of 5 that is recommended by MECP. pH is not a contaminant, however, SCS are established based on an accepted pH range of 5 to 9. As the recorded values of pH were very close to the lower limit (4.81 to 4.99), duplicate samples were obtained from existing samples in the laboratory and analysed for pH only. At three of the locations, the pH in the duplicate sample was higher and the average of the sample pH was greater than 5. At these sampling points, the soil is suitable for placement at the Phase Two Property. Soil deeper than 0.59 m below current grade at TP18-10 was not excavated and remained at the source site.

An estimated 80 m^3 of soil was brought to the Phase Two Property for the purpose of backfilling remediation excavations.

1.8 SEGREGATION OF SOIL

No soil at the Phase Two Property was segregated for potential reuse. Soil with evidence of contamination was removed from site for offsite disposal.

1.9 STOCKPILES

No stockpiles of onsite soils were created to allow for reuse.

APPENDIX

C-1 CERTIFICATE OF ANALYSIS FOR SOIL EXCAVATED OR BROUGHT TO THE PHASE TWO PROPERTY

AGAT Laboratories

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

CLIENT NAME: WSP Canada Inc.
100 COMMERCE VALLEY DRIVE WEST
THORNHILL, ON L3T0A1
(905) 882-1100

ATTENTION TO: Kathryn Maton

PROJECT: Fill Characterization 17M-01348-00

AGAT WORK ORDER: 18Z363549

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

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

DATE REPORTED: Aug 03, 2018

PAGES (INCLUDING COVER): 20

VERSION*: 2

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

NOTES

VERSION 2:Revised Report issued August 03rd 2018 . pH reanalyzed on samples TP18-4 SA1, TP18-4 SA2, TP18-10 SA1, TP18-10 SA2 as per client request.

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

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

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Certificate of Analysis

AGAT WORK ORDER: 18Z363549

PROJECT: Fill Characterization 17M-01348-00

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Kathryn Maton

SAMPLING SITE:6211 Renaud, Ottawa, ON

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-07-18

DATE REPORTED: 2018-08-03

		SAMPLE DESCRIPTION:		TP18-1 SA1	TP18-1 SA2	TP18-2 SA1	TP18-2 SA2	TP18-3 SA1	TP18-3 SA2	TP18-4 SA1	TP18-4 SA2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9410805	9410827	9410828	9410829	9410830	9410831	9410832	9410833
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	<1	<1	<1	<1	<1	<1	1	<1
Barium	µg/g	390	2	31	54	22	32	16	33	20	40
Beryllium	µg/g	4	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/g	120	5	<5	<5	<5	<5	<5	<5	<5	<5
Boron (Hot Water Soluble)	µg/g	1.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	20	29	13	14	17	15	14	16
Cobalt	µg/g	22	0.5	3.1	5.4	2.8	2.9	3.4	4.0	3.4	3.0
Copper	µg/g	140	1	9	15	10	9	5	10	7	7
Lead	µg/g	120	1	2	3	1	1	2	2	2	2
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	9	15	7	8	9	9	8	9
Selenium	µg/g	2.4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g	20	0.2	<0.2	<0.2	<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	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.9	0.6	<0.5	<0.5	0.6	0.5	0.7	0.6
Vanadium	µg/g	86	1	22	28	15	16	22	19	18	20
Zinc	µg/g	340	5	14	24	12	15	14	15	14	25
Chromium VI	µg/g	8	0.2	<0.2	<0.2	<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	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity	mS/cm	0.7	0.005	0.042	0.033	0.016	0.015	0.026	0.023	0.021	0.015
Sodium Adsorption Ratio	NA	5	NA	0.106	0.326	0.201	0.281	0.177	0.254	0.201	0.274
pH, 2:1 CaCl2 Extraction	pH Units		NA	5.60	5.79	5.08	5.29	5.07	5.15	4.81	4.99

Certified By: Amanjot Bhela

Results relate only to the items tested and to all the items tested

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Certificate of Analysis

AGAT WORK ORDER: 18Z363549

PROJECT: Fill Characterization 17M-01348-00

CLIENT NAME: WSP Canada Inc.

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SAMPLING SITE:6211 Renaud, Ottawa, ON

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-07-18

DATE REPORTED: 2018-08-03

		SAMPLE DESCRIPTION:		TP18-5 SA1	TP18-5 SA2	TP18-5 SA101	TP18-6 SA1	TP18-6 SA2	TP18-7 SA1	TP18-7 SA2	TP18-8 SA1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9410834	9410835	9410836	9410837	9410838	9410839	9410840	9410841
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	<1	<1	<1	<1	<1	<1	1	<1
Barium	µg/g	390	2	28	34	23	22	23	14	24	24
Beryllium	µg/g	4	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/g	120	5	<5	<5	<5	<5	<5	<5	<5	<5
Boron (Hot Water Soluble)	µg/g	1.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	21	13	17	16	14	13	11	23
Cobalt	µg/g	22	0.5	4.0	2.9	3.5	4.0	3.1	2.7	3.4	3.7
Copper	µg/g	140	1	10	7	8	6	7	4	9	11
Lead	µg/g	120	1	3	1	2	2	1	2	1	2
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	11	8	10	8	7	7	7	10
Selenium	µg/g	2.4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g	20	0.2	<0.2	<0.2	<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	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	0.7
Vanadium	µg/g	86	1	23	15	19	16	18	17	15	22
Zinc	µg/g	340	5	17	14	14	13	13	10	13	13
Chromium VI	µg/g	8	0.2	<0.2	<0.2	<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	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity	mS/cm	0.7	0.005	0.025	0.017	0.026	0.020	0.018	0.024	0.022	0.034
Sodium Adsorption Ratio	NA	5	NA	0.151	0.208	0.155	0.221	0.388	0.176	0.330	0.163
pH, 2:1 CaCl2 Extraction	pH Units		NA	5.23	5.44	5.24	5.01	5.04	5.29	5.76	6.12

Certified By: Amanjot Bhela

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DATE RECEIVED: 2018-07-18

DATE REPORTED: 2018-08-03

		SAMPLE DESCRIPTION:		TP18-8 SA2	TP18-9 SA1	TP18-9 SA2	TP18-10 SA1	TP18-10 SA2	TP18-11 SA1	TP18-11 SA2	TP18-12 SA1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9410842	9410843	9410844	9410845	9410846	9410847	9410848	9410849
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	<1	<1	<1	<1	1	1	1	1
Barium	µg/g	390	2	18	17	33	15	20	27	16	32
Beryllium	µg/g	4	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/g	120	5	<5	<5	<5	<5	<5	<5	<5	<5
Boron (Hot Water Soluble)	µg/g	1.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	16	15	14	15	15	18	13	17
Cobalt	µg/g	22	0.5	2.7	3.0	2.9	4.1	2.9	3.4	3.3	5.5
Copper	µg/g	140	1	10	6	10	6	9	10	8	9
Lead	µg/g	120	1	2	1	1	1	2	2	2	2
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	7	8	8	9	7	10	8	8
Selenium	µg/g	2.4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g	20	0.2	<0.2	<0.2	<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	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.6	0.6	0.5	0.6	<0.5	<0.5	<0.5	0.7
Vanadium	µg/g	86	1	21	19	14	18	18	17	16	19
Zinc	µg/g	340	5	14	12	15	12	13	16	13	14
Chromium VI	µg/g	8	0.2	<0.2	<0.2	<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	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity	mS/cm	0.7	0.005	0.030	0.020	0.029	0.015	0.018	0.041	0.058	0.032
Sodium Adsorption Ratio	NA	5	NA	0.302	0.225	0.333	0.240	0.284	0.718	0.213	0.643
pH, 2:1 CaCl2 Extraction	pH Units		NA	6.26	5.05	5.23	4.92	4.83	6.31	7.28	6.12

Certified By: Amanjot Bhela

Results relate only to the items tested and to all the items tested

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AGAT WORK ORDER: 18Z363549

PROJECT: Fill Characterization 17M-01348-00

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Kathryn Maton

SAMPLING SITE:6211 Renaud, Ottawa, ON

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-07-18

DATE REPORTED: 2018-08-03

SAMPLE DESCRIPTION:				TP18-12 SA101	TP18-12 SA2	TP18-13 SA1	TP18-13 SA2	TP18-14 SA1	TP18-14 SA101	TP18-14 SA2	TP18-15 SA1
SAMPLE TYPE:				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
DATE SAMPLED:				2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9410850	9410851	9410852	9410853	9410854	9410855	9410856	9410857
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	1	2	1	2	2	2	1	2
Barium	µg/g	390	2	32	18	24	25	22	27	24	23
Beryllium	µg/g	4	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/g	120	5	<5	<5	<5	<5	<5	<5	<5	<5
Boron (Hot Water Soluble)	µg/g	1.5	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	16	13	15	12	16	18	12	18
Cobalt	µg/g	22	0.5	4.9	2.6	2.2	2.6	3.4	4.2	2.6	2.7
Copper	µg/g	140	1	9	7	8	7	9	11	7	10
Lead	µg/g	120	1	2	1	2	1	2	2	1	2
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	8	7	8	7	9	11	7	10
Selenium	µg/g	2.4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g	20	0.2	<0.2	<0.2	<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	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.7	0.5	<0.5	<0.5	0.6	0.7	<0.5	0.9
Vanadium	µg/g	86	1	17	15	18	14	20	22	15	18
Zinc	µg/g	340	5	15	13	14	13	13	15	13	13
Chromium VI	µg/g	8	0.2	<0.2	<0.2	<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	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity	mS/cm	0.7	0.005	0.030	0.038	0.029	0.038	0.033	0.032	0.025	0.033
Sodium Adsorption Ratio	NA	5	NA	0.678	0.408	0.991	1.37	0.823	0.897	0.885	0.646
pH, 2:1 CaCl2 Extraction	pH Units		NA	6.02	6.57	5.85	6.47	5.48	5.51	6.20	5.58

Certified By: Amanjot Bhela

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 18Z363549

PROJECT: Fill Characterization 17M-01348-00

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Kathryn Maton

SAMPLING SITE:6211 Renaud, Ottawa, ON

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-07-18

DATE REPORTED: 2018-08-03

		SAMPLE DESCRIPTION:		TP18-15 SA2	TP18-2 SA102	TP18-11 SA102
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9410858	9410859	9410860
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	2	1	1
Barium	µg/g	390	2	19	26	18
Beryllium	µg/g	4	0.5	<0.5	<0.5	<0.5
Boron	µg/g	120	5	<5	<5	<5
Boron (Hot Water Soluble)	µg/g	1.5	0.10	<0.10	<0.10	<0.10
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	13	8	13
Cobalt	µg/g	22	0.5	3.0	2.4	3.4
Copper	µg/g	140	1	8	8	9
Lead	µg/g	120	1	2	1	1
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	7	6	8
Selenium	µg/g	2.4	0.4	<0.4	<0.4	<0.4
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	<0.5	<0.5	<0.5
Vanadium	µg/g	86	1	16	12	13
Zinc	µg/g	340	5	13	10	16
Chromium VI	µg/g	8	0.2	<0.2	<0.2	<0.2
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10
Electrical Conductivity	mS/cm	0.7	0.005	0.041	0.018	0.061
Sodium Adsorption Ratio	NA	5	NA	1.26	0.315	0.212
pH, 2:1 CaCl2 Extraction	pH Units		NA	6.35	5.26	7.34

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9410805-9410860 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 CaCl2 extract prepared at 2:1 ratio.

Certified By: Amanjot Bhela

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AGAT WORK ORDER: 18Z363549

PROJECT: Fill Characterization 17M-01348-00

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Kathryn Maton

SAMPLING SITE:6211 Renaud, Ottawa, ON

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-07-18

DATE REPORTED: 2018-08-03

		SAMPLE DESCRIPTION:		TP18-4 SA1	TP18-4 SA2	TP18-10 SA1	TP18-10 SA2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	Unit	G / S	RDL	9410832	9410833	9410845	9410846
pH, 2:1 CaCl2 Extraction	pH Units		NA	5.59	5.39	5.18	4.96

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

9410832-9410846 pH was determined on the 0.01M CaCl2 extract obtained from 2:1 leaching procedure (2 parts extraction fluid:1 part wet soil).

Certified By: Amanjot Bhela

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PROJECT: Fill Characterization 17M-01348-00

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Kathryn Maton

SAMPLING SITE:6211 Renaud, Ottawa, ON

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-07-18

DATE REPORTED: 2018-08-03

		SAMPLE DESCRIPTION:		TP18-1 SA1	TP18-1 SA2	TP18-2 SA1	TP18-2 SA2	TP18-3 SA1	TP18-3 SA2	TP18-4 SA1	TP18-4 SA2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	**Unit**	**G / S**	**RDL**	**9410805**	**9410827**	**9410828**	**9410829**	**9410830**	**9410831**	**9410832**	**9410833**
Benzene	µg/g	0.21	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	1.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	3.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	2800	50	<50	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	15.5	17.4	8.9	10.1	6.8	10.4	9.9	20.0
Surrogate	**Unit**	**Acceptable Limits**									
Terphenyl	%	60-140		81	107	117	97	97	107	88	113

Certified By:

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PROJECT: Fill Characterization 17M-01348-00

CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Kathryn Maton

SAMPLING SITE:6211 Renaud, Ottawa, ON

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-07-18 **DATE REPORTED: 2018-08-03**

		SAMPLE DESCRIPTION:		TP18-5 SA1	TP18-5 SA2	TP18-5 SA101	TP18-6 SA1	TP18-6 SA2	TP18-7 SA1	TP18-7 SA2	TP18-8 SA1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	**Unit**	**G / S**	**RDL**	**9410834**	**9410835**	**9410836**	**9410837**	**9410838**	**9410839**	**9410840**	**9410841**
Benzene	µg/g	0.21	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	1.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	3.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	2800	50	<50	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	15.8	11.5	9.0	14.3	19.7	6.9	17.0	14.0
Surrogate	**Unit**	**Acceptable Limits**									
Terphenyl	%	60-140		62	87	82	92	90	104	76	105

Certified By:

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CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Kathryn Maton

SAMPLING SITE:6211 Renaud, Ottawa, ON

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-07-18

DATE REPORTED: 2018-08-03

		SAMPLE DESCRIPTION:		TP18-8 SA2	TP18-9 SA1	TP18-9 SA2	TP18-10 SA1	TP18-10 SA2	TP18-11 SA1	TP18-11 SA2	TP18-12 SA1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	**Unit**	**G / S**	**RDL**	**9410842**	**9410843**	**9410844**	**9410845**	**9410846**	**9410847**	**9410848**	**9410849**
Benzene	µg/g	0.21	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	1.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	3.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	2800	50	<50	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	19.0	12.8	16.1	7.6	15.6	16.5	21.0	14.8
Surrogate	**Unit**	**Acceptable Limits**									
Terphenyl	%	60-140		89	105	104	80	90	115	90	95

Certified By:

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ATTENTION TO: Kathryn Maton

SAMPLING SITE:6211 Renaud, Ottawa, ON

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-07-18

DATE REPORTED: 2018-08-03

		SAMPLE DESCRIPTION:		TP18-12 SA101	TP18-12 SA2	TP18-13 SA1	TP18-13 SA2	TP18-14 SA1	TP18-14 SA101	TP18-14 SA2	TP18-15 SA1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17	2018-07-17
Parameter	**Unit**	**G / S**	**RDL**	**9410850**	**9410851**	**9410852**	**9410853**	**9410854**	**9410855**	**9410856**	**9410857**
Benzene	µg/g	0.21	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	1.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	3.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	2800	50	<50	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	15.4	20.2	11.1	17.8	11.9	12.5	13.4	8.4
Surrogate	**Unit**	**Acceptable Limits**									
Terphenyl	%	60-140		99	89	101	81	95	92	86	84

Certified By:

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CLIENT NAME: WSP Canada Inc.

ATTENTION TO: Kathryn Maton

SAMPLING SITE:6211 Renaud, Ottawa, ON

SAMPLED BY:K. Maton

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

DATE RECEIVED: 2018-07-18

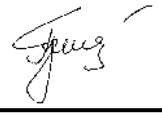
DATE REPORTED: 2018-08-03

		SAMPLE DESCRIPTION:		TP18-15 SA2	TP18-2 SA102	TP18-11 SA102
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2018-07-17	2018-07-17	2018-07-17
Parameter	**Unit**	**G / S**	**RDL**	**9410858**	**9410859**	**9410860**
Benzene	µg/g	0.21	0.02	<0.02	<0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	1.1	0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	3.1	0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	<50	<50
F4 (C34 to C50)	µg/g	2800	50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA
Moisture Content	%		0.1	13.0	9.3	20.8
Surrogate	**Unit**	**Acceptable Limits**				
Terphenyl	%	60-140		85	93	89

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9410805-9410860 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.
The chromatogram has returned to baseline by the retention time of nC50.
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 with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Certified By:



Results relate only to the items tested and to all the items tested

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

Quality Assurance

CLIENT NAME: WSP Canada Inc.
AGAT WORK ORDER: 18Z363549
PROJECT: Fill Characterization 17M-01348-00
ATTENTION TO: Kathryn Maton
SAMPLING SITE:6211 Renaud, Ottawa, ON
SAMPLED BY:K. Maton

Soil Analysis

RPT Date: Aug 03, 2018			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
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	9410805	9410805	< 0.8	<0.8	NA	< 0.8	107%	70%	130%	91%	80%	120%	98%	70%	130%
Arsenic	9410805	9410805	< 1	1	NA	< 1	112%	70%	130%	105%	80%	120%	109%	70%	130%
Barium	9410805	9410805	31	33	6.3%	< 2	109%	70%	130%	106%	80%	120%	105%	70%	130%
Beryllium	9410805	9410805	< 0.5	<0.5	NA	< 0.5	120%	70%	130%	103%	80%	120%	107%	70%	130%
Boron	9410805	9410805	< 5	<5	NA	< 5	102%	70%	130%	106%	80%	120%	105%	70%	130%
Boron (Hot Water Soluble)	9410805	9410805	< 0.10	<0.10	NA	< 0.10	122%	60%	140%	99%	70%	130%	101%	60%	140%
Cadmium	9410805	9410805	< 0.5	<0.5	NA	< 0.5	115%	70%	130%	109%	80%	120%	112%	70%	130%
Chromium	9410805	9410805	20	20	0.0%	< 2	103%	70%	130%	112%	80%	120%	96%	70%	130%
Cobalt	9410805	9410805	3.1	3.8	20.3%	< 0.5	100%	70%	130%	105%	80%	120%	104%	70%	130%
Copper	9410805	9410805	9	10	10.5%	< 1	101%	70%	130%	114%	80%	120%	110%	70%	130%
Lead	9410805	9410805	2	2	NA	< 1	105%	70%	130%	107%	80%	120%	109%	70%	130%
Molybdenum	9410805	9410805	< 0.5	<0.5	NA	< 0.5	100%	70%	130%	103%	80%	120%	105%	70%	130%
Nickel	9410805	9410805	9	9	0.0%	< 1	108%	70%	130%	112%	80%	120%	110%	70%	130%
Selenium	9410805	9410805	< 0.4	<0.4	NA	< 0.4	102%	70%	130%	99%	80%	120%	99%	70%	130%
Silver	9410805	9410805	< 0.2	<0.2	NA	< 0.2	112%	70%	130%	117%	80%	120%	112%	70%	130%
Thallium	9410805	9410805	< 0.4	<0.4	NA	< 0.4	114%	70%	130%	101%	80%	120%	107%	70%	130%
Uranium	9410805	9410805	0.9	0.9	NA	< 0.5	109%	70%	130%	100%	80%	120%	112%	70%	130%
Vanadium	9410805	9410805	22	23	4.4%	< 1	112%	70%	130%	110%	80%	120%	107%	70%	130%
Zinc	9410805	9410805	14	16	NA	< 5	102%	70%	130%	115%	80%	120%	120%	70%	130%
Chromium VI	9410840	9410840	< 0.2	<0.2	NA	< 0.2	73%	70%	130%	95%	80%	120%	100%	70%	130%
Cyanide	9410828	9410828	< 0.040	<0.040	NA	< 0.040	108%	70%	130%	103%	80%	120%	107%	70%	130%
Mercury	9410805	9410805	< 0.10	<0.10	NA	< 0.10	102%	70%	130%	94%	80%	120%	116%	70%	130%
Electrical Conductivity	9410805	9410805	0.042	0.037	12.7%	< 0.005	98%	90%	110%						
Sodium Adsorption Ratio	9410805	9410805	0.106	0.105	0.9%	NA									
pH, 2:1 CaCl2 Extraction	9413343		7.56	7.59	0.4%	NA	100%	80%	120%						
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	9410860	9410860	<0.8	<0.8	NA	< 0.8	117%	70%	130%	102%	80%	120%	95%	70%	130%
Arsenic	9410860	9410860	1	1	NA	< 1	109%	70%	130%	104%	80%	120%	103%	70%	130%
Barium	9410860	9410860	18	20	10.5%	< 2	104%	70%	130%	100%	80%	120%	95%	70%	130%
Beryllium	9410860	9410860	<0.5	<0.5	NA	< 0.5	105%	70%	130%	113%	80%	120%	112%	70%	130%
Boron	9410860	9410860	<5	<5	NA	< 5	74%	70%	130%	103%	80%	120%	104%	70%	130%
Boron (Hot Water Soluble)	9410860	9410860	<0.10	<0.10	NA	< 0.10	119%	60%	140%	101%	70%	130%	98%	60%	140%
Cadmium	9410860	9410860	<0.5	<0.5	NA	< 0.5	107%	70%	130%	100%	80%	120%	107%	70%	130%
Chromium	9410860	9410860	13	12	8.0%	< 2	83%	70%	130%	99%	80%	120%	94%	70%	130%
Cobalt	9410860	9410860	3.4	3.5	2.9%	< 0.5	87%	70%	130%	95%	80%	120%	94%	70%	130%
Copper	9410860	9410860	9	9	0.0%	< 1	90%	70%	130%	104%	80%	120%	101%	70%	130%
Lead	9410860	9410860	1	1	NA	< 1	103%	70%	130%	104%	80%	120%	102%	70%	130%
Molybdenum	9410860	9410860	<0.5	<0.5	NA	< 0.5	96%	70%	130%	105%	80%	120%	103%	70%	130%
Nickel	9410860	9410860	8	9	11.8%	< 1	97%	70%	130%	104%	80%	120%	98%	70%	130%

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

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Quality Assurance

CLIENT NAME: WSP Canada Inc.
AGAT WORK ORDER: 18Z363549
PROJECT: Fill Characterization 17M-01348-00
ATTENTION TO: Kathryn Maton
SAMPLING SITE:6211 Renaud, Ottawa, ON
SAMPLED BY:K. Maton

Soil Analysis (Continued)

RPT Date: Aug 03, 2018			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
Selenium	9410860	9410860	<0.4	<0.4	NA	< 0.4	123%	70%	130%	97%	80%	120%	99%	70%	130%
Silver	9410860	9410860	<0.2	<0.2	NA	< 0.2	104%	70%	130%	101%	80%	120%	101%	70%	130%
Thallium	9410860	9410860	<0.4	<0.4	NA	< 0.4	96%	70%	130%	102%	80%	120%	99%	70%	130%
Uranium	9410860	9410860	<0.5	<0.5	NA	< 0.5	96%	70%	130%	101%	80%	120%	100%	70%	130%
Vanadium	9410860	9410860	13	13	0.0%	< 1	86%	70%	130%	98%	80%	120%	97%	70%	130%
Zinc	9410860	9410860	16	16	NA	< 5	97%	70%	130%	106%	80%	120%	109%	70%	130%
Chromium VI	9410860	9410860	<0.2	<0.2	NA	< 0.2	73%	70%	130%	95%	80%	120%	100%	70%	130%
Cyanide	9410848	9410848	<0.040	<0.040	NA	< 0.040	108%	70%	130%	98%	80%	120%	115%	70%	130%
Mercury	9410860	9410860	<0.10	<0.10	NA	< 0.10	95%	70%	130%	95%	80%	120%	99%	70%	130%
Electrical Conductivity	9410840	9410840	0.022	0.022	NA	< 0.005	98%	90%	110%						
Sodium Adsorption Ratio	9410860	9410860	0.212	0.211	0.5%	NA									
pH, 2:1 CaCl2 Extraction	9410841	9410841	6.12	6.19	1.1%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

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

pH, 2:1 CaCl2 Extraction	9437679		7.76	7.74	0.3%	NA	99%	90%	110%	NA			NA		

Comments: NA signifies Not Applicable.

Certified By: Amanjot Bhela

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Quality Assurance

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 18Z363549

PROJECT: Fill Characterization 17M-01348-00

ATTENTION TO: Kathryn Maton

SAMPLING SITE:6211 Renaud, Ottawa, ON

SAMPLED BY:K. Maton

Trace Organics Analysis

RPT Date: Aug 03, 2018			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
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	9410845	9410845	< 0.02	< 0.02	NA	< 0.02	102%	60%	130%	102%	60%	130%	99%	60%	130%
Toluene	9410845	9410845	< 0.05	< 0.05	NA	< 0.05	103%	60%	130%	109%	60%	130%	105%	60%	130%
Ethylbenzene	9410845	9410845	< 0.05	< 0.05	NA	< 0.05	106%	60%	130%	106%	60%	130%	101%	60%	130%
Xylene Mixture	9410845	9410845	< 0.05	< 0.05	NA	< 0.05	104%	60%	130%	108%	60%	130%	103%	60%	130%
F1 (C6 to C10)	9410845	9410845	< 5	< 5	NA	< 5	96%	60%	130%	95%	85%	115%	86%	70%	130%
F2 (C10 to C16)	9410845	9410845	< 10	< 10	NA	< 10	99%	60%	130%	105%	80%	120%	80%	70%	130%
F3 (C16 to C34)	9410845	9410845	< 50	< 50	NA	< 50	102%	60%	130%	107%	80%	120%	90%	70%	130%
F4 (C34 to C50)	9410845	9410845	< 50	< 50	NA	< 50	90%	60%	130%	102%	80%	120%	91%	70%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP Canada Inc.

AGAT WORK ORDER: 18Z363549

PROJECT: Fill Characterization 17M-01348-00

ATTENTION TO: Kathryn Maton

SAMPLING SITE:6211 Renaud, Ottawa, ON

SAMPLED BY:K. Maton

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	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
pH, 2:1 CaCl2 Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER
pH, 2:1 CaCl2 Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	pH METER
Trace Organics Analysis			
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

Results relate only to the items tested and to all the items tested

AGAT Laboratories

2 large

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP Canada Group Ltd
Contact: Kathryn Maton
Address: 610 Chatwell Road, Suite 300
Oakville, Ontario L6J 4A5 - Canada
Phone: 613-617-9237 Fax:
Reports to be sent to:
1. Email: Kathryn.maton@wsp.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04 — Table 2 (Indicate One) — ☐ Ind/Com ☒ Res/Park ☐ Agriculture
Soil Texture (Check One) ☒ Coarse ☐ Fine

☐ Sewer Use — ☐ Sanitary ☐ Storm — Region (Indicate One) ☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other (Indicate One)

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Laboratory Use Only

Work Order #: 18Z363549

Cooler Quantity: 2 coolers-on ice
Arrival Temperatures: 10.0 | 9.8 | 9.6
LT: 9.1 9.2 9.3 9.4 9.2 9.1 — 8.9 | 9.5 | 9.1
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: ON ICE

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: Fill Characterization
Site Location: 6211 Renaud, Ottawa, ON
Sampled By: K. Maton
AGAT Quote #: PO: 174-01348-00.

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

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y/N	Field Filtered - Metals, Hg, CrVI	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (incl. Hydrides) — ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr* ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR)	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☒ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use
TP18-1 SA1	17/07/18	9am	4	Soil				X				X	X					
TP18-1 SA2			3															
TP18-2 SA1																		
TP18-2 SA2																		
TP18-3 SA1																		
TP18-3 SA2																		
TP18-4 SA1																		
TP18-4 SA2																		
TP18-5 SA1																		
TP18-5 SA2																		
TP18-5 SA101																		

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Kathryn Maton	17/07/18	8:43	(illegible)	18-07-18	8h30
Samples Relinquished By (Print Name and Sign): USPS to Fed Ex	18-07-18	16h00	Samples Received By (Print Name and Sign): Avneet Minhas AM	18-07-18	10:00
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

Page 1 of 4

N:

Document ID: DIV-78-2511.015

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

Date Issued: March 16, 2018

AGAT Laboratories

2 large

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 1823635409

Cooler Quantity:

Arrival Temperatures: T: 9.1 | 9.2 | 9.3
9.4 | 9.2 | 9.1

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes: ON ICE

Report Information:

Company: WSP Canada Group Ltd
Contact: Kathryn Maton
Address: 610 Chatwell Road, Suite 300
Oakville, Ontario L6J 4A5 - Canada
Phone: 613-617-9237 Fax:
Reports to be sent to:
1. Email: Kathryn.maton@wsp.com
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 2 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (Check One): ☒ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region: (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: Fill characterization
Site Location: 621 Renaud, Ottawa.
Sampled By: K. Maton
AGAT Quote #: PO: 17M-01348-00
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐TP ☐NH_4 ☐TKN ☐NO_3 ☐NO_2 ☐NO_2+NO_3	Volatiles: ☐VOC ☒BTEX ☐THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐Total ☐Aroclors	Organochlorine Pesticides	TCLP: ☐M&I ☐VOCs ☐ABNs ☐B(a)P ☐PCBs	Sewer Use
TP18-6 SA1	17/07/18	11 2M	3	Soil			X				X	X						
TP18-6 SA2			1															
TP18-7 SA1																		
TP18-7 SA2		↓																
TP18-8 SA1		1pm																
TP18-8 SA2																		
TP18-9 SA1																		
TP18-9 SA2																		
TP18-10 SA1																		
TP18-10 SA2																		
TP18-11 SA1	↓	3pm	↓	↓			↓				↓	↓						

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Kathryn Maton KMaton	17/07/18	8:43	Avneet Minhas AM	18/7/18	10:00
	18-7-18	16h00			
			Samples Received By (Print Name and Sign):		

Page 2 of 4

N°:

Document ID: DW-78-1811_015

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Date Issued: March 16, 2016

AGAT Laboratories

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5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 1823635549

Cooler Quantity:

Arrival Temperatures: ET 9.1 | 9.2 | 9.3
9.4 | 9.2 | 9.1

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: ON ICE

Report Information:

Company: WSP Canada Group Ltd.
Contact: Kathryn Maton
Address: 610 Chartwell Rd, suite 300.
Oakville ON L6J 4A5
Phone: 613-967-9237 Fax:
Reports to be sent to:
1. Email: Kathryn.maton@wsp.com
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☐ Regulation 153/04
Table (Indicate One) ☐ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (Check One) ☐ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary ☐ Storm
Region (Indicate One) ☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other (Indicate One)

Is this submission for a Record of Site Condition? ☐ Yes ☐ No

Report Guideline on Certificate of Analysis ☐ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Appiy):

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: Fill characterization
Site Location: 6211 Renaud, Ottawa
Sampled By: K. Maton
AGAT Quote #: PO: 17M-01348-00.
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	O. Reg 153: All Metals ☐ 153 Metals (excl. Hydrides)	O. Reg 153: Hydride Metals ☐ 153 Metals (incl. Hydrides)	O. Reg 153: ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	O. Reg 153: Full Metals Scan	O. Reg 153: Regulation/Custom Metals	O. Reg 153: Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	O. Reg 153: Volatiles: ☐ VOC ☐ BTEX ☐ THM	O. Reg 153: PHCs F1 - F4	O. Reg 153: ABNs	O. Reg 153: PAHs	O. Reg 153: PCBs: ☐ Total ☐ Aroclors	O. Reg 153: Organochlorine Pesticides	O. Reg 153: TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 153: Sewer Use
TP18-11 SA2	17/07/18	3pm	3	Soil			X							X	X						
TP18-12 SA1	"	"	"	"																	
TP18-12 SA101																					
TP18-12 SA2																					
TP18-13 SA1																					
TP18-13 SA2																					
TP18-14 SA1																					
TP18-14 SA101																					
TP18-14 SA2																					
TP18-15 SA1		4pm																			
TP18-15 SA2																					

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Kathryn Maton	17/07/18	8:43	Avneet Minhas AM	July 19/18	10:00
Samples Relinquished By (Print Name and Sign):	18-7-18	16h00	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

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N°: T 067307

Document ID: DW-18-1511-034

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New Revised Effective: Jan 22, 2017

AGAT Laboratories

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5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 1873635 49

Cooler Quantity:

Arrival Temperatures: 9.1 9.2 9.3
9.7 9.2 9.1

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: ON ICE

Report Information:

Company:
Contact:
Address:
Phone: Fax:
Reports to be sent to:
1. Email:
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☐ Regulation 153/04
Table (Indicate One) ☐ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (Check One) ☐ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary ☐ Storm
Region (Indicate One) ☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project:
Site Location:
Sampled By:
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI: Y / N	O. Reg 153: Metals and Inorganics	☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (incl. Hydrides)	ORPs: ☐ B-HWS ☐ Cl⁻ ☐ CN ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☐ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P	☐ PCBs	Sewer Use
TP18-1 SA10Z	17/07/18	9am	3	Soil			X						X	X						
TP18-2 SA10Z	↓	3pm	↓	↓			X						X	X						
TP18-11 SA10Z																				

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Kathryn Maton	17/07/18	8:43	Avneet Minhas AM	July 19/18	10:20
Samples Relinquished By (Print Name and Sign)	18-7-18	16h00	Samples Received By (Print Name and Sign):		
Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

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N°: T 067305

Document ID: DW-18-1511-014

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